

# The Relationship Between Paternal–Infant Attachment and Fatherhood Role Perception of Fathers with 6-12-Month-Old Infants

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## What is already known on this topic?

- It is very important to ensure paternal-infant attachment in 6-12-month-old infants.
- Many factors are effective in shaping the fatherhood role.
- Many factors are effective in paternal-infant attachment.

## What this study adds on this topic?

- There is a relationship between paternal-infant attachment and the perception of the fatherhood role in 6-12-month-old infants.
- High fatherhood role perception positively affects paternal-infant attachment.
- Cooperation with parents should be maintained in ensuring ensure paternal-infant attachment.

## ABSTRACT

**Objective:** The study aimed to determine the relationship between paternal–infant attachment and the perception of the fatherhood role among fathers with 6-12-month-old infants.

**Methods:** This descriptive and cross-sectional study was conducted with 131 fathers of 6-12-month-old infants between April 2023 and March 2024 at Family Health Centers in a province in northeast Türkiye. Data were collected using a personal information form, the Paternal–Infant Attachment Scale (PIAS), and the Fatherhood Role Perception Scale. Statistical analysis involved percentage, mean, independent groups *t*-test, ANOVA, Pearson correlation, and multiple regression analyses. The study adhered to ethical principles.

**Results:** Fathers who had a university education or higher, a baby girl, an only child, spent 5 hours or more with their baby, had been married for 5 years or less, and reported a good relationship with their spouse had statistically significant higher mean total scores on both the PIAS and the Fatherhood Role Perception Scale ( $P < .05$ ). There was a statistically significant, moderately positive relationship between the total scores on the Fatherhood Role Perception Scale and the PIAS ( $P < .01$ ).

**Conclusion:** The study showed that fathers with a high perception of their paternal role also had higher attachment levels to their infants.


**Keywords:** Attachment, father–child relationship, infants

## Introduction

Attachment is a bidirectional bond between infants and their caregivers, beginning in the intrauterine period. Secure attachment requires an accessible and sensitive caregiver to support the child's normal cognitive and emotional development.<sup>1,2</sup> Both the mother and father play key roles in fostering this development.<sup>3</sup> While Bowlby initially emphasized the mother's role as the primary caregiver, the importance of father–child attachment is now also recognized.<sup>1,4</sup>

Attachment theory, which explains the cognitive, emotional, and behavioral relationship between caregiver and infant, has evolved to include fathers, especially as their involvement in infant care has increased.<sup>5</sup> In traditional Turkish family structures, the father was primarily seen as the economic provider and authority figure, but changing social conditions have expanded fathers' roles, leading to greater interaction with infants and positively influencing paternal–infant attachment.<sup>3,6</sup> With this change, the interaction between father and

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baby increased and father–baby attachment was positively affected.<sup>4,7</sup> Successful paternal–infant attachment in early infancy has been reported to positively impact the infant’s cognitive development and improve breastfeeding rates.<sup>8</sup> Moreover, secure attachment between father and infant is crucial for the child’s future academic success, prevention of risky behaviors, and social-emotional development.<sup>3</sup> Fathers’ attitudes play direct and indirect roles in the secure initiation and maintenance of the attachment process.<sup>9,10</sup> The father’s age, education level, mother’s education level, income level, and employment status are among the factors that affect the active role of the father in participation in baby care. Father–infant attachment is negatively associated with the father’s age and marriage duration.<sup>6</sup> Additionally, fathers’ relationships with their spouses, educational status, working conditions, and socio-economic status are among the factors affecting father–baby attachment.<sup>11</sup> These factors also indicate their adaptation to the fatherhood role.<sup>7,11</sup>

Fatherhood is a complex process that begins during the spouse’s pregnancy and continues throughout life.<sup>6,12</sup> The role of fatherhood encompasses social expectations and how individuals shape and assume this role. Both individual and societal perceptions of fatherhood significantly influence how the role is enacted. Fathers, who experience numerous changes during this process, strive to adapt to their new roles. The perception of the fatherhood role is affected by factors such as involvement in the care of the spouse during pregnancy, participation in infant care in the postnatal period, education level, and the number of children.<sup>13,14</sup>

The literature indicates that paternal–infant attachment begins to form during the intrauterine period and can be strengthened through the father’s involvement in infant care during early infancy. In fact, it has been reported that fathers’ participation in birth has a positive contribution to father–baby attachment.<sup>15</sup> Although there are sources stating that attachment takes shape between 9-24 and 12-24 months, studies show that fathers with 6-12-month-old babies are an important group regarding father–infant attachment in the early period.<sup>14,16,17</sup> This early attachment significantly influences the father’s role and is a crucial factor in the child’s development.<sup>11,15</sup> Recognizing the importance of initiating and maintaining the attachment process, understanding the factors influencing paternal–infant attachment and the fatherhood role, and planning appropriate interventions are essential.<sup>6,16,17</sup> In this context, there are studies examining the factors affecting father–infant attachment.<sup>10,17</sup> There is one randomized controlled trial examining the effect of fathers’ involvement in childbirth on father–infant attachment and parenting role perception.<sup>15</sup> This study is one of the rare studies in the literature that examines father–infant attachment and paternal role perception together. However, since this study focused on birth attendance, studies that examine the relationship between father–infant attachment and paternal role perception in a broader framework are still limited in the literature. Early attachment plays a crucial role in children’s cognitive and emotional development, and fathers’ contributions to this process are increasingly recognized. This study aims to fill this gap by exploring how fathers’ perceptions of their parenting roles affect their attachment levels with their infants. In light of the evolving attachment theory, which now considers fathers’ growing involvement, strengthening father–child relationship in early infancy may support children’s healthy development. By examining the relationship between father–infant attachment and fatherhood role perception, this study offers a significant contribution to understanding how fathers’ parenting experiences impact child development.

### Research Questions

1. What are the levels of paternal–infant attachment, and which specific factors significantly influence these attachment levels?

2. What are the levels of fathers’ perceptions of their paternal roles, and which specific factors significantly influence these perceptions?
3. Is there a relationship between paternal–infant attachment and the perception of the paternal role?

### Methods

#### Design

This study is a descriptive, cross-sectional study.

#### Population and Sample of the Study

The study population consisted of fathers registered with any family physician at a Family Health Centre in a provincial center in the north-east of Türkiye between April 2023 and March 2024 who had infants aged 6-12 months. The study included all eligible participants without selecting a specific sample. The study was completed with 131 fathers who met the inclusion criteria and agreed to participate. To determine the adequacy of the sample size, a post-hoc power analysis was conducted using the G-Power 3.1.9.7 program. The power of the study was calculated based on correlation analysis. The study revealed, with a significance of 0.05, an effect size of 0.614, a sample size of 131, and a power of 99%. Fathers who were 18 years of age or older, had a healthy baby aged 6-12 months, whose baby was born at term (38-42 weeks) and was not hospitalized in the neonatal intensive care unit after birth, who could read and write Turkish, and were willing to participate in the study were included in the study.

#### Data Collection Tools

The research data were collected using three main tools: Personal Information Form, Paternal–Infant Attachment Scale, and the Fatherhood Role Perception Scale.

#### The Personal Information Form

The form was prepared by the researchers based on relevant literature and included 10 questions about the descriptive characteristics of the fathers and their spouses, as well as details related to marriage and child characteristics.<sup>3,16,17</sup>

#### The Paternal–Infant Attachment Scale

The Paternal–Infant Attachment Scale (PIAS) was originally developed by Condon et al. and later adapted for Turkish use by Güleç and Kavlak.<sup>3,18</sup> This scale is a 5-point Likert-type scale that includes 18 items divided into 3 sub-dimensions (patience and tolerance, pleasure in interaction, and love and pride). The total score on the scale ranges from 19 to 95, with higher scores indicating a higher level of attachment between father and infant. In the study by Güleç and Kavlak, the Cronbach’s  $\alpha$  value of the scale ranged between 0.52 and 0.80,<sup>3</sup> while in the current study, it was found to be 0.85, indicating good internal consistency.

#### The Fatherhood Role Perception Scale

The Fatherhood Role Perception Scale was developed by Kuzucu and consists of 25 items, with 14 positive and 11 negative statements. It is a 5-point Likert-type scale, where the scores can range from 25 to 125. A higher score on this scale reflects a stronger perception of the fatherhood role.<sup>19</sup> In Kuzucu’s original study, the Cronbach’s  $\alpha$  value was reported as 0.75, whereas in this study, it was found to be 0.90.

#### Pilot Application

In order to test whether the study was understood by the fathers, 10 fathers were selected from the target population, and a pilot application was conducted. The fathers in the pilot study were not included in the sample.

### Data Collection

The research data were collected by the researcher, 5 days a week between 8 and 16 hours at a Family Health Centre between April 2023 and March 2024, using the face-to-face interview technique in a separate room with the fathers who volunteered to participate in the study and brought their babies for health check-ups. In order to increase participation in the study, fathers who brought their babies for health check-ups were directly informed, and brief interviews were conducted to explain the importance of the study. These fathers were informed about the study's purpose, and their verbal and written consent was obtained. The forms were given to the fathers; they were asked to mark the appropriate statements and then return them. During the collection of research data, it took an average of 10-15 minutes to fill out the forms.

### Statistical Analysis

The research data were evaluated using the Statistical Package for Social Sciences version 25.0 software (IBM Corp.; Armonk, NY, USA). Descriptive statistics, including percentage values, arithmetic means, and standard deviations, were used. The normality of the data distribution was assessed using the skewness value, with skewness coefficients between “-2 and +2” indicating a normal distribution. For data analysis, independent sample *t*-tests and ANOVA were used to compare group differences. Pearson correlation analysis, multiple regression analysis, and the calculation of the Cronbach's  $\alpha$  coefficient were conducted. A significance level of  $P < .05$  was considered statistically significant.

### Ethical Considerations

Before starting the research, permission was obtained from the scale authors via e-mail. Ethical approval was received for the research from Recep Tayyip Erdoğan University Social and Humanities Ethics Committee (Approval no: 2023/061 Date: March 3, 2023). In addition, permission was obtained from the institution where the research would be conducted (Decision no.: E-64960800-799-210682762 Date: 06/03/2023). The study was conducted in accordance with the principles outlined in the Declaration of Helsinki. In the study, precautions were taken to ensure that families who refused to answer the survey questions did not cause any disruption in health services. First, during the data collection process, the questionnaire administration was planned so as not to interfere with the infants' access to health services. The questionnaires were administered after the families received health care services and at their convenience. In addition, participating families were informed that they were not obliged to answer the questionnaire, and ethical principles were observed based on volunteerism. Families were informed that they could benefit from health services with the same quality when they refused the survey, and it was explained that this would not affect the continuity of the service. Fathers participating in the study were informed about the confidentiality of their personal information, their rights to withdraw from the study at any time, and that their data would not be used for purposes outside of the research. All ethical principles were strictly adhered to throughout the study.

### Results

According to the results, 61.8% of the fathers were aged 31 or older, 58.7% had at least a university or higher degree, and all fathers were employed. The majority of their spouses were younger, with 62.6% being 30 years old or younger, 55% of these spouses had a university or higher degree, and 62.6% were not employed. In terms of family dynamics, 55.7% had a baby girl, and 54.2% had one child. As for daily interaction with their infants, 36.7% of the fathers spent 3-4 hours a day with their child, 66.5% had been married for 5 years or less, and 85.5% reported having a good relationship with their spouse (Table 1).

**Table 1.** Demographic, Marriage, and Child Characteristics of Fathers and Their Spouses

		n	%
Age	≤30	50	38.2
	≥31	81	61.8
Education level	Primary school	12	9.2
	High school	42	32.1
	University and above	77	58.7
Spouse age	≤30	82	62.6
	≥31	49	37.4
Spouse's education status	Primary school	29	22.1
	High school	30	22.9
	University and above	72	55.0
Spouse's employment	Yes	49	37.4
	No	82	62.6
Gender	Girl	73	55.7
	Boy	58	44.3
Number of children	1 child	71	54.2
	2 children	37	28.2
	3 children and more	23	17.6
Time spent with the baby	Less than 1 hour	11	8.4
	1-2 hours	35	26.7
	3-4 hours	48	36.7
	5 hours and more	37	28.2
Duration of marriage	≤5 years	87	66.5
	6-10 years	26	19.8
	≥11 years	18	13.7
Relationship status with the spouse	Moderate	19	14.5
	Good	112	85.5

The mean total score of PIAS was  $72.12 \pm 9.72$  and the mean subscale scores were  $32.80 \pm 5.19$  for “patience and tolerance,”  $25.84 \pm 4.54$  for “pleasure in interaction,” and  $13.47 \pm 1.66$  for “love and pride.” The mean total score of the Fatherhood Role Perception Scale was  $99.12 \pm 15.11$  (Table 2).

Young fathers (30 years old or younger), whose own and their spouses' education was at the university level or above, whose spouses were employed, who had a baby girl and one child, who spent 5 hours or more daily with their infant, who had been married for 5 years or less, and who reported having a good relationship with their spouse, all had significantly higher mean scores on the PIAS. These differences were statistically significant ( $P < .05$ , Table 3).

Fathers who were younger (30 years or less), who, along with their spouses, had a university level or above, whose spouses were employed, who had only one child, who spent more than 5 hours with their infant daily, and who had a good marital relationship, exhibited significantly higher mean scores in this subscale ( $P < .05$ , Table 3).

In the pleasure in interaction subscale, the study found that fathers who were 30 years or younger, had university education or above along

**Table 2.** Mean Scores of Fatherhood Perception Scale and Paternal–Infant Attachment Scale and Its Subscales

Scales	Min-Max	$\bar{X} \pm SD$
Fatherhood Role Perception Scale total score	41-123	$99.12 \pm 15.11$
PIAS total score	38.50-90	$72.12 \pm 9.72$
Patience and tolerance	13.90-40	$32.80 \pm 5.19$
Pleasure in interaction	13.30-35	$25.84 \pm 4.54$
Love and pride	8.30-15	$13.47 \pm 1.66$

PIAS, Paternal–Infant Attachment Scale; SD, standard deviation.

**Table 3.** Comparison of Total and Subscale Mean Scores of the Fatherhood Role Perception Scale, and the Paternal–Infant Attachment Scale According to Some Variables

	1	2	3	4	5
	$\bar{X} \pm SD$	$\bar{X} \pm SD$	$\bar{X} \pm SD$	$\bar{X} \pm SD$	$\bar{X} \pm SD$
<b>Age</b>					
≤30	75.13 ± 8.79	34.38 ± 4.05	26.99 ± 4.41	13.74 ± 1.65	101.66 ± 15.39
≥31	70.27 ± 9.86	31.83 ± 5.58	25.13 ± 4.50	13.30 ± 1.65	97.56 ± 14.81
	<i>t</i> = 2.849	<i>t</i> = 3.022	<i>t</i> = 2.313	<i>t</i> = 1.471	<i>t</i> = 1.513
	<b><i>P</i> = .005</b>	<b><i>P</i> = .003</b>	<b><i>P</i> = .022</b>	<b><i>P</i> = .144</b>	<b><i>P</i> = .133</b>
<b>Education level</b>					
Primary school <sup>a</sup>	62.32 ± 13.08	27.98 ± 6.92	21.58 ± 5.50	12.75 ± 1.36	78.91 ± 15.42
High school <sup>b</sup>	69.09 ± 10.05	31.73 ± 5.01	24.30 ± 4.76	13.04 ± 1.88	93.61 ± 15.71
University and above <sup>c</sup>	75.31 ± 7.20	34.14 ± 4.41	27.35 ± 3.49	13.81 ± 1.50	105.28 ± 10.16
	<i>F</i> = 14.899	<i>F</i> = 9.822	<i>F</i> = 14.321	<i>F</i> = 4.305	<i>F</i> = 28.279
	<b><i>P</i> = .001</b>	<b><i>P</i> = .001</b>	<b><i>P</i> = .001</b>	<b><i>P</i> = .016</b>	<b><i>P</i> = .001</b>
	<b><i>c</i> &gt; <i>b</i>, <i>a</i></b>	<b><i>c</i> &gt; <i>b</i>, <i>a</i></b>	<b><i>c</i> &gt; <i>b</i>, <i>a</i></b>	<b><i>c</i> &gt; <i>b</i></b>	<b><i>c</i> &gt; <i>b</i>, <i>a</i></b>
<b>Spouse age</b>					
≤30	73.24 ± 9.32	33.16 ± 5.15	26.33 ± 4.27	13.74 ± 1.53	100.59 ± 15.00
≥31	70.26 ± 10.19	32.21 ± 5.24	25.03 ± 4.91	13.02 ± 1.79	96.67 ± 15.11
	<i>t</i> = 1.708	<i>t</i> = 1.021	<i>t</i> = 1.590	<i>t</i> = 2.445	<i>t</i> = 1.444
	<i>P</i> = .090	<i>P</i> = .309	<i>P</i> = .114	<i>P</i> = .056	<i>P</i> = .151
<b>Spouse's education status</b>					
Primary school <sup>a</sup>	63.74 ± 10.52	29.16 ± 6.01	21.91 ± 4.26	12.65 ± 1.56	83.96 ± 13.58
High school <sup>b</sup>	72.69 ± 10.00	33.97 ± 4.55	25.25 ± 4.50	13.47 ± 2.01	98.76 ± 16.83
University and above <sup>c</sup>	75.27 ± 7.05	33.79 ± 4.43	27.67 ± 3.53	13.80 ± 1.44	105.38 ± 9.79
	<i>F</i> = 18.523	<i>F</i> = 10.535	<i>F</i> = 22.544	<i>F</i> = 5.157	<i>F</i> = 30.094
	<b><i>P</i> = .001</b>	<b><i>P</i> = .001</b>	<b><i>P</i> = .001</b>	<b><i>P</i> = .007</b>	<b><i>P</i> = .001</b>
	<b><i>c</i> &gt; <i>a</i></b>	<b><i>c</i> &gt; <i>a</i></b>	<b><i>c</i> &gt; <i>b</i>, <i>a</i></b>	<b><i>c</i> &gt; <i>a</i></b>	<b><i>c</i> &gt; <i>b</i>, <i>a</i></b>
<b>Spouse's employment</b>					
Yes	74.91 ± 7.97	33.92 ± 4.38	27.25 ± 3.76	13.73 ± 1.53	105.30 ± 11.64
No	70.46 ± 10.32	32.14 ± 5.53	25.00 ± 4.78	13.31 ± 1.72	95.43 ± 15.78
	<i>t</i> = -2.764	<i>t</i> = -1.921	<i>t</i> = -2.988	<i>t</i> = -1.408	<i>t</i> = -4.095
	<b><i>P</i> = .007</b>	<b><i>P</i> = .057</b>	<b><i>P</i> = .003</b>	<b><i>P</i> = .162</b>	<b><i>P</i> = .001</b>
<b>Gender</b>					
Girl	73.66 ± 7.98	33.54 ± 4.03	26.51 ± 4.13	13.59 ± 1.57	102.67 ± 11.58
Boy	70.20 ± 11.33	31.88 ± 6.27	25.00 ± 4.92	13.31 ± 1.77	94.67 ± 17.74
	<i>t</i> = 1.970	<i>t</i> = 1.748	<i>t</i> = 1.917	<i>t</i> = 0.971	<i>t</i> = 2.967
	<b><i>P</i> = .052</b>	<b><i>P</i> = .084</b>	<b><i>P</i> = .058</b>	<b><i>P</i> = .333</b>	<b><i>P</i> = .004</b>
<b>Number of children</b>					
1 child <sup>a</sup>	74.66 ± 9.23	33.61 ± 5.28	27.28 ± 4.08	13.77 ± 1.64	103.07 ± 13.93
2 children <sup>b</sup>	71.35 ± 8.34	32.72 ± 4.42	25.29 ± 4.16	13.32 ± 1.51	98.29 ± 13.15
3 children and more <sup>c</sup>	65.53 ± 10.33	30.43 ± 5.51	22.31 ± 4.53	12.78 ± 1.80	88.30 ± 16.57
	<i>F</i> = 8.750	<i>F</i> = 3.384	<i>F</i> = 12.676	<i>F</i> = 3.336	<i>F</i> = 9.463
	<b><i>P</i> = .001</b>	<b><i>P</i> = .037</b>	<b><i>P</i> = .001</b>	<b><i>P</i> = .039</b>	<b><i>P</i> = .001</b>
	<b><i>a</i> &gt; <i>c</i></b>	<b><i>a</i> &gt; <i>c</i></b>	<b><i>a</i> &gt; <i>b</i>, <i>c</i></b>	<b><i>a</i> &gt; <i>c</i></b>	<b><i>a</i> &gt; <i>b</i>, <i>c</i></b>

(Continued)

**Table 3.** Comparison of Total and Subscale Mean Scores of the Fatherhood Role Perception Scale, and the Paternal–Infant Attachment Scale According to Some Variables (Continued)

	1	2	3	4	5
	$\bar{X} \pm SD$	$\bar{X} \pm SD$	$\bar{X} \pm SD$	$\bar{X} \pm SD$	$\bar{X} \pm SD$
<b>Time spent with the baby</b>					
Less than 1 hour <sup>a</sup>	58.16 ± 10.87	25.93 ± 5.90	20.07 ± 4.84	12.15 ± 1.11	78.72 ± 16.73
1-2 hours <sup>b</sup>	68.16 ± 8.55	31.31 ± 4.55	23.84 ± 3.68	13.00 ± 1.80	92.05 ± 16.18
3-4 hours <sup>c</sup>	74.09 ± 7.29	33.77 ± 4.09	26.71 ± 3.70	13.59 ± 1.65	102.39 ± 10.60
5 hours and more <sup>d</sup>	77.48 ± 7.79	35.00 ± 4.83	28.32 ± 4.00	14.14 ± 1.34	107.64 ± 9.38
	<i>F</i> = 19.975	<i>F</i> = 12.976	<i>F</i> = 17.035	<i>F</i> = 5.944	<i>F</i> = 20.009
	<b><i>P</i> = .001</b>	<b><i>P</i> = .001</b>	<b><i>P</i> = .001</b>	<b><i>P</i> = .001</b>	<b><i>P</i> = .001</b>
	<b><i>d</i> &gt; <i>b</i>, <i>a</i></b>	<b><i>d</i> &gt; <i>b</i>, <i>a</i></b>	<b><i>d</i> &gt; <i>b</i>, <i>a</i></b>	<b><i>d</i> &gt; <i>b</i>, <i>a</i></b>	<b><i>d</i> &gt; <i>b</i>, <i>a</i></b>
<b>Duration of marriage</b>					
≤5 years <sup>a</sup>	73.88 ± 9.10	33.42 ± 5.01	26.78 ± 4.25	13.68 ± 1.54	101.25 ± 14.24
6-10 years <sup>b</sup>	69.53 ± 9.54	32.08 ± 5.04	24.03 ± 4.61	13.41 ± 1.58	98.30 ± 16.17
≥11 years <sup>c</sup>	67.36 ± 10.95	30.90 ± 5.90	23.95 ± 4.70	12.51 ± 2.05	90.05 ± 14.96
	<i>F</i> = 4.772	<i>F</i> = 2.115	<i>F</i> = 5.864	<i>F</i> = 3.896	<i>F</i> = 4.357
	<b><i>P</i> = .001</b>	<b><i>P</i> = .125</b>	<b><i>P</i> = .004</b>	<b><i>P</i> = .023</b>	<b><i>P</i> = .015</b>
	<b><i>a</i> &gt; <i>c</i></b>		<b><i>a</i> &gt; <i>b</i>, <i>c</i></b>	<b><i>a</i> &gt; <i>c</i></b>	<b><i>a</i> &gt; <i>c</i></b>
<b>Relationship status with the spouse</b>					
Moderate	61.38 ± 8.00	27.79 ± 3.95	21.57 ± 4.57	12.02 ± 1.49	82.15 ± 19.02
Good	73.95 ± 8.79	33.65 ± 4.89	26.57 ± 4.14	13.71 ± 1.57	102.00 ± 12.28
	<i>t</i> = 5.828	<i>t</i> = -4.948	<i>t</i> = -4.790	<i>t</i> = -4.383	<i>t</i> = -4.394
	<b><i>P</i> = .001</b>	<b><i>P</i> = .001</b>	<b><i>P</i> = .001</b>	<b><i>P</i> = .001</b>	<b><i>P</i> = .001</b>

Bold values are made for emphasis.

In the table, the difference between the groups is shown with the symbols a, b, c. PIAS, Paternal–Infant Attachment Scale; SD, standard deviation; 1, PIAS total score; 2, Patience and tolerance; 3, Pleasure in interaction; 4, Love and pride; 5, Fatherhood Role Perception Scale total score.

with their spouses, had employed spouses, had a baby girl and only one child, spent 5 hours or more with their baby, had been married for a shorter period (5 years or less), and had a good relationship with their spouse also scored statistically significantly higher (*P* < .05, Table 3).

In the love and pride sub-dimension of the scale, fathers who, along with their spouses, had a university level or above, who had only one child, who spent 5 hours or more with their infant, who had been married for 5 years or less, and who had a positive relationship with their spouse, showed statistically significant higher mean scores (*P* < .05, Table 3).

Fathers who, along with their spouses, had university-level or higher education, whose spouses were employed, who had a baby girl and only one child, who spent 5 hours or more daily with their baby, who

**Table 4.** The Relationship Between the Fatherhood Role Perception Scale and Paternal–Infant Attachment Scale and Its Sub-dimensions

Fatherhood Role Perception Scale	PIAS	Patience and Tolerance	Pleasure in Interaction	Love and Pride
<i>r</i>	0.614	0.555	0.519	0.439
<i>P</i>	<b>.001</b>	<b>.001</b>	<b>.001</b>	<b>.001</b>
<i>n</i>	131	131	131	131

PIAS, Paternal–Infant Attachment Scale; *r*, correlation coefficient.

**Table 5.** Regression Analysis Between Fatherhood Role Perception Scale and Paternal–Infant Attachment Scale and Its Sub-Dimensions

Independent Variable	$\beta$	SE	Beta	<i>t</i>	<i>P</i>	<i>F</i>	Model ( <i>p</i> )	<i>R</i> <sup>2</sup>	Durbin Watson
Constant	29.159	9.017	–	3.234	.002	25.688	0.001	0.378	1.765
PIAS average score	0.954	0.108	0.614	8.838	.001				
Patience and tolerance	0.965	0.270	0.332	3.574	.001				
Pleasure in interaction	0.883	0.294	0.266	3.004	.003				
Love and pride	1.149	0.785	0.127	1.462	.146				

PIAS, Paternal–Infant Attachment Scale; SE, standard error;  $\beta$ , standardized regression coefficient.  
Dependent Variable: Fatherhood Role Perception Scale average score.

had been married for 5 years or less, and who reported having a good relationship with their spouse, all had higher total mean scores on the Fatherhood Role Perception Scale ( $P < .05$ , Table 3).

A statistically significant and positive moderate relationship was found between the total score of the Fatherhood Role Perception Scale and the total score of the PIAS and the “patience and tolerance,” “pleasure in interaction,” and “love and pride” sub-dimensions of the PIAS ( $P < .01$ , Table 4).

The regression analysis showed that the model was statistically significant ( $F = 25.688$ ;  $P < .05$ ). The mean score of the PIAS had a statistically significant impact on the mean score of the Fatherhood Role Perception Scale ( $t = 8.838$ ,  $P < .05$ ), with a 1-unit increase in the PIAS score leading to an increase of 0.954 in the perception of the fatherhood role ( $\beta = .954$ ). Additionally, the “patience and tolerance” subscale had a statistically significant effect on the Fatherhood Role Perception Scale, with a 1-unit increase in this variable leading to a 0.965 increase in the perception of the fatherhood role ( $\beta = .965$ ). The mean score of pleasure in interaction had a statistically significant effect on the mean score of the Fatherhood Role Perception Scale ( $t = 3.004$ ,  $P < .05$ ), with a 1-unit increase in the variable of pleasure in interaction leading to an increase of 0.883 in the perception of the paternal role ( $\beta = .883$ , Table 5).

## Discussion

In recent years, as the role of fatherhood has evolved in our society, fathers’ involvement in infant care has increased, positively influencing the attachment process.<sup>11,16</sup> This study aimed to explore the relationship between paternal–infant attachment and fathers’ perception of their role, focusing on fathers with infants aged 6–12 months.

In this study, father–infant attachment was found to be strong. In a study conducted with fathers of 0–2-year-old babies, it was found that their attachment scores were high.<sup>20</sup> In a study conducted with fathers of 6–12-month-old babies, it was found that the bond between fathers and their babies was strong.<sup>21</sup> In another study conducted with a similar population, it was determined that the level of father–infant attachment was high.<sup>17</sup> Our study has similar results to the literature, and it can be said that the attachment between father and baby is at a high level today. This situation is thought to be due to fathers taking a more active role in baby care in recent years.

Studies have identified factors such as educational status,<sup>22,23</sup> the number of children,<sup>17,21,23–25</sup> and relationship status with the spouse<sup>22,25</sup> as positive influences on attachment, which aligns with our findings. The study also found that fathers who were 30 years old or younger, had employed wives, spent 5 or more hours with their infants, and had been married for 5 years or less exhibited higher levels of attachment. In recent years, the increasing education levels of mothers and their active participation in the workforce have encouraged greater father involvement in infant care. As a result, fathers are spending more time with their babies, which fosters the development of strong paternal–infant attachment.<sup>7,16</sup>

The study showed that fathers with daughters exhibited higher attachment levels. However, the existing literature does not report a significant relationship between paternal–infant attachment and the gender of the infant.<sup>17,23,26,27</sup> This discrepancy may be attributed to the fact that more than half of the fathers in our study had daughters. At the same time, the education levels of the fathers participating in this study were also high. It is reported that as fathers’ education levels increase, they become more aware of egalitarian gender roles.<sup>28,29</sup> In this context, although it is thought that there is a cultural attachment to boys in the region where the study was conducted, this result may also be due to the high education levels of the participants.

The study also determined that fathers generally had a positive perception of their paternal role. This finding aligns with other studies in the literature, which similarly report that fathers tend to have a strong perception of their role as a parent.<sup>13,30</sup>

Moreover, the study demonstrated that fathers, along with their spouses, who had attained a high level of education, whose spouses were employed, and who had only one child had a higher perception of their paternal role. The literature supports this, revealing that fathers take on more parenting responsibilities as their education level increases.<sup>16</sup> Additionally, fathers with a university-level education and those with only one child tend to have a stronger perception of their fatherhood role.<sup>13</sup> Furthermore, fathers whose spouses are employed and possess education levels above the university level also tend to have a heightened perception of their paternal role.<sup>31</sup> These results are similar to our research findings.

In this study, it was found that those who had a female baby, spent 5 hours or more with their baby, were married for 5 years or less, and had a good relationship with their spouse had high perceptions of the role of fatherhood. A review of the literature indicates that gender is not a significant factor in modern fatherhood roles and is not considered a key variable.<sup>32</sup> Another study suggests that while gender may not be important in the contemporary fatherhood role, fathers might still be influenced by the gender of their children based on the roles modeled by their own fathers (i.e., the child’s grandfather).<sup>33</sup> Kirağ and Çakır<sup>30</sup> examined the factors related to the perception of the fatherhood role and reported that there was no significant relationship between the duration of marriage and the fatherhood role. In another study, no relationship was found between the duration of marriage and the fatherhood role.<sup>13</sup>

In our study, an increased perception of the paternal role strengthened paternal–infant attachment. In a qualitative study, participants stated that fulfilling the roles required by fatherhood reflected positively on their relationships with their babies and that they felt competent.<sup>34</sup> In recent years, societal changes have led to the emergence of what is termed the “new fatherhood role,” where fathers are more involved in infant and childcare. Within this new role, fathers spend more time with their children, which positively impacts the attachment process.<sup>16,35</sup> Although there are limited studies on paternal role perception and paternal–infant attachment, there is a noticeable gap in research

directly examining the relationship between these two concepts. Our study contributes uniquely to this area, but further research is needed to strengthen and expand upon these findings.

In this study, which explored the relationship between paternal–infant attachment and the perception of the fatherhood role among fathers with 6- to 12-month-old infants, it was found that fathers with a strong perception of their fatherhood role exhibited higher levels of attachment to their infants. These results highlight the importance for health professionals to understand the factors influencing attachment, as secure attachment is crucial for the child’s biopsychosocial development. To support this, nurses should involve fathers in the care process from the pregnancy stage, incorporating them into follow-up evaluations and encouraging their active participation in infant care during the postnatal period.

### Limitations of the Study

Several limitations were identified in this study. Firstly, the single-center may limit generalization. The results of the study are limited to fathers of babies aged 6-12 months only. Study data were limited to participants’ self-reports, and because the study was a cross-sectional study, the study’s results only reflect the situation at the time of data collection. The small sample size is a limitation of the study. One of the main reasons for the low participation of fathers in the study is that fathers are usually at work during working hours when health services are provided and therefore mothers usually bring their babies to health check-ups. In addition, the majority of the participants have a university-level or higher education. In this case, the research results can be generalized to this group.

Among the limitations of the study, it is acknowledged that the “good/bad” generalization used to assess marital relationships may not fully reflect the quality of the participants’ marital relationships. Considering this limitation, it is recommended that more comprehensive and detailed questions be included in future research. This approach would provide a deeper understanding of the nature and quality of marital relationships.

Additionally, the absence of a question regarding whether the baby was planned or wanted is recognized as a significant shortcoming. This factor could potentially influence fatherhood role perception and father–infant attachment and should be considered in future studies. However, the primary aim of the current study is to examine the relationship between father–infant attachment and fatherhood role perception, so this omission is expected to have a limited impact on the overall findings.

**Availability of Data and Materials:** The data that support the findings of this study are available on request from the corresponding author.

**Ethics Committee Approval:** Ethics committee approval was received for this study from the Recep Tayyip Erdoğan University Social and Human Sciences Ethics Committee (Approval no: 2023/061, Date: March 1, 2023).

**Informed Consent:** Verbal informed consent was obtained from fathers who participated in this study.

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