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Father-Infant Attachment Status and Associated Factors

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Objective: The aim of this study was to evaluate the father-infant attachment status and associated factors of fathers with infants aged 0-12 months.

Materials and Methods: The study was conducted on fathers of infants between 0-12 months of age who were brought to Family Health Centers for routine follow-up. A total of 160 fathers who met the sample selection criteria participated in the study. 'Infant-Family Information Form' and "Postnatal Paternal-Infant Attachment Questionnaire (PPAQ) were used to collect the data.

Results: The mean age of the fathers who participated in the study was 33.67±4.70 years. The mean total scale score of the fathers was found to be 71.78±11.24 points. It was determined that the total and all sub-dimension scores of the PPAQ were significantly higher in fathers whose education level was university or higher, whose income was higher than their expenses, whose number of children was less than three, who were ready to become fathers, who had a good relationship with their wives and who supported the care of their infants (p<0.05). It was found that there was no statistically significant difference between the fathers' PPAQ scores and age, occupation, gender of the infant, and age of the infant (p>0.05).

Conclusions: It was found that the fathers' father-infant attachment level was above the average in the sub-dimensions and total scale score. Fathers' education level, income level, number of children, readiness for fatherhood, relationship with the partner and support for the care of the infant were found to be factors affecting the level of father-infant attachment.

Key Words: *Father, infant, attachment*

Baba-Bebek Bağlanma Durumu ve Ilişkili Faktörler

Amaç: Bu çalışmanın amacı 0-12 aylık arası bebeği olan babaların baba-bebek bağlanma durumunu ve ilişkili faktörleri incelemektir.

Gereç ve Yöntem: Çalışma Aile Sağlığı Merkezlerine rutin izlem için gelen 0-12 aylık arasında bebeği olan babalarda gerçekleştirilmiştir. Çalışmaya örneklem seçim kriterlerini karşılayan toplam 160 baba katılmıştır. Verilerin toplanmasında "Bebek-Aile Bilgi Formu" ve "Baba-Bebek Bağlanma Ölçeği (B-BBÖ)" kullanılmıştır.

Bulgular: Araştırmaya katılan babaların yaş ortalamasının 33.67±4.70 yıl olduğu belirlenmiştir. Babaların B-BBÖ toplam ölçek puan ortalaması 71.78±11.24 puan olduğu saptanmıştır. Eğitim düzeyi üniversite ve üstü olan, geliri giderinden fazla olan, çocuk sayısı üçten az olan, baba olmaya hazır olan, eşi ile ilişkisi iyi olan ve bebeğinin bakımına destek olan babaların B-BBÖ toplam ve tüm alt boyut puanlarının anlamlı şekilde yüksek olduğu belirlenmiştir (p<0.05). Babaların B-BBÖ puanları ile yaş, meslek, bebeğinin cinsiyeti ve bebeğinin yaşı arasında istatistiksel olarak anlamlı bir farklılık olmadığı saptanmıştır (p>0.05).

Sonuç: Babaların B-BBÖ alt boyutları ve toplam ölçek puanı ortalamanın üzerinde olduğu bulunmuştur. Babaların eğitim düzeyi, gelir düzeyi, çocuk sayısı, babalığa hazır olma, eş ile ilişkisi ve bebeğin bakımına destek olma baba-bebek bağlanma düzeyini etkileyen faktörler olarak saptanmıştır.

Anahtar Kelimeler: *Baba, bebek, bağlanma*

Introduction

An infant can develop as a whole in terms of physical, emotional, mental, social, and personality development only if he/she israised in a loving and warm environment. The first community that tries to provide this loving and caring environment to the infant and then to the child is the family (1). Family and family relationships have important effects on the child. The interaction of parents in the family with the child leaves positive or negative traces in the child's future life (2, 3). Attachment is a concept that has an important place in the human development process. Attachment is a part of the parent-child relationship (3). This process, which develops between the mother and the infant at birth, continues to affect the individual throughout life by affecting the person's development, relations with other people and psychological adaptation. The infant becomes dependent on the caregiver because his/her skills are not yet sufficiently developed, and the one-on-one relationship he/she establishes with the caregiver during this dependency process is extremely important for his/her mental and emotional development (2, 4, 5).

Attachment behavior has been defined as seeking and maintaining closeness with another individual. This theory explains the cognitive, emotional, and behavioral relations between the caregiver and the child. Primary attachment is mostly formed towards the mother, but later other special people are added to this (3). In many infants, the primary attachment occurs to the father, in addition to the mother (6). Attachment theory is based on the formation of a secure infant-parent bond as a result of the baby sending signals for her/his needs and the appropriate response of the caregiver adult. Attachment theory has been developed in recent years to involve the father and many other figures (3).

It is stated that fathers' attitudes affect children's secure attachments and direct/indirect developmental outcomes (7, 8). The formation of a secure father infant attachment (paternal attachment) has a significant impact on children's behavioral patterns, academic achievements, and psychological states in later years (4, 9). Fathers play a unique and important role in shaping the social and emotional health and development of their children (9). It has been shown that children develop secure attachments in healthy relationships with their parents, especially fathers, in early infancy and that this has a positive relation with the development of their cognitive abilities (10). Studies show that father-infant attachment affects children's future academic success, social, emotional, psychological, physical, and intellectual development (4, 8, 10-12). The importance of the father's role in child development has been significantly increasing in recent years due to the influence of today's social, economic, cultural, and environmental conditions (8,10). Healthcare professionals should support education, care, strengthening of family relationships, and parent-infant attachment during pregnancy, birth, and postpartum (13). Recent studies have revealed that the father has a significant impact on the child's behavior in later years, academic success, the child's future self-esteem and resilience, ability to regulate emotions, and psychological state (3 ,6, 9, 14).

There is a need to identify and related factors in order for nurses caring for families to provide family-centered care and to improve father-infant attachment in this process. However, there are very few studies in the literature examining the level of father-infant attachment and factors related to attachment (11, 15). This study was conducted to evaluate the father-infant attachment status and associated factors of fathers with infants aged 0-12 months.

Materials and Methods

Research and Publication Ethics: This study was approved by the Burdur Mehmet Akif Ersoy University Non-Interventional Clinical Research Ethical Committee (Date: 07.06.2023; Decision No: GO 2023/384) and institutional permission was obtained from the relevant institution. In addition, permission was obtained from Güleç for the scale to be used in the study. Written informed consent forms were obtained from the fathers before starting data collection. The research was conducted in accordance with the Principles of the Declaration of Helsinki.

Study Design: The study was designed as a descriptive and correlational type. The universe of the research consisted of fathers of infants aged 0-12 months who came to the Family Health Center (FHC) located in Bucak between June and December 2023. The sample consisted of 160 fathers who applied to the FHC at the time the research data were collected, met the sample selection criteria and agreed to participate in the study.

Participants and Settings: The sample size of the study was calculated using the G-power package program version 3.1.9.7 (G*Power Team, Düsseldorf, Germany). The expected Cohen's t test value for the effect size was 0.30, which was accepted as a medium effect size (16). The sample size was calculated as a minimum of 134 individuals for an effect size of 0.30, a type I error of 0.05, and a power of 95%. Considering possible sample losses, an additional 20% was taken and a total of 160 fathers were included in the sample.

Fathers who gave voluntary consent to participate in the study, who had healthy infants aged 0-12 months, who could read, write, and speak Turkish and who were over the age of 18 were included. Fathers who had any mental health problems, communication difficulties, or whose infants had any chronic diseases or congenital anomalies were excluded from the study.

Data Collection Tolls: Data were collected face to face using the “Infant-Family Information Form” and the “Paternal-Infant Attachment Questionnaire”.

Infant-Family Information Form: This form, prepared by researchers in line with the literature (1, 3, 11, 15), consists of 24 questions questioning the sociodemographic characteristics of the father, mother, infant, and family.

Paternal-Infant Attachment Questionnaire (PPAQ): The scale was developed by Condon et al. to assess postnatal father-infant attachment (17). The validity and reliability study of the Turkish form of PPAQ was conducted by Güleç and Kavlak (1). The scale consists of three sub-dimensions: ‘patience and tolerance’, ‘pleasure in interaction’, and ‘affection and pride’ (1, 17). The lowest score that can be obtained from the scale is 18 and the highest score is 95. High scores obtained from the scale indicate high attachment. In the study of Güleç and Kavlak (1), the Cronbach’s alpha value of the scale ranged between 0.52-0.80. The Cronbach’s Alpha value of the scale for the sample applied in this study was determined as 0.891.

Data Collection: Before starting the study, fathers who met the sample selection criteria were informed about the aim of the study and their written informed consent to participate in the study was obtained. Then, the data collection tools were applied. It took approximately 10 minutes to fill out the form and scale.

Statistical Analysis: The statistical analyses were performed using the SPSS (Statistical Package for the Social Sciences) 22 package (IBM Corp. Armonk, NY: USA) program. The suitability of the variables for normal distribution was assessed using the Shapiro Wilks test. In addition to descriptive statistical methods (number, percentage, frequency, mean, standard deviation), independent sample t-test was used to compare normally distributed data between two groups. In the comparison of data between more than two groups, one-way ANOVA test was used. The results were evaluated at a significance level of $p<0.05$.

Results

The study included 160 fathers and their average age was 33.67±4.70 (min=23, max=43). It was found that 71.9% of the fathers were high school graduates and 58.8% worked as laborers. It was determined that 37.5% of the fathers stated that their income was less than their expenses. It was determined that 49.4% of the fathers included in the study had 2 children and 33.1% had only one child. It was determined that the average age of their infants was 5.8±3.71 months and 55.6% were girls. 60% of the fathers participating in the study stated that their relationship with their partner was very good. 75.6% of the fathers stated that they felt ready to become fathers when they learned that they were going to be fathers and 62.5% of them supported the care of their infants (Table 1).

Table 2 shows the distribution of the Paternal-Infant Attachment Questionnaire (PPAQ) total and sub-dimensions scores of the fathers participating in the study. The mean scores of the fathers from the PPAQ sub-dimensions were determined as 32.93±4.35 points for patience and tolerance, 26.90±5.81 points for pleasure in interaction, and 13.03±1.72 points for affection and pride. The mean total scale score of the PPAQ was determined as 71.78±11.24 points (Table 2).

Table 3 shows a comparison of some sociodemographic characteristics of fathers and their scores on the PPAQ and its sub-dimensions.

It was determined that there was a significant relationship between the fathers' PPAQ total and sub-dimension mean scores and their level of education, income-expenditure status, number of children, feeling ready to be a father, their relationship with their partner and their participation in the care of their infant ($p<0.05$). It was determined that the fathers who received a university education, had a higher income than their expenses, had one child, felt ready to be a father, stated their relationship with their partner as good and moderate and stated that they participated in the care of their infant had significantly higher PPAQ total and sub-dimension mean scores ($p<0.05$) (Table 3).

It was determined that there was no significant relationship between the fathers' PPAQ total and sub-dimension score averages and age, occupation, and the age of the infants ($p>0.05$). There was a significant relationship between the fathers' PPAQ scale score averages only in one sub-dimension (affection and pride). The affection and pride score averages of the daughters' fathers were found to be significantly higher (t=-2.304; $p=0.023$).

Table 1. The characteristics of father and their children (N=160)

Variables	Mean±SD	Min-Max
Father's age (year)	33.67±4.70	23.10-43.00
	n	**%**
Father's education status		
High School	115	71.9
University	45	23.8
Postgraduate	7	4.4
Father's occupation		
Officer	52	32.5
Employee	94	58.8
Self-employment	14	8.8
Income status		
Income less than expenses	60	37.5
Income equal to expenses	58	36.3
Income more than expenses	42	26.3
Number of children		
1st child	53	33.1
2nd child	79	49.4
3rd child and above	28	17.5
Baby's gender		
Girl	89	55.6
Boy	71	44.4
Feeling ready to be a father		
Yes	121	75.6
No	39	24.4
Relationship with partner		
Very good	96	60.0
Good	39	24.4
Middle	25	15.6
Participating in the baby's care		
Yes	100	62.5
No	60	37.5

Table 2. Paternal-Infant Attachment Questionnaire sub-dimensions and total score means of fathers (N=160)

PPAQ and sub-dimensions	Mean±SD	Min-Max	Median
Patience and tolerance	32.93±4.35	23.10-40.00	32.80
Pleasure in interaction	26.90±5.81	15.30-32.60	26.90
Affection and pride	13.03±1.72	9.30-15.00	12.60
Total Scale Score	71.78±11.24	48.70-87.60	72.60

Table 3. Comparison of Paternal-Infant Attachment Questionnaire scores according to sociodemographic characteristics of fathers (N=160)

Features		Patience and Tolerance	Pleasure in Interaction	Affection and Pride	Total Scale Score
		Mean±SD	Mean±SD	Mean±SD	Mean±SD
Father's age	19-34 years (n=86)	32.72±4.36	25.35±5.78	10.91±2.35	68.98±11.18
	35 years and above (n=74)	33.17±4.36	26.21±5.63	10.40±2.35	69.79±11.40
	t	-0.646	-0.946	1.343	-0.449
	P	0.519	0.346	0.181	0.654
Father's education status	High school and below (n=115)	31.39±3.92	23.68±5.28	10.01±2.12	65.09±9.96
	University and above (n=45)	36.85±2.62	31.03±2.45	12.38±2.06	80.26±5.63
	t	**-10.200**	**-11.968**	**-6.381**	**-12.113**
	p	**0.000****	**0.000****	**0.000****	**0.000****
Father's occupation	Officer (n=52)	33.18±4.08	26.08±5.90	11.23±2.52	70.50±11.52
	Employee (n=94)	32.86±4.55	25.84±5.67	10.31±2.25	69.02±11.38
	Self-employment (n=14)	32.40±4.20	23.86±5.24	11.05±2.06	67.32±9.55
	F	0.197	0.865	2.771	0.534
	p	0.821	0.423	0.066	0.587
Income status	Income is less than expenses (n=60)	29.07±3.26	20.04±3.59	9.30±2.09	58.42±7.36
	Income equals expenses (n=58)	33.43±2.33	27.38±3.47	10.90±1.98	71.72±5.90
	Income is more than expense (n=42)	37.74±2.23	31.63±2.08	12.34±2.03	81.71±5.08
	F	**129.271**	**171.571**	**28.018**	**175.014**
	p	**0.000****	**0.000****	**0.000****	**0.000****
Number of children	1 (n=53)	33.97±3.62	26.69±5.24	11.33±2.26	72.00±9.97
	2 (n=79)	33.02±4.53	26.08±5.82	10.43±2.35	69.54±11.52
	3 and above (n=28)	30.67±4.45	23.01±5.61	10.13±2.35	63.82±11.22
	F	**5.598**	**4.249**	**3.275**	**0.040**
	p	**0.004**	**0.016**	**0.040**	**0.007**
Baby gender	Girl (n=89)	32.92±4.53	25.79±5.85	11.06±2.33	69.78±11.47
	Boy (n=71)	32.93±4.16	25.69±5.58	10.20±2.32	68.83±11.05
	t	0.017	-0.118	**-2.304**	-0.528
	p	0.986	0.906	**0.023***	0.598
Baby age	0-3 months (n=42)	33.08±4.49	26.38±5.68	11.05±2.85	70.53±11.73
	4-6 months (n=65)	32.66±4.40	25.48±5.98	10.60±2.18	68.75±11.43
	7-12 months (n=53)	33.12±4.26	25.57±5.47	10.47±2.13	69.17±10.80
	F	0.197	0.353	0.776	0.325
	p	0.821	0.703	0.462	0.723
Feeling ready to be a father	Yes (n=121)	34.46±3.54	27.84±4.67	11.24±2.19	73.54±9.06
	No (n=39)	28.17±3.02	19.25±3.20	8.92±1.95	56.35±6.42
	t	**9.952**	**10.678**	**5.884**	**10.974**
	p	**0.000****	**0.000****	**0.000****	**0.000****
Your relationship with your partner	Very good (n=96)	35.51±2.91	29.18±3.80	11.77±1.99	76.46±6.98
	Good (n=39)	30.48±2.43	22.03±3.93	9.68±1.65	62.20±5.96
	Middle (n=25)	26.83±2.77	18.36±2.87	8.02±1.74	53.22±5.80
	F	**116.200**	**110.313**	**46.616**	**154.183**
	p	**0.000****	**0.000****	**0.000****	**0.000****
Participating in the baby's care	Yes (n=100)	35.32±3.12	29.12±3.77	11.62±2.06	76.06±7.47
	No (n=60)	28.94±2.98	20.12±3.53	9.10±1.94	58.17±6.67
	t	**12.700**	**14.935**	**7.601**	**15.257**
	p	**0.000****	**0.000****	**0.000****	**0.000****

t: Student-t Test F: One-Way Variance Analysis (ANOVA), Post Hoc test: Bonferroni *p<*0.05* **p<0.01*

Discussion

Attachment is an important phenomenon that begins in infancy and continues throughout life, affecting the later lives of individuals who do not have a healthy attachment pattern. The results of this study conducted with 160 fathers, examining the level of father-infant attachment and related factors, provide nurses with insight into the level of father-infant attachment and shed light on the factors affecting attachment.

The total scale mean score of the fathers who participated in the study on the Paternal-Infant Attachment Questionnaire (PPAQ) was found to be 71.78±11.24 (Table 2). Considering that the lowest score that can be obtained from the scale is 19 and the highest score is 76, it is seen that the attachment levels of the fathers are quite good (1). In similar studies, the PPAQ scores of the fathers were reported as 64.70±7.04 (1), 71.37±10.55 (11) and 70.81±8.22 (18). The result of this study is higher than the result found by Güleç and Kavlak (1) and similar to others (11, 15, 18, 19).

In the study, no significant relationship was found between the age of fathers and father-infant attachment status (Table 2). In the study of Dinç and Balcı (15), no significant relationship was determined between the PPAQ sub-dimensions and total scores and it was found to be similar to this study. On the other hand, in the study conducted by Kartal and Erişen (11), the PPAQ scores of fathers over the age of 40 were found to be higher. This may be due to the different sample groups. In the study of Kartal and Erişen, fathers of children older than 6 months were included in the study. This study was conducted with fathers of infants between 0-12 months.

When the educational status of fathers was compared in the study, a statistically significant difference was found between the PPAQ sub-dimensions and total scores of fathers with university or higher education, and it was determined that the PPAQ sub-dimensions and total scores of fathers with university or higher education were higher than those with high school or lower education. In line with this result, fathers need to be supported and developed according to their level of father-infant attachment.

The PPAQ sub-dimensions and total scores of fathers whose income is higher than their expenses were found to be significantly higher. This result may indicate that fathers with low economic status cannot ignore economic concerns and thoughts and cannot focus on attachment (11). Knowing that attachment may be lower in low-income fathers can help nurses address attachment in the care they provide to them.

When the PPAQ sub-dimensions and total scores of the fathers included in the study were compared according to the number of children, it is seen that fathers with one child have higher father-infant attachment status. As the number of children in the family increases, the time allocated to the child decreases and the burden on the father increases, which is thought to reduce attachment. Similar results have been found in studies (11, 15). However, in another study, no significant difference was found between fathers' attachment as the number of infants increased (18).

When compared according to the gender of their children, it was observed that the PPAQ sub-dimensions and total scores of the fathers were higher in girls than in boys only in the affection and pride sub-dimension. On the other hand, when compared according to the ages of their children, no significant difference was found in fathers.

In the study, when the fathers' feeling of being ready to be a father was compared, the attachment scores of the ready fathers were determined to be significantly higher than the fathers who were not ready. It was seen that there were similar results with other studies in the literature (11, 15). The father's feeling ready for the role of fatherhood can facilitate positive emotions such as fulfilling the requirements of parenthood and attachment with the infant. Nurses asked whether the pregnancy was planned when collecting data for the care plan. In planned pregnancies, the preparation of parents for their roles can be positively affected. Nurses who plan to develop father-infant attachment should question whether fathers are ready for their roles as fathers. In order to develop father-infant attachment, fathers should be helped to feel ready for the role of fatherhood (1).

As fathers' relationship with their partner increased, PPAQ sub-dimensions and total scores were found to be statistically significantly higher (Table 3). In the study by Yılmaz et al. (20), similar to this study, it was found that fathers with a high relationship with their partners had higher PPAQ sub-dimensions and total scores. In the study by Knappe et al. (21), it was determined that fathers who started to take an active role with their partners during pregnancy and had high relationship quality increased the father-child attachment status. In another study, father-infant attachment was found to be weak, and this situation was shown to be associated with depression (22). Good relationships between partners can support the common roles of parenting and cooperation in child care, which have common goals (1). This result shows that fathers who do not perceive the relationship between partners well may have low father-infant attachment. Nurses should consider that fathers who have problems in their spousal relationships may also have problems in attachment with their infants.

The father's participation in the baby's care, meeting its physical needs such as changing its diaper, bathing, etc., holding it, loving it, calming it when it cries, and taking an active role in the baby's life increases father-infant attachment (12, 15). In this study, it was found that the total PPAQ scores of fathers who participated in the care of their infants (76.06±7.47) were much higher than those of fathers who did not participate (58.17±6.67) (Table 3). Similarly, studies have found that the participation of fathers in the care of their infants

increases the attachment status (12, 15, 23). It has been proven that skin-to-skin contact between fathers and their infants, talking to them, touching them, and looking at them, increases father-infant attachment.

In conclusions, and it was determined that the average PPAQ total and subscale scores of the fathers in this study were at a good level, but they were not yet close to the highest score that could be obtained from the scale. This result is important in terms of showing that father-infant attachment needs to be strengthened. It can be recommended that the father-infant attachment level of fathers with a high school education level or below, low income level, two or more children, do not feel ready for the role of fatherhood, do not think that their relationship with their partner is good and do not support the care of the infant be carefully examined and initiatives should be planned to improve it. It may be useful to strengthen the relationship with their partners of these fathers who are at risk in terms of father-infant attachment and to provide family planning services so that they can have a planned and desired number of children. In addition to other issues, parenting programs during pregnancy should also focus on developing relationships between partners, preparing fathers to be for fatherhood and developing their skills in providing postpartum care. In addition, nurses evaluating families economically and informing fathers with low income levels about the support resources they can access may also contribute to father-infant attachment. The results of the study can guide care in this way and contribute to improving the quality of nursing care.

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