



Effect of some characteristics of fathers on paternal-infant attachment in the postpartum period

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ABSTRACT

Introduction and aim. The paternal attachment can affect the academic, social and emotional development of the child in the future. The study was conducted in a descriptive-cross-sectional design to determine the impacts of some characteristics of fathers on paternal attachment.

Material and method. The study was conducted with 278 fathers who had 3-12 months old infants. The data were collected by using the "Father Information Form" and the "Postnatal Paternal-Infant Attachment Questionnaire (PPAQ)".

Results. It was found in the present that the mean PPAQ score of the fathers who were exposed to domestic violence in their childhood was significantly lower than those who were not ($p=0.001$). The mean PPAQ score of the fathers whose infant was born by cesarean section ($p=0.017$) and who had physical contact for the first 24 hours ($p=0.047$) was found to be significantly higher. The mean PPAQ score was significantly higher in fathers who had a physical contact duration of 7 hours or more than those with less physical contact durations ($p=0.030$).

Conclusion. In this study, some characteristics of fathers were found to affect father-infant attachment. It may be recommended to plan preventive interventions for risky fathers.

Keywords. attachment, father, infant

Introduction

The attachment of the parent with the infant begins during the intrauterine period, and the attachment of the infant with the parent begins after the delivery.^{1,2} Postpartum attachment is an important process in the postpartum period and there is evidence that attachment difficulties are associated with the mental health of the parents and have negative outcomes on the development of the child.³ It was found that the character of the infant affects the parenting behaviors shared between parents, especially in the 0-24-month period of the infant's life.⁴ The attachment taking place in infancy (1-12 months) shows limited variability in the following

periods.⁵ Based on the opinion that adult attachment is the continuation of childhood attachment, it was found that attachment styles in adulthood are 72% similar to childhood attachments and affect the social lives of individuals.⁶ It is not likely that the secure or insecure attachment of the infant will change later.⁷

It was found in the literature review that studies conducted within the scope of parental attachment are mostly on mother-infant attachment, and studies on father-infant attachment are limited.^{8,9} Considering the impacts that each parent has on the development of the child, it is already known that it is important not to ignore the impacts of the father on the development of the child.¹⁰

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Received: 6.11.2022 / Revised: 13.12.2022 / Accepted: 15.12.2022 / Published: 25.03.2023

Kaba G, Çoban SA. *Effect of some characteristics of fathers on paternal-infant attachment in the postpartum period.* Eur J Clin Exp Med. 2023;21(1):73–80. doi: 10.15584/ejcem.2023.1.10.



Although the main attachment figure is considered the mother, infants can also establish a secure attachment with their fathers as well.¹¹ The attachment relationship that children establish with their fathers affects their academic, social and emotional development significantly.¹² The importance of integrating the cognitive, affective, and behavioral aspects of parenting is emphasized in the attachment.¹³ It is possible to argue that father-infant attachment has long-term impacts on individuals' lives at significant levels.¹⁴ The father's experiences in his childhood and the way he established bonds with his parents also affect the father's bond with his infant.^{15,16} It is speculated that fathers who have secure adult attachment styles enjoy parenting more.¹⁷ However, childhood experiences also affect adulthood, and the child who witnesses or is abused can carry it into adulthood. Also, it is considered that children with insecure attachment relations with their parents are in danger of neglect and abuse.¹⁸ It is already known that the physical contact and attachment of the infant with the mother is at the forefront because of the infant's need for the mother in the postnatal period, but the physical contact and attachment between the father and the infant remains in the background. If the father comes into physical contact with his infant in this period, the bond between the father and the infant is initiated.¹⁹ Also, the physical stimulation of the infant by the father has a positive impact on toddlerhood.²⁰ If there is a problem in father-infant attachment and insecure attachment style happens, problems emerge in the mental, spiritual and physical development of infants.²¹ Insecure attachment styles in infancy and childhood are considered as the source of psychopathologies in the infant's later life.²² It is also known that low paternal involvement is associated with more peer aggression, and infants with a secure attachment style overcome adolescence problems more easily.^{23,24} Securely attached children have more receptive and positive behaviors.²⁵

Attachment forms, which are the part of characteristics of an individual, bring the individual to the forefront in cases such as separation or loss.²⁶ The absence of the father between the ages of 0-3 may cause the infant to be more prone to self-harm during adolescence.²⁷ It is speculated that individuals with an attachment figure that they can reach at any time in case of need have less fear and anxiety when compared to those who are deprived of this.²⁸ It has been revealed that securely attached parents are more sensitive and interested in their children, and these children are more strongly attached to their parents.²⁹ Due to working mothers, fathers are spending more and more time with their babies today.

Aim

Studies on parent-infant attachment mostly involve mothers. It is considered that the findings obtained in the present study, which was conducted to determine the

impacts of some characteristics of fathers on paternal attachment in the postpartum period, will shed light on the development of healthy attachment styles and the planning of mental health protective practices for children.

Research questions

- Do father's sociodemographic characteristics affect father-infant attachment?
- Does the father's experiences with his parents during childhood affect his bonding with his baby?
- Do baby's characteristics affect father's attachment?
- Does the father's physical contact with the baby in the first 24 hours affect the attachment?

Material and methods

Ethical approval

The study was approved by the Human Research Ethics Committee of Zonguldak Bülent Ecevit University (approval no: 2021/106). The participants read the information text before they filled out the questionnaires, and those who approved were included in the study.

Study design

The study was conducted in a descriptive and cross-sectional design to determine the impacts of some descriptive and sociodemographic characteristics of fathers on paternal attachment in the postpartum period.

Population and sample

The data of the study were collected with the Snowball/Chain Sampling Method between May 2021 and February 2022 in Turkey. This study includes participants from all geographical regions of Turkey. A total of 285 fathers participated in the study. Seven fathers were excluded from the study because they did not accept to participate in the study. The sample of the study consisted of 278 fathers who volunteered and approved to participate in the study.

Data collection

The data of the study were collected by using an online survey between May 2021 and February 2022. The online survey was created using Google Forms. The questionnaire form was sent to the participants using online networks (e-mail, WhatsApp, Instagram, etc.). Before starting the survey, the participants read the explanations about the study (purpose, subject, criteria for participation in the study, voluntary participation in the study, etc.) and approved. The time to fill out the questionnaire varied between 5 and 10 minutes. To evaluate the suitability of the questionnaire, a preliminary application was made with 10 participants. After the necessary arrangements were made in the questionnaire form as a result of this pre-application, the application stage was started.

Father Information Form: The form consisted of 24 questions on demographic characteristics of fathers (age, occupation, educational status, etc.) and characteristics of the infant (age, gender, etc.).

Table 1. The sociodemographic characteristics of the fathers (n=278)

Sociodemographic characteristics		
Age (years) Mean±SD	31.16±4.94 (min:20-max:50)	
Marital status	n	%
Married	273	98.2
Single	5	1.8
Educational Status		
Literate	3	1.1
Primary education	30	10.8
High school	107	38.5
University and above	138	49.6
Working Status		
Working	242	87.1
Not working	36	12.9
Profession		
Employee	42	15.1
Officer	72	25.9
Private sector	126	45.3
Unemployed	11	4.0
Other	27	9.7
Health Insurance		
Yes	258	92.8
No	20	7.2
The family type lived longest in		
Elementary	162	58.3
Extended	96	34.5
Single Parent	20	7.2

The postnatal paternal-infant attachment questionnaire (PPAQ)

The Postnatal Paternal-Infant Attachment Questionnaire (PPAQ) was developed by John T. Condon to evaluate postnatal father-infant attachment.¹² The Turkish validity and reliability study of the scale that was developed by Condon (2008) was conducted by Güleç & Kavlak in 2013.^{14,30} The scale consisting of 19 items; Items 1, 2, 6, 11, 13, 17 and 18 are 'patience and tolerance', items 4, 5, 8, 9, 10, 12, 15, 19 are 'pleasure in interaction' and items 3, 7, 14 they constitute the 'love and pride' dimension. The lowest score that can be obtained from the scale is 19, the highest score is 95 and a high score on the scale shows a high level of attachment. In the study of Güleç, the Cronbach Alpha value of the scale was calculated as 0.76.³⁰ The Cronbach Alpha value was calculated as 0.833 for this study.

Statistical analysis

The data analysis was made by using the SPSS 21.0 (Statistical Package for Social Sciences) package program. Descriptive statistics, mean, standard deviation, frequency, and percentage were used in the evaluation of the data.

The conformity of the quantitative data to the normal distribution was tested with the Kolmogorov-Smirnov Test. The t-test was used for the comparison of quantitative variables between two groups because the data showed a normal distribution. The ANOVA Test was used for the comparisons between more than two groups. The Tukey Analysis was used as a Post-Hoc Test to evaluate the differences between the groups. In the comparisons, $p < 0.05$ was accepted as the significance level.

Table 2. The characteristics of the lives of fathers with their parents (n=278)

Father's life with his parents	n	%
Marital status of their parents		
Married	256	92.1
Divorced	22	7.9
Age when parents divorced (n=22)		
0-2 Years	11	50.0
3-6 Years	2	9.1
7-11 Years	1	4.5
12-18 Ages	4	18.2
18 years and over	4	18.2
Custody parent (n=21)		
Mom	20	95.2
Father	1	4.8
Exposure to domestic violence during childhood		
Yes	90	32.4
No	188	67.6
Type of violence exposed (n=90)		
Physical Violence	59	65.6
Verbal Violence	19	21.1
Emotional Violence	10	11.1
Other	2	2.2
People applying violence (n=90)		
Mother	21	23.3
Father	61	67.7
Other (Grandmother, etc.)	8	8
Receiving psychological help when exposed to violence (n=90)		
Yes	1	1.1
No	89	98.9

Results

The mean age of the fathers was found to be 31.16 ± 4.94 (min:20, max:50), 98.2% were married, 49.6% were at university or higher education level, 87.1% were working in a job and 45.3% were working in the private sector in the present study. A total of 92.8% of the fathers had health insurance, and 58.3% of them lived the longest in an elementary family (Table 1).

It was found that 92.1% of the parents of the fathers who were included in the study were married, 7.9% were divorced, 50.0% were in the 0-2 age group when their parents were divorced, and 95.2% of them had their custody in their mothers. Also, 32.4% of the fathers were exposed to domestic violence in their childhood, 65.6% of those who were exposed to violence experienced phys-

ical violence, and 67.7% of the people who applied violence were fathers. A total of 98.9% of the fathers stated that they did not receive psychological help when they were exposed to violence (Table 2).

When the characteristics of the fathers were examined, it was found that the mean infant age was 6.69±3.04 (min:3-max:12) months and 51.1% were female. Among the fathers, 27.7% of whom said that they had other children, 88.8% of them had planned pregnancy, 55.4% of them were born by cesarean section, 79.9% of them had physical contact in the first 24 hours when the infant was born, and 44.6% of those who had physical contact had less than 1 hour of contact. Also, 43.2% of the fathers stated that they were with their spouses during the delivery (Table 3).

Table 3. The characteristics of the infants of the fathers (n=278)

The characteristics of the infants of the fathers		
Infant's age (months) Mean±SD	6.69±3.04	(min:3-max:12)
Number of children Mean±SD	1.76±0.73	(min:1-max:5)
Infant's gender	N	%
Girl	142	51.1
Boy	136	48.9
Other children		
Yes	77	27.7
No	201	72.3
Planned pregnancy		
Yes	247	88.8
No	31	11.2
Birth type		
Normal	124	44.6
Cesarean section	154	55.4
Physical contact in the first 24 hours when the baby was born		
Yes	222	79.9
No	56	20.1
Physical contact time (n=222)		
Less than 1 hour	99	44.6
1-3 hours	63	28.4
4-6 hours	26	11.7
7 hours or more	34	15.3
Status of being with the spouse at the time of delivery		
Yes	120	43.2
No	158	56.8

Table 4. PPAQ sub-scale and total mean scores

PPAQ sub-scale	Mean±SD	Minimum	Maximum
Patience and tolerance	23.08±2.67	14.9	28
Pleasure in interaction	27.07±5.14	8	35
Love and pride	18.52±2.2	4	20
PPAQ scores	68.17±8.55	40	81

The mean patience and tolerance sub-scale score was 23.08±2.67 32, the mean pleasure in interaction sub-scale score was 27.07±5.14, the mean love and pride

sub-scale score was 18.52±2.20, and the PPAQ mean total score was 68.17±8.55 (Table 4).

Table 5. The distribution of some characteristics of the fathers according to the PPAQ scores^a

Characteristics of the fathers	Mean±SD	Test	Post-hoc*
Marital status			
Married	68.15±8.55	t=-0.311	
Single	69.36±9.92	p=0.756	
Educational Status			
Literate-Primary Education	64.62±11.55	f=4.481	1 and 3 p=0.016
High school	67.71±8.99	p=0.012	
University and above	69.38±7.04		
Working Status			
Working	67.82±8.64	t=-1.775	
Not working	70.53±7.64	p=0.077	
Health Insurance			
Yes	68.11±8.61	t=-0.478	
No	69.08±7.88	p=0.633	
Type of the family lived longest			
Elementary	68.82±9.23	f=0.674	
Extended	67.99±8.51	p=0.511	
Single Parent	66.53±4.79		
Marital status of the parents			
Married	68.28±8.75	t=0.7	
Divorced	66.95±5.80	p=0.485	
Exposure to domestic violence in childhood			
Yes	65.66±9.31	t=-3.455	
No	69.38±7.92	p=0.001	
Baby's Gender			
Girl	67.62±8.61	t=-1.092	
Boy	68.74±8.49	p=0.276	
Other children			
Yes	65.42±9.16	t=-3.376	
No	69.22±8.09	p=0.001	
Planned pregnancy			
Yes	68.55±8.19	t=2.119	
No	65.12±10.69	p=0.035	
Birth type of the infant			
Normal	66.81±8.50	t=-2.4	
Cesarean section	69.27±8.47	p=0.017	
Physical contact in the first 24 hours when the baby was born (n=222)			
Yes	68.70±8.38	t=2.045	
No	66.09±8.98	p=0.047	
Physical contact time (n=222)			
less than 1 hour	66.86±8.32	f=3.025	1 and 4 p=0.05
1-3 hours	69.89±8.00	p=0.03	
4-6 hours	69.26±8.19		
7 hours or more	70.96±8.35		
Status of being with the spouse present at the time of delivery			
Yes	69.30±8.06	t=1.922	
No	67.32±8.84	p=0.056	

^a PPAQ – postnatal paternal-infant attachment questionnaire; t – independent samples t test; f – one way ANOVA; *Post-Hoc: Tukey test

It was found in the present study that the mean PPAQ scores of the fathers differed at statistically significant levels according to their educational status ($f=4.481$, $p=0.012$). When the origin of the difference between the groups was analyzed in the Post-Hoc Analysis, it was found that the mean PPAQ score of university graduates was higher at a significant level than that of literate/primary school graduates ($p=0.016$). It was also found that the mean PPAQ score of those who were exposed to domestic violence in their childhood was lower at a significant level compared to those who were not ($t=-3.455$, $p=0.001$). The mean PPAQ score of the fathers who did not have any other children was found to be higher at a significant level ($t=-3.376$, $p=0.001$). The mean PPAQ score of fathers whose infants were born by cesarean section ($p=0.017$) and who had physical contact for the first 24 hours ($p=0.047$) when their infant was born was also higher at a significant level. In addition, the mean PPAQ score of the fathers who had a physical contact duration of 7 hours or more was higher at a significant level than those with less physical contact ($f=3.025$, $p=0.03$) (Table 5).

Discussion

Attachment is a strong bond, which develops between the infant and the primary caregiver, and establishes a sense of security in the infant. The effect of the attachment pattern that is established in the early days of life in determining the future relationship styles of the person is an indisputable fact. The origin of most psychopathological conditions that emerge in the early three years of life stems from the relationship between the infant and the primary caregiver. Any disruption in this relationship can be effective in the formation of a pathological structure.³¹ In this context, it is important to determine the effect of father-infant attachment along with sociodemographic and other factors. The present study was conducted to investigate the impacts of some characteristics of fathers on paternal attachment in the postpartum period.

The mean PPAQ scale score of the fathers who participated in the study was found to be 68.17 ± 8.55 . The highest score that can be obtained from PPAQ is 95. As the score increases, the level of father-infant attachment also increases. In the study conducted by Aydın Kartal & Erişen investigating the father-infant attachment, the mean total score was reported to be 71.37 ± 10.55 .³² In their study, Yu et al. found the mean total score to be 75.68 ± 10.01 .³³ Aslan et al. found the mean father-infant attachment score to be 70.81 ± 8.22 in their study and they accepted that the attachment was good.³⁴ The result of this study is similar to the results of the studies carried out.^{32,33,34}

The attachment scores of the fathers who had a high level of education were found to be significantly higher in the study. In his study, Dinç reported statistically

significant differences in the mean PPAQ score of the father's education level.³⁵ The high educational level of fathers causes them to become conscious fathers. In his study, Nkwake argued that attachment was high because the higher education level of the father increases the participation in the infant's care.³⁶ In the study of Kuzucu it was stated that fathers with a high level of education have higher self-confidence and are more knowledgeable about baby care.³⁷ The findings of the present study show parallelism with previous studies. In the study conducted by Kılan, no significant differences were reported in the mean PPAQ score of the education level of fathers.³⁸ The findings of our study are not consistent with Kılan's study.

Also, it was found in the present study that the mean PPAQ score of those who were exposed to domestic violence in their childhood was significantly lower than those who were not and 65.6% of those who were exposed to violence experienced physical violence, and 67.7% of the people who applied violence were fathers. It is considered that physical violence experienced by fathers in childhood affects father-infant attachment negatively. The physically abused individual carries it into adulthood.¹⁸ In the literature, the opinion that fathers' bad experiences in childhood affect their attachment relationships negatively with their children supports this study. It was also emphasized that risk groups must be determined and the education level of fathers on this subject must be increased to develop fathers' attachment to their infants in a healthy way.

It was also found that the mean PPAQ score of the fathers who did not have any other children was significantly higher. In the study conducted by Türk Düdükçü and Aslan, it was reported that as the number of children increased, the total scale score of PPAQ decreased at significant levels.³⁹ The increasing number of children may cause the father's interest, attention, and energy to be divided, and the rate of participation in the infant's care and the level of father-infant attachment to decrease. Dinç found that attachment decreased as the number of children increased.³⁵ In the literature, it has been stated that the increase in the number of infants decreases the participation in care.⁴⁰ Uçakçı Asaloğlu speculated in his study that as the number of children increases, the attachment of fathers is affected negatively.¹⁹ The study data are compatible with the literature data. In the present study, 88.8% of the fathers stated that their infants were planned. Karakulak found that 92.1% of fathers wanted the baby.⁴¹ It is stated that in unplanned pregnancies, father candidates cannot adapt to fatherhood and experience anxiety in this aspect.¹⁴ The study conducted by Aydın Kartal and Erişen was similar in that 72.8% of fathers had planned infants.³²

The mean PPAQ score of the fathers whose infants were born by cesarean section and who had physical con-

tact for the first 24 hours when the infant was born was significantly higher in the study. The first hours after the delivery are important in terms of initiating father-infant bonding and becoming used to the new role of the father. Studies are reporting that skin-to-skin contact affects father-infant bonding positively.^{42,43} It was found in another study that skin-to-skin contact made fathers more interested in their infants.⁴⁴ In his study, Huang reported that the father-infant skin-to-skin contact after cesarean section reduces the stress and depression levels of fathers, and fathers become more interested in their infants.⁴⁵ After cesarean delivery, the meeting of the infant with the mother is later than the infants born with vaginal delivery. For this reason, father-infant physical contact occurs during the period between the end of the cesarean section and the first contact of the mother with her infant.⁴⁶ This explains the high-level father-infant attachment since fathers' first contact with their infants occurs earlier after cesarean delivery. Vaginal delivery is recommended by stating that it has positive effects such as normal and physiological vaginal delivery, rapid recovery in the mother, less risk of infection, and early breastfeeding for the newborn.⁴⁷ Although the finding of the present study is compatible with the literature data that physical contact affects attachment in the first 24 hours positively, there are differences in terms of the effect of the infant's birth type on the father's level of attachment with the infant.

The duration of the contact of the infant is as important as the first 24 hours of contact with the father. In the present study, fathers who had first physical contact with their infants for 7 hours or more had higher levels of attachment than fathers who had physical contact with their infants for less than 7 hours. The more time the father spends with his infant, the greater the attachment. Previous studies reported that postpartum physical contact strengthens attachment.²¹ The literature on how long fathers must be in physical contact with their infants is not sufficient. In this respect, it is considered that the present study will contribute to the literature.

In the study, no relationship was found between the gender of the baby and the level of father-infant attachment. Ddkc and Ylmaz also stated in their studies that the gender of the baby did not differ statistically significantly at the level of attachment.^{39,48} Evcili et al. found that fathers have high levels of attachment to their baby boy.⁴⁹ The reason for the differences in the literature is thought to be the increase in the level of education, the increase in the awareness of equality between girls and boys, and the social change in cultural norms for girls.

Conclusion

The factors such as fathers' educational levels, exposure to domestic violence in childhood, the infant's birth type, the infant's physical contact status and duration of physical contact with the father in the first 24 hours, and

the status of having another child were found to have a significant effect on father-infant attachment in the present study.

It was also found in the study that factors such as the father's age, marital status, employment status, occupation, region of residence, type of family he lived for the longest time, gender of the infant, and presence of the spouse during birth did not affect father-infant attachment.

To develop father-infant bonding, which has an important place in terms of community mental health, risk groups must be determined and measures must be taken in this respect. Because of the scarcity of studies conducted on father-infant attachment in the literature, it is considered that the number of studies on this subject must be increased.

Acknowledgements

This study was presented as an oral presentation at '9. International Istanbul Scientific Research Congress, May, 14-15, 2022

Declarations

Funding

This project is supported by The Scientific and Technological Research Institution of Turkey -2209A.

Author contributions

Conceptualization, G.K. and S.A.C.; Methodology, G.K. and S.A.C.; Software, G.K. and S.A.C.; Validation, G.K. and S.A.C.; Formal Analysis, S.A.C.; Investigation, G.K.; Resources, G.K.; Data Curation, G.K. and S.A.C.; Writing – Original Draft Preparation, G.K. and S.A.C.; Writing – Review & Editing, G.K. and S.A.C.; Visualization, G.K.; Supervision, S.A.C.; Project Administration, S.A.C.; Funding Acquisition, G.K.

Conflicts of interest

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Data availability

Data available on request from the authors.

Ethics approval

The study was approved by the Human Research Ethics Committee of Zonguldak Blent Ecevit University (approval no: 2021/106). The participants read the information text before they filled out the questionnaires, and those who approved were included in the study.

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