

The Moderating Role of Perceived Social Support in the Relationship Between Prenatal Attachment and Fear of Childbirth

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Abstract

Objective

The aim of this study is to examine the relationship between prenatal attachment and fear of childbirth in pregnant women and to determine the moderating role of perceived social support in this relationship.

Method

This study is a correlational survey design based on the quantitative research method. The sample of the study consisted of 613 pregnant women who participated voluntarily and were reached through convenience sampling. Data were collected using a socio-demographic information form, the Prenatal Attachment Inventory, the Multidimensional Scale of Perceived Social Support, and the Fear of Childbirth Scale. IBM SPSS Statistics 26 and AMOS 23 software packages were used for data analysis. To examine the moderating relationship between the variables, moderation analysis was performed using Model 1 of the PROCESS Macro developed by Hayes (2018).

Findings:

According to the results of the analysis, it was determined that prenatal attachment has a significant negative effect on the fear of childbirth. Furthermore, perceived social support was found to have a significant negative effect on the fear of childbirth. The results of the moderation analysis showed that perceived social support significantly moderated the relationship between prenatal attachment and fear of childbirth. When conditional effects were examined, it was determined that the reducing effect of prenatal attachment on the fear of childbirth became more pronounced as the level of perceived social support increased.

Conclusion

The research findings indicate that prenatal attachment and perceived social support play a crucial role in reducing the fear of childbirth during pregnancy. In particular, the protective effect of prenatal attachment on the fear of childbirth is observed to be stronger in cases where social support is high. Therefore, strengthening the social support resources of expectant mothers during pregnancy and developing practices that support prenatal attachment may contribute to the reduction of fear of childbirth.

INTRODUCTION

Pregnancy is a transformative life experience characterized by the co-occurrence of physiological and psychosocial changes, marking a woman's transition into a new parental identity. Prenatal attachment,

defined as the cognitive and emotional bond between the mother and the fetus, lies at the heart of parent-infant harmony and maternal mental health during this critical transition (Atashi et al., 2018; Foley et al., 2021). However, this process does not always proceed smoothly; intense anxieties regarding childbirth and future uncertainties can complicate the pregnancy experience. Fear of childbirth, one of the primary psychological stressors encountered during pregnancy, is more than a transitory state of worry; it is a significant risk factor that adversely affects the gestational process, undermines psychological well-being, and jeopardizes the quality of the bond to be established with the infant (Reeves et al., 2024). Given the global escalation of perinatal mental health issues, ensuring the sustainability of the maternal-fetal bond and understanding the protective mechanisms that buffer the effects of fear of childbirth is of paramount importance for both maternal and infant health (Pasricha et al., 2021).

At this juncture, the interaction between an individual's internal emotional state and environmental dynamics comes into play. Perceived social support emerges as one of the most critical external protective mechanisms in coping with the fear of childbirth and strengthening the mother-infant bond (Han et al., 2022). Support received from a spouse, family, or immediate social circle during pregnancy enhances the expectant mother's coping capacity, shatters the perception of loneliness, and facilitates adaptation to pregnancy (Wu et al., 2024). Ecological systems approaches also contend that the support network encompassing the individual attenuates the negative impacts of prenatal risk factors and accelerates the adoption of a social identity as a mother (Cruwys et al., 2024). Consequently, when attempting to explain the fear of childbirth, it is essential to examine how prenatal attachment—the mother's internal bond with her infant—and the social support she receives from the external world work together through a mechanism-based perspective.

Examination of contemporary literature reveals a strong and negative relationship between fear of childbirth and prenatal attachment, highlighting that maternal psychological variables directly shape these processes (Camarneiro et al., 2024; Lima et al., 2024). A secure and healthy bond established by the mother with the fetus shifts the cognitive focus from the potential medical challenges of birth toward the motivation to reunite with the baby, thereby serving a fear-soothing function. In line with this theoretical framework, the study's first hypothesis, H1: There is a relationship between prenatal attachment and fear of childbirth, was proposed. On the other hand, during a period such as pregnancy that requires high levels of emotional validation and reassurance, the presence of external support is an element that directly alleviates fear. Research consistently demonstrates that social support not only buffers anxiety but also directly reduces the fear of childbirth in women (Ibrahim et al., 2023; Liu et al., 2023). Based on this strong predictive relationship, the hypothesis H2: Perceived social support significantly predicts the fear of childbirth was established.

Nevertheless, the nature of the relationship between prenatal attachment and fear of childbirth does not occur on a unidimensional and linear axis; the moderating role of the environmental context and social support mechanisms is decisive here. Although a mother's attachment to her baby has the potential to reduce fear, the clinical strength of this effect may be shaped by the quality of the expectant mother's

social network. The literature proves that social support is not merely a momentary comfort; it acts as a moderator that directs the relationships between anxiety, depression, and fear, attenuating risks and mobilizing coping mechanisms (Nowicki, 2025; Su & Wang, n.d.). In mothers with a strong social support network, the psychological protection offered by prenatal attachment is expected to become much more functional by creating a synergistic effect. In other words, how an individual's internal resources interact with environmental mechanisms is a critical key to explaining the variance in obstetric and psychosocial outcomes. The primary focus of this research, designed to fill this mechanism-based gap in the literature, is the hypothesis H3: Perceived social support moderates the relationship between prenatal attachment and fear of childbirth.

METHOD

Aim

The aim of this study is to examine the relationship between prenatal attachment and fear of childbirth among pregnant women and to determine the moderating role of perceived social support in this relationship. In this context, the effect of prenatal attachment on levels of fear of childbirth was investigated, and whether this effect differs according to the level of perceived social support was tested within the scope of PROCESS Model 1.

The theoretical and statistical representation of the model is presented in Fig. 1.

Hypotheses

The hypotheses developed in line with the proposed model are presented below:

H1

There is a relationship between prenatal attachment and fear of childbirth.

H2

Perceived social support significantly predicts fear of childbirth.

H3

Perceived social support moderates the relationship between prenatal attachment and fear of childbirth.

Type of Study

This research is a study conducted using a quantitative research method within the framework of a correlational research design. The study examined the moderating role of perceived social support in the relationship between prenatal attachment and fear of childbirth among pregnant women. Therefore, the

study has a correlational nature, and the relationships between variables were addressed within a predictive framework. The effect of prenatal attachment on fear of childbirth and whether this relationship differs according to the level of perceived social support were evaluated through statistical analyses.

Participants

The population of this study consists of women in the pregnancy period. The sample of the study comprised a total of 613 pregnant women who were reached through a convenience sampling method and voluntarily agreed to participate in the research. The inclusion criteria for the study were determined as follows: (i) being 18 years of age or older, (ii) being pregnant, (iii) volunteering to participate in the study, and (iv) completing the data collection instruments fully.

Sample Characteristics

A total of 613 pregnant women participated in the study. When the age distribution of the participants was examined, the largest group was between the ages of 25–29 (30.3%). This was followed by the age groups of 30–34 (21.2%), 35–39 (19.9%), and 18–24 (19.1%). Additionally, 9.5% of the participants were aged 40 years or older.

In terms of educational level, more than half of the participants were graduates of associate or bachelor's degree programs (52.2%). Furthermore, 27.2% had completed high school, 10.0% middle school, and 4.9% primary school, while 5.7% had postgraduate education.

When the employment status of the participants was examined, 39.0% were employed and 61.0% were not employed. Regarding the number of pregnancies, 35.7% of the participants were experiencing their first pregnancy, 21.5% their second pregnancy, 31.0% their third pregnancy, and 11.7% had experienced four or more pregnancies.

When the planned status of pregnancy was examined, the majority of participants reported having a planned pregnancy (72.8%), whereas 27.2% stated that their pregnancy was unplanned. Regarding delivery preference, 40.9% of the participants preferred vaginal birth, 33.3% preferred cesarean delivery, and 25.8% reported being undecided about the mode of delivery.

Data Collection Process

The data of the study were collected between November 2025 and March 2026 from women who applied to healthcare institutions for pregnancy follow-up. During the data collection process, the questionnaire form prepared by the researchers was administered face-to-face, and participants were informed about the purpose of the study. Participation in the study was voluntary, and informed consent

was obtained from participants prior to the data collection process. Completing the questionnaire took approximately 10–12 minutes.

At the end of the data collection process, data were obtained from a total of 630 pregnant women, and the data of participants who completed the measurement instruments fully ($n = 613$) were included in the analysis. Throughout the research process, participants' identity information was not collected, and all data were evaluated in accordance with the principle of confidentiality.

Data Collection Instruments

In the collection of research data, the “Personal Information Form” prepared by the researchers, the Prenatal Attachment Inventory, the Multidimensional Scale of Perceived Social Support, and the Fear of Childbirth Scale were used.

Personal Information Form

The personal information form created by the researchers includes questions related to the demographic and obstetric characteristics of the participants.

Prenatal Attachment Inventory

The Prenatal Attachment Inventory was developed by Muller (1993) to explain the emotional states experienced by pregnant women and to determine their level of prenatal attachment to the fetus. In the original study conducted by Muller, the Cronbach's alpha value was reported as 0.86. The Turkish validity and reliability study was conducted by Yilmaz and Beji (2013), and the Cronbach's alpha value was reported as 0.84.

The inventory consists of 21 items. Each item is scored on a 4-point Likert scale (1: Never, 2: Sometimes, 3: Often, 4: Always). The minimum score that can be obtained from the inventory is 21, and the maximum score is 84. An increase in the score obtained from the inventory indicates a higher level of maternal attachment to the baby.

Multidimensional Scale of Perceived Social Support

The scale was developed by Zimet et al. (1988), and its Turkish validity and reliability were first conducted by Eker and Arkar (1995). The validity and reliability study of the revised form of the scale was conducted again by Eker, Arkar, and Yaldiz (2001).

The scale consists of 12 items and three sub-dimensions. The reliability coefficients of the scale and its sub-dimensions were reported as follows: total = 0.89, family = 0.85, friends = 0.88, and significant other = 0.92. It is a seven-point Likert-type scale in which respondents can give a minimum of 1 point to

statements they strongly disagree with and a maximum of 7 points to statements they strongly agree with.

As the score given to each item increases, the level of perceived social support also increases. The scores of four items in each sub-dimension are summed to obtain the subscale score, and the total score of the scale is obtained by summing the scores of all sub-dimensions. The minimum score that can be obtained from each subscale is 4 and the maximum is 28. The minimum total score that can be obtained from the scale is 12 and the maximum is 84. A higher score indicates a higher level of perceived social support (Eker, Arkar, & Yaldiz, 2001).

Fear of Childbirth Scale

The Fear of Childbirth Scale was developed to measure the fear of childbirth among women of reproductive age. The scale can be applied to all women aged between 18 and 49 who are in the reproductive period, including those experiencing early or late postpartum periods, pregnant or non-pregnant (primiparous or multiparous), with or without children, and married or single (Nuraliyeva & Kaya, 2022).

Items 1, 2, 3, 5, 6, 8, 10, 12, 14, 15, 17, and 20 in the scale are reverse scored. The total score that can be obtained from the scale ranges between 20 and 100. In the original study of the scale, a decrease in the score indicates an increase in fear of childbirth (Nuraliyeva & Kaya, 2022). However, in the present study, in order to facilitate the interpretation of the mediation role, the Likert scoring of the scale was reversed so that higher scores represent higher levels of fear of childbirth.

Data Analysis

IBM SPSS Statistics 26 and AMOS 23 software packages were used in the analysis of the research data. Before proceeding to the analysis stage, the dataset was examined in detail in terms of missing data, outliers, and normality assumptions. As a result of the examinations, it was determined that there were no missing data or extreme values in the dataset that could significantly affect the analysis results.

The normality assumption was evaluated by considering skewness and kurtosis coefficients, and these values were found to be within the range of ± 1.5 . Therefore, the dataset was considered suitable for parametric analyses.

Construct Validity

Confirmatory Factor Analysis (CFA) was conducted to verify the factor structures of the measurement instruments used in the study. CFA is an analysis method based on structural equation modeling that allows testing the extent to which factor structures previously determined based on theoretical and empirical studies fit the obtained data (Kline, 2016).

The factor structures of the scales used in this research were tested in line with theoretical models suggested in the literature. Multiple fit indices were considered together to evaluate model fit. The ratio

of chi-square to degrees of freedom (χ^2/df) is one of the main indicators of overall model fit, and values below 5 indicate acceptable fit (Kline, 2016).

The Root Mean Square Error of Approximation (RMSEA) is an important index indicating the level of model fit to the population, where values of 0.08 or below indicate acceptable fit and values of 0.05 or below indicate good fit (Hair et al., 2019). The Comparative Fit Index (CFI), Goodness-of-Fit Index (GFI), and Incremental Fit Index (IFI) indicate how much better the model fits compared to the independent model, and values of 0.90 or above indicate acceptable fit. The Standardized Root Mean Square Residual (SRMR) indicates the difference between observed and predicted covariances, and values below 0.08 indicate adequate model fit (Hair et al., 2019; Kline, 2016).

Composite Reliability and Convergent Validity

In addition to CFA results, Composite Reliability (CR) and Average Variance Extracted (AVE) values were calculated to evaluate the reliability and convergent validity of the measurement models. A CR value above 0.70 indicates adequate internal consistency of the related construct. An AVE value of 0.50 or above indicates that the items in the scale sufficiently represent the relevant latent variable (Fornell & Larcker, 1981; Hair et al., 2019).

When the obtained CR and AVE values were examined, it was observed that the measurement models were at acceptable levels in terms of both reliability and validity.

Common Method Bias

Since the data in the study were collected through self-report scales, the possibility of common method bias was evaluated. For this purpose, Harman's single-factor test was first conducted, and the analysis revealed that a single factor explained 30.1% of the total variance. The fact that a single factor did not explain the majority of the variance indicates that common method bias did not seriously affect the research findings (Podsakoff et al., 2003).

In addition, to evaluate common method bias more comprehensively, the full collinearity test proposed by Kock (2015) was applied. The analysis showed that the VIF values of the variables ranged between 1.014 and 1.546, and the highest VIF value was well below the recommended threshold of 3.3. These findings indicate that common method bias in the study was at a low level and that the risk of significantly distorting model estimates was limited.

Moderation Model

To examine the moderating relationship between variables, the PROCESS Macro developed by Hayes (2018) was used, and moderation analysis was conducted within the scope of Model 1. In this model, prenatal attachment was considered the independent variable, fear of childbirth the dependent variable, and perceived social support the moderator variable.

In the analyses, variables were mean-centered, and the interaction term (prenatal attachment × perceived social support) was included in the model. The significance of the moderation effect was evaluated based on regression coefficients and the interaction term. In addition, conditional effects were analyzed to examine the effect of the moderator at different levels. In all analyses, the statistical significance level was accepted as $p < .05$.

Ethical Considerations

This study was conducted after obtaining the necessary ethical approval from the Social and Human Sciences Ethics Committee of a state university (25/11/2025 – Decision No: 244). Participants were informed about the purpose, scope, and confidentiality principles of the research, and they were included in the data collection process after providing informed consent.

All stages of the research process were conducted in accordance with the ethical standards specified in the Declaration of Helsinki (World Medical Association, 2013). Participants' identity information was strictly not requested, and the collected data were protected in accordance with confidentiality principles and used solely for scientific purposes. Participants were granted the right to withdraw from the study at any time without providing any justification.

In this study, generative artificial intelligence was used solely for writing support and language editing (ChatGPT). The scientific content, analyses, and reporting of the study were conducted by the researchers, and all academic responsibility for the study belongs to the authors. Generative artificial intelligence tools were not listed as authors or contributors.

RESULTS

In this section, the results of the analyses obtained within the scope of the research are presented. First, descriptive statistics related to the variables included in the study were examined, and the relationships among the variables were evaluated. At this stage, the mean and standard deviation values of the variables prenatal attachment, fear of childbirth, and perceived social support were calculated, and correlation analyses were conducted to determine the relationships among these variables.

In order to test the main hypotheses of the study, Model 1 of the PROCESS Macro developed by Hayes (2018) was applied to examine the moderating relationship between the variables. Within the scope of this analysis, the effect of prenatal attachment on fear of childbirth was evaluated, and the moderating role of perceived social support in this relationship was examined. In the moderation analysis, the interaction term between prenatal attachment and perceived social support was also included in the model, and the effect of this interaction on fear of childbirth was tested. Based on the obtained results, it was examined in detail whether the relationship between prenatal attachment and fear of childbirth differed according to the level of perceived social support.

Table 1
Confirmatory Factor Analysis Results of the Measurement Instruments

Measurement Instruments	χ^2/df	CFI	GFI	IFI	RMSEA	SRMR	AVE	CR
Prenatal Attachment	3.28	0,94	0,92	0,94	0,075 [.066/.087]	0,049	0,59	0,75
Perceived Social Support	2.33	.95	.96	.95	0,073 [.056/.089]	0,042	0,64	0,78
Fear of Childbirth	3.68	0,94	0,93	0,94	0,081 [.069/.095]	0,048	0,54	0,74
Note: CFA = Confirmatory Factor Analysis; χ^2/df = chi-square/degrees of freedom; CFI = Comparative Fit Index; GFI = Goodness-of-Fit Index; IFI = Incremental Fit Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Square Residual; AVE = Average Variance Extracted; CR = Composite Reliability.								

The results of the Confirmatory Factor Analysis (CFA) for the measurement instruments are presented in Table 1. When the fit indices obtained are examined, it is seen that the measurement models of all scales demonstrate acceptable levels of fit. For the Prenatal Attachment Scale, the χ^2/df value was found to be 3.28, and the CFI (.94), GFI (.92), and IFI (.94) values were within acceptable limits. In addition, the RMSEA (.075) and SRMR (.049) values indicate that the model fit is adequate. The fit indices obtained for the Multidimensional Scale of Perceived Social Support (χ^2/df = 2.33; CFI = .95; GFI = .96; IFI = .95; RMSEA = .073; SRMR = .042) reveal that the model demonstrates a good level of fit. For the Fear of Childbirth Scale, the χ^2/df value was 3.68, and the CFI (.94), GFI (.93), and IFI (.94) values were found to be within acceptable ranges. The RMSEA (.081) and SRMR (.048) values also indicate that the model fit is acceptable.

Furthermore, the Average Variance Extracted (AVE) and Composite Reliability (CR) values calculated to evaluate the reliability and convergent validity levels of the measurement models were found to meet the recommended threshold values for all scales. The AVE values ranged between .54 and .64, while the CR values ranged between .74 and .78. These findings indicate that the measurement instruments used in the study provide valid and reliable measurements.

Table 2
Assumption Tests Related to the Research Variables

Measurement Instruments	$\bar{X}$	SD	SK	KU	1	2	α	VIF	T	DW
1. Prenatal Attachment	64.1	12.5	– .27	– .41	1		.93	1.003	.997	1.572
2. Perceived Social Support	59.6	22.1	– .56	– .95	.054	1	.96			
3. Fear of Childbirth	52.8	10.9	– .34	– .46	– .096*	– .269**	.79			
Note: $\bar{X}$ = mean; SD = standard deviation; SK = skewness; KU = kurtosis; α = Cronbach's alpha; VIF = variance inflation factor; T = tolerance; DW = Durbin–Watson coefficient. Correlation coefficients were calculated using the Pearson method. ** $p < 0.01$.										

Descriptive statistics and assumption tests related to the research variables are presented in Table 2. Accordingly, the mean and standard deviation of the prenatal attachment variable were calculated as 64.1 ± 12.5 , the perceived social support variable as 59.6 ± 22.1 , and the fear of childbirth variable as 52.8 ± 10.9 . The skewness and kurtosis values of the variables falling within the ± 1.5 range (prenatal attachment: SK = – .27, KU = – .41; perceived social support: SK = – .56, KU = – .95; fear of childbirth: SK = – .34, KU = – .46) indicate that the data meet the assumption of normal distribution (Kline, 2016; Hair et al., 2019).

The relationships between variables were examined using the Pearson correlation coefficient. According to the analysis results, a low-level negative and significant relationship was found between prenatal attachment and fear of childbirth ($r = - .096$, $p < .01$). Additionally, a moderate negative and significant relationship was observed between perceived social support and fear of childbirth ($r = - .269$, $p < .01$). In contrast, no significant relationship was found between prenatal attachment and perceived social support ($r = .054$, $p > .05$). These findings indicate that as perceived social support increases, fear of childbirth tends to decrease (Baron & Kenny, 1986; Hayes, 2018).

Within the scope of regression assumptions, multicollinearity was also evaluated. The internal consistency coefficients of the scales were found to be high, with Cronbach's alpha values calculated as .93 for prenatal attachment, .96 for perceived social support, and .79 for fear of childbirth (Nunnally & Bernstein, 1994). Furthermore, the VIF (1.003) and tolerance (.997) values examined to assess multicollinearity were below the recommended threshold values, indicating that there is no multicollinearity problem in the model (Hair et al., 2019). The autocorrelation assumption was evaluated using the Durbin–Watson coefficient, and the value of DW = 1.572 indicated that there was no autocorrelation problem in the model (Field, 2018). Based on these findings, the dataset was considered suitable for regression and moderation analyses.

Testing the Research Model and Hypotheses

The hypotheses developed in this study were tested within the framework of a moderation model. Moderation analysis is an important statistical approach that allows examining whether the relationship between an independent variable and a dependent variable changes at different levels of a third variable (Baron & Kenny, 1986; Hayes, 2018). In this context, the study evaluated whether perceived social support plays a moderating role in the relationship between prenatal attachment and fear of childbirth.

In testing the hypotheses, Model 1 of the PROCESS Macro developed by Hayes (2018) was used. This analytical approach allows the interaction term between the independent variable and the moderator variable to be included in the model and enables the examination of how the effect of the independent variable on the dependent variable changes across different levels of the moderator variable. Moreover, the PROCESS approach provides a more comprehensive evaluation compared to traditional regression analyses, as it allows the calculation of conditional effects (Preacher & Hayes, 2008).

In the analyses, prenatal attachment was included in the model as the independent variable, fear of childbirth as the dependent variable, and perceived social support as the moderator variable. The existence of the moderating effect was evaluated by examining the significance of the interaction term, and how the effect of the independent variable on the dependent variable changes at different levels of the moderator variable was interpreted through conditional effects. In all analyses, a 95% confidence interval was used as the basis, and the results were evaluated accordingly.

Table 3
Model Summary

Model	R²	ΔR²	F (DF1,DF2)	p
Model 2	.087	.008	19.43 (3, 608)	< .001

The ΔR^2 value indicates the increase in explained variance with the inclusion of the prenatal attachment × perceived social support interaction term in the model.

According to the analysis results, the proposed model was found to be statistically significant ($F(3, 608) = 19.43, p < .001$). When the explanatory power of the model was examined, it was determined that prenatal attachment, perceived social support, and the interaction term of these two variables together explained approximately 8.7% of the variance in fear of childbirth ($R^2 = .087$). In addition, it was observed that the interaction term included in the model contributed an additional 0.8% increase in the explained variance ($\Delta R^2 = .008$). These findings indicate that perceived social support has a significant moderating role in the relationship between prenatal attachment and fear of childbirth (Table 3).

Table 4

The Moderating Role of Perceived Social Support in the Relationship Between Prenatal Attachment and Fear of Childbirth

Effect	b	SE	t	p	LLCI	ULC
X → Y (Prenatal Attachment → Fear of Childbirth)	-.074	.034	-2.179	.030	-.141	-.007
W → Y (Perceived Social Support → Fear of Childbirth)	-.117	.020	-5.807	.000	-.157	-.077
(X * W) → Y (Prenatal Attachment * Perceived Social Support → Fear of Childbirth)	-.004	.002	-2.345	.019	-.006	-.001
Note: X = Prenatal Attachment; W = Perceived Social Support; Y = Fear of Childbirth; b = unstandardized regression coefficient; SE = standard error; t = t statistic; p = significance level; LLCI = lower limit confidence interval; ULCI = upper limit confidence interval.						

When the results of the regression analysis examining the moderating role of perceived social support in the relationship between prenatal attachment and fear of childbirth are evaluated (Table 4, Fig. 2), it is observed that prenatal attachment has a negative and significant effect on fear of childbirth ($b = -0.074$, $SE = 0.034$, $t = -2.179$, $p = .030$, $LLCI = -0.141$, $ULCI = -0.007$). This finding indicates that as the level of prenatal attachment increases, the level of fear of childbirth among pregnant women decreases.

When the direct effect of perceived social support is examined, it is determined that this variable also has a negative and significant effect on fear of childbirth ($b = -0.117$, $SE = 0.020$, $t = -5.807$, $p < .001$, $LLCI = -0.157$, $ULCI = -0.077$). Accordingly, as the level of perceived social support increases, the level of fear of childbirth decreases. This result indicates that social support is an important psychosocial resource that reduces anxiety and fear related to childbirth during pregnancy (Table 4, Fig. 2).

The interaction term included in the model (Prenatal Attachment $\times$ Perceived Social Support) was found to be significant ($b = -0.0035$, $SE = 0.0015$, $t = -2.345$, $p = .019$, $LLCI = -0.0064$, $ULCI = -0.0006$). This result reveals that perceived social support moderates the relationship between prenatal attachment and fear of childbirth (Hayes, 2018; Field, 2018). The negative interaction coefficient indicates that the reducing effect of prenatal attachment on fear of childbirth becomes stronger as the level of perceived social support increases. In other words, the effect of prenatal attachment in reducing fear of childbirth becomes more pronounced among pregnant women with higher levels of social support. When these findings are considered together, it can be stated that perceived social support plays an important moderating role in the relationship between prenatal attachment and fear of childbirth, and the moderation hypothesis of the study is supported (Table 4, Fig. 2).

Table 5
Conditional Effect of Perceived Social Support in the Relationship Between Prenatal Attachment and Fear of Childbirth

Effect	b	SE	t	p	LLCI	ULCI
Low Level Social Support	.036	.057	.636	.525	– .076	.149
Moderate Level Social Support	– .086	.035	-2.485	.013	– .153	– .018
High Level Social Support	– .159	.050	-3.154	.002	– .258	– .060
Note: b = unstandardized regression coefficient; SE = standard error; t = t statistic; p = significance level; LLCI = lower limit confidence interval; ULCI = upper limit confidence interval. Social support levels were calculated according to the 16th, 50th, and 84th percentile values provided in the PROCESS output.						

The effect of prenatal attachment on fear of childbirth was examined separately according to the levels of perceived social support (Table 5, Fig. 3). According to the analysis findings, when the level of perceived social support was low, the effect of prenatal attachment on fear of childbirth was not found to be significant ($b = 0.036$, $SE = 0.057$, $t = 0.636$, $p = .525$, $LLCI = -0.076$, $ULCI = 0.149$). This result indicates that there is no significant relationship between prenatal attachment and fear of childbirth among pregnant women with low levels of social support.

When perceived social support was at a moderate level, prenatal attachment was found to have a negative and significant effect on fear of childbirth ($b = -0.086$, $SE = 0.035$, $t = -2.485$, $p = .013$, $LLCI = -0.153$, $ULCI = -0.018$). This finding indicates that as the level of prenatal attachment increases, the level of fear of childbirth significantly decreases among pregnant women who perceive a moderate level of social support.

When perceived social support was high, the effect of prenatal attachment on fear of childbirth was found to be stronger ($b = -0.159$, $SE = 0.050$, $t = -3.154$, $p = .002$, $LLCI = -0.258$, $ULCI = -0.060$). Accordingly, among pregnant women with high levels of social support, an increase in prenatal attachment is associated with a more pronounced decrease in fear of childbirth.

When these findings are evaluated together, it is seen that the relationship between prenatal attachment and fear of childbirth varies depending on the level of perceived social support. In other words, the reducing effect of prenatal attachment on fear of childbirth becomes stronger as the level of social support increases. These results indicate that perceived social support plays a moderating role in the relationship between prenatal attachment and fear of childbirth and that the moderation hypothesis is also supported at the level of conditional effects.

DISCUSSION

This study was conducted to elaborate the relationship between prenatal attachment and fear of childbirth among pregnant women and to reveal the moderating role of perceived social support within

this dynamic relationship. The analysis results demonstrated that prenatal attachment and perceived social support independently have negative effects on fear of childbirth; more importantly, perceived social support plays a statistically significant moderating role in this relationship. These findings suggest that fear of childbirth cannot be explained solely by the internal emotional experiences of the expectant mother; rather, it should be considered within a multidimensional context in which environmental mechanisms and support systems operate simultaneously.

One of the important findings of the study is that as prenatal attachment increases, fear of childbirth decreases at a low but statistically significant level among pregnant women. This result indicates that the emotional bond established by the mother with her unborn baby functions as a protective psychological buffer against the uncertainty and anxiety associated with childbirth. This finding is consistent with studies in the literature reporting that maternal–fetal attachment significantly reduces psychological distress and anxiety (Bay et al., 2022; Camarneiro et al., 2024). An expectant mother who develops a secure attachment shifts her cognitive processes away from the anticipation of uncontrollable pain and focuses instead on completing pregnancy adaptation through adaptive coping strategies (Wu et al., 2024). Therefore, feelings of love and belonging appear to be important determinants of psychosocial resilience during the perinatal period (Cruwys et al., 2024).

Another predictive finding obtained in the study is that as the level of perceived social support increases, fear of childbirth decreases in a linear and substantial manner. Social support, which is one of the most natural defense mechanisms against stressful life experiences, holds a critical place during pregnancy, a period characterized by high levels of uncertainty and vulnerability. Support received from a spouse, family, or close social environment helps alleviate challenging cognitions in the expectant mother's mind and enables her to feel safe (Ibrahim et al., 2023). This result is strongly consistent with recent findings showing that spousal support and appropriate coping styles significantly reduce fear of childbirth among pregnant women, even during periods of heightened uncertainty such as the COVID-19 pandemic (Han et al., 2022). Studies indicating that women who lack basic support systems, who are refugees, or who experience unintended pregnancies have significantly higher levels of anxiety and dramatically lower levels of attachment also support the powerful influence of environmental security on maternal mental health (Maghalian et al., 2024; Tahmasebi et al., 2025).

Another finding of the study is the moderating role assumed by perceived social support in the relationship between prenatal attachment and fear of childbirth. Conditional effect analyses reveal a striking interaction: when social support is low, prenatal attachment has no statistically significant protective effect on fear of childbirth; however, as the level of support increases to moderate and high levels, the fear-reducing effect of attachment becomes substantially stronger. This result indicates that the internal love and attachment that a mother feels toward her baby are not absolute protective factors capable of reducing high levels of childbirth anxiety on their own. No matter how strongly an expectant mother is emotionally attached to her baby, if she does not receive sufficient emotional or practical support from her environment, feelings of isolation may prevent her from overcoming the fear associated with childbirth. Conversely, when strong internal attachment combines with a secure external

environment (high social support), a synergistic effect emerges, and this psychosocial integration significantly reduces fear. These findings suggest that social support is not merely a linear protective factor; rather, it acts as a catalyst that enables internal resources to reach their true potential and buffers maladaptive schemas, aligning with contemporary theoretical perspectives (Nowicki, 2025).

The findings also suggest the need for a more comprehensive approach in pregnancy follow-up and clinical policies. Health professionals should move beyond focusing solely on routine obstetric parameters and should also evaluate pregnant women's psychosocial networks and their attachment patterns with their unborn babies. It is considered a clinical necessity to integrate psychological counseling or structured interventions aimed at reducing fear of childbirth into standard care (Burgio et al., 2024; Hajure et al., 2025). However, an important finding of our moderation model indicates that such interventions should not target only the expectant mother; training programs should also incorporate components aimed at strengthening social support by involving spouses, partners, and extended family members. On the other hand, due to the cross-sectional design of the study, causal inferences between variables cannot be established, and the use of self-reported data constitutes another limitation inherent in the nature of this research. Furthermore, the relatively limited variance explained by the moderation model suggests that fear of childbirth may also be influenced by factors such as childhood trauma, sociocultural structures, or biological markers (Kaneasu et al., 2024; Topal et al., 2024). Future longitudinal studies (Liu et al., 2023; Seefeld et al., 2022) that track these complex intersections from early pregnancy through the postpartum period may provide a richer framework for understanding the multifaceted nature of this process.

CONCLUSIONS

In this study, the relationship between prenatal attachment and fear of childbirth among pregnant women was examined, and the moderating role of perceived social support in this relationship was evaluated. The findings of the study indicate that as the level of prenatal attachment increases, fear of childbirth decreases. This result suggests that strengthening the emotional bond between the mother and her unborn baby may function as a protective psychosocial factor that reduces anxiety and fear related to the childbirth process.

The study also found that perceived social support has a direct and significant effect on fear of childbirth. As the level of perceived social support increases, the level of fear of childbirth among pregnant women decreases. This finding indicates that support received from family, spouses, and the social environment during pregnancy represents an important resource that enhances the psychological well-being of expectant mothers.

One of the key findings of the study is that perceived social support plays a moderating role in the relationship between prenatal attachment and fear of childbirth. The results of the moderation analysis revealed that the fear-reducing effect of prenatal attachment varies depending on the level of perceived social support. In particular, prenatal attachment significantly reduces fear of childbirth when perceived

social support is at moderate or high levels, whereas this relationship is not significant when the level of social support is low. This result indicates that social support is an important contextual factor that strengthens the protective effect of prenatal attachment on fear of childbirth.

Overall, the findings demonstrate that reducing fear of childbirth during pregnancy depends not only on individual psychological processes but also on the level of support perceived from the social environment. Therefore, in addition to interventions aimed at strengthening prenatal attachment, healthcare services for pregnant women may benefit from incorporating strategies designed to enhance social support mechanisms. Such an approach may help women achieve better psychological adaptation during pregnancy and childbirth, thereby contributing to a more positive birth experience.

Recommendations

Based on the findings of the study, several recommendations can be proposed. First, educational and counseling programs aimed at strengthening prenatal attachment during pregnancy could be expanded within healthcare institutions. In addition, family- and partner-inclusive support programs designed to increase perceived social support—an important factor in reducing fear of childbirth—are recommended.

It is also important for healthcare professionals to assess not only the physical health indicators of pregnant women during prenatal follow-ups but also their psychosocial needs and levels of social support. Future research should examine the relationships among prenatal attachment, social support, and fear of childbirth more comprehensively by using different sample groups and longitudinal research designs.

Limitations

The findings of this study should be interpreted within the framework of several methodological and statistical limitations. First, since the study was based on a cross-sectional design, the relationships between variables cannot be interpreted in a causal framework. Although the findings reveal associations among prenatal attachment, perceived social support, and fear of childbirth, they do not allow definitive conclusions regarding causal directions among these variables.

Another limitation of the study relates to the sampling method. The study was conducted with 613 pregnant women reached through convenience sampling. Therefore, the generalizability of the findings to the entire population of pregnant women may be limited. Studies conducted with pregnant women from different socio-demographic backgrounds and geographical regions may improve the generalizability of the results.

Another limitation concerns the use of self-report scales in data collection. Measurements based on participants' self-evaluations may be influenced by factors such as social desirability tendencies or response biases. This may cause the relationships between variables to appear different from their actual nature.

From a statistical perspective, the relatively limited amount of explained variance obtained in the moderation model ($R^2 \approx 8.7\%$) suggests that fear of childbirth cannot be explained solely by prenatal attachment and perceived social support. Psychological, sociocultural, and obstetric factors may also influence this process. Future research incorporating additional variables—such as anxiety levels, previous birth experiences, pregnancy risks, or partner support—may provide more comprehensive results.

Finally, the measurement of variables at a single time point in the moderation analysis does not allow examination of changes that may occur over time during pregnancy. Future studies employing repeated-measurement designs and examining mediation, moderation, and situational processes may provide a more detailed understanding of how the relationships among prenatal attachment, social support, and fear of childbirth evolve throughout the pregnancy period.

Declarations

Ethics approval and consent to participate

Ethical approval for this study was obtained from the Social and Human Sciences Ethics Committee of a state university (Approval Date: 25 November 2025; Decision No: 244). All procedures performed in this study were conducted in accordance with the ethical standards of the institutional research committee and the principles of the Declaration of Helsinki (World Medical Association, 2013). Prior to participation, all participants were informed about the purpose and scope of the study, and written informed consent was obtained.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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Author Contribution

All authors reviewed the manuscript.

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Data Availability

All data generated or analysed during this study are included in this published article [and its supplementary information files].

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Figures

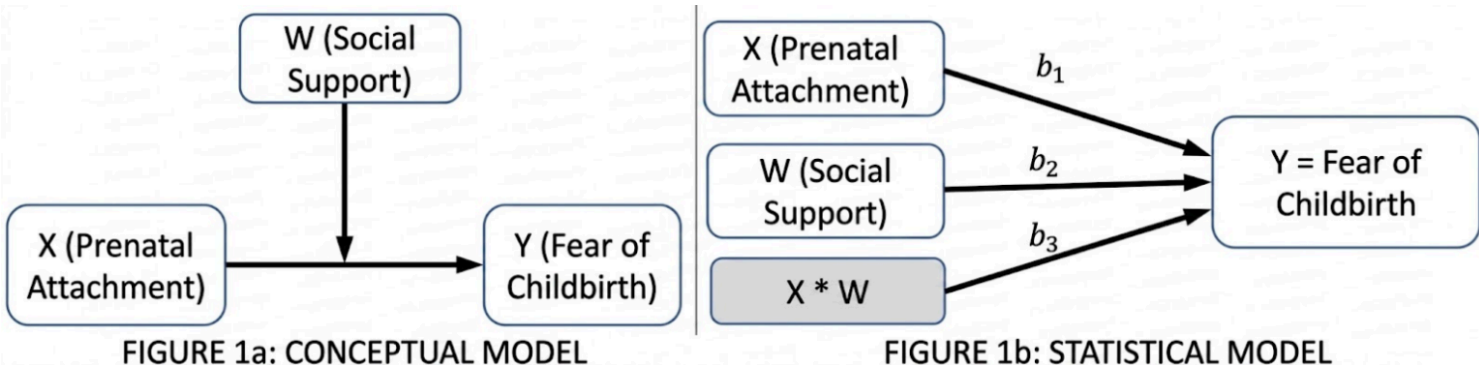


Figure 1

Conceptual and Statistical Diagram of the Model

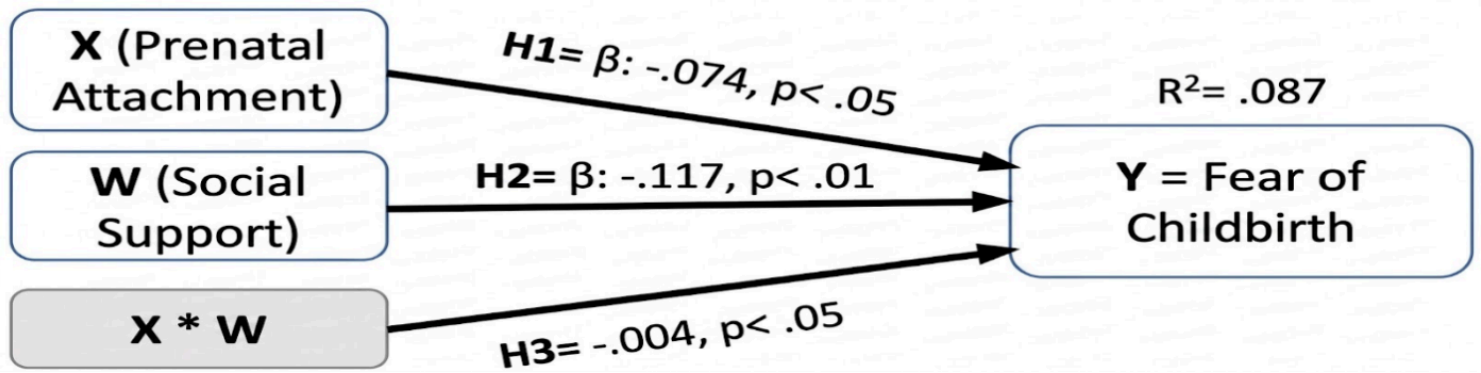


Figure 2

Summary Findings Regarding the Moderating Role of Social Support [Hayes, Model 1]

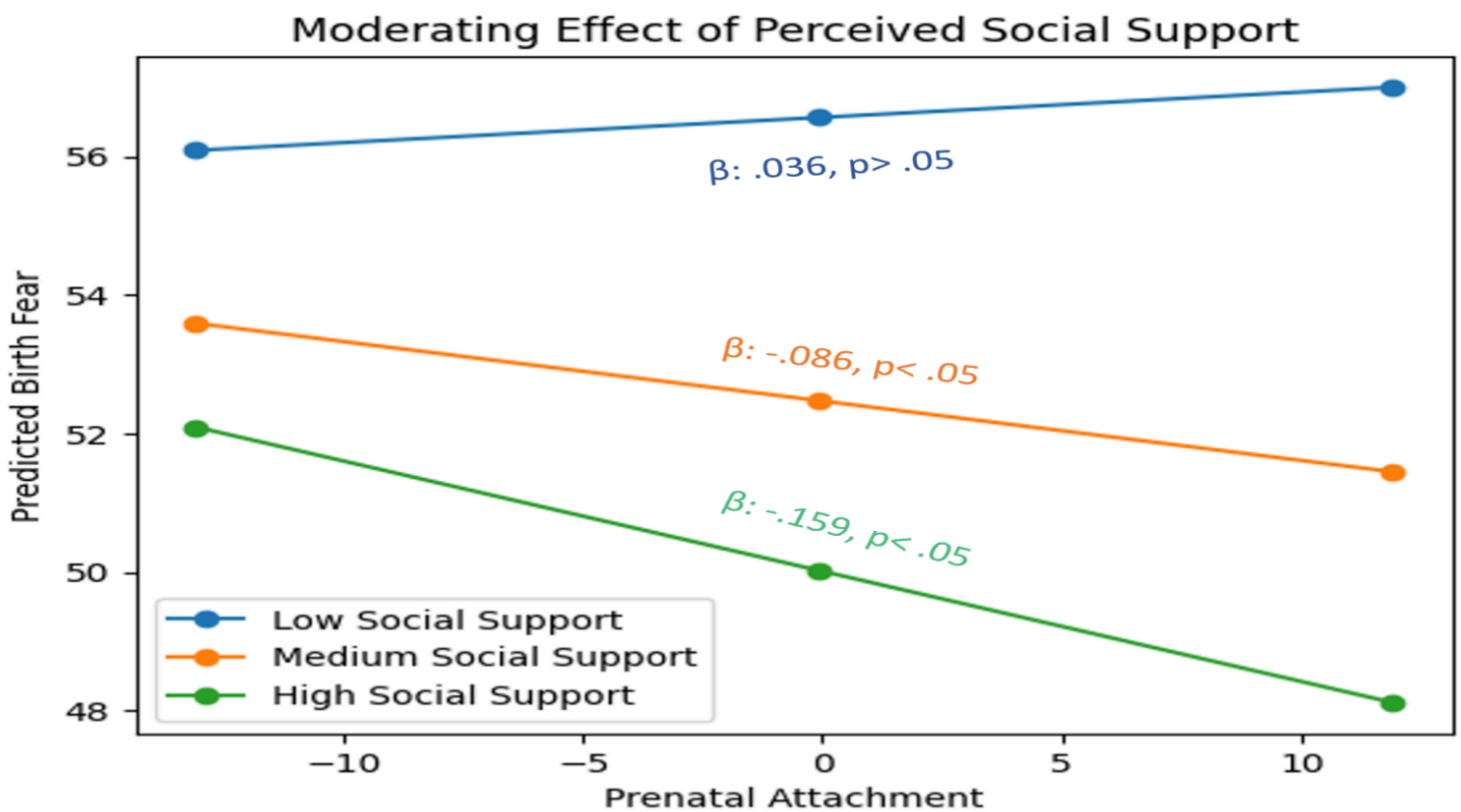


Figure 3

Slope Graph Illustrating the Moderating Role of Perceived Social Support (Hayes, Model 1)