

Investigation of the Level of Attachment of Fathers to the Fetus and Factors Affecting Such Attachment in the Prenatal Period

Prenatal Dönemde Babaların Fetüse Bağlanma Düzeyi ve Bu Bağlanmayı Etkileyen Faktörler

Süreyya GÜMÜŞSOY¹ 
Sevgül DÖNMEZ² 
Nursel ALP DAL³ 

¹Department of Nursing, Ege University Atatürk Health Care Vocational School, İzmir, Turkey
²Department of Nursing, Muğla Sıtkı Koçman University Institute of Health Sciences, Muğla, Turkey
³Department of Midwifery, Munzur University Faculty of Health Sciences, Tunceli, Turkey

ABSTRACT

Objective: The aim of this study was to determine the level of attachment of fathers to the fetus and the factors affecting such attachment in the prenatal period.

Methods: This descriptive study was conducted on 463 fathers whose spouses were 24–38 weeks pregnant in the obstetrics outpatient clinic of the University Research and Practice Hospital Gynecology Department between December 2019 and April 2020. The “Information Form” and “Intrauterine Father Attachment Scale” (IFAS) were used as data collection tools for this study.

Results: In this study, the total score of Intrauterine Father Attachment Scale was found to be 62.22 ± 10.66 (min = 34, max = 87). The mean Intrauterine Father Attachment Scale scores of the fathers who had a good income level had a less marriage period, had less children, had a high educational level, who want to have more children, and whose spouse’s pregnancy was not risky were found to be higher than those of the fathers who did not ($p > .05$). Furthermore, of the fathers those who were previously knowledgeable about baby care and were experienced in baby care thought that both of the parents should be responsible for the care of the baby, perceived the support given by his family as sufficient, thought that marriage means happiness, wanted to attend their wives’ childbirth in the delivery room, wanted to attend pregnancy schools, and thought that the social relations affect the baby positively obtained higher scores from the IFAS ($p > .05$).

Conclusion: Regression results have shown that getting information about baby care, who is mostly responsible for a baby’s care, educational status, and status of wanting to join pregnant schools have a significant impact on Intrauterine Father Attachment Scale scores.

Keywords: Attachment, father, fetus, prenatal period

ÖZ

Amaç: Bu çalışmanın amacı, prenatal dönemde babaların fetüse bağlanma düzeylerini ve bu bağlanmayı etkileyen faktörleri belirlemek.

Yöntemler: Tanımlayıcı tipte olan bu araştırma, Aralık 2019-Nisan 2020 tarihleri arasında bir Üniversite Araştırma ve Uygulama Hastanesi Kadın Hastalıkları ve Doğum polikliniğinde eşleri 24–38 haftalık gebe olan 463 baba ile yapılmıştır. Araştırmanın veri toplama aracı olarak; babaların tanıtıcı özelliklerini içeren “Tanıtıcı Bilgi Formu” ve babaların doğum öncesi bebeğe bağlanma düzeylerini belirleyen “Rahim İçi Baba Bağlanma Ölçeği (RİBBÖ)” kullanılmıştır.

Bulgular: Çalışmada RİBBÖ toplam puan ortalaması $62,22 \pm 10,66$ (min=34, max=87) olup, katılımcıların %52,5’i 29–39 yaş aralığında, %38,4’ü lise mezunu ve %60,0’inin gelir durumunun kötü seviyede olduğu belirlenmiştir. RİBBÖ puan ortalaması ile eğitim durumu, evlilik süresi, gelir durumu, bu gebeliğin kaçınıcı çocuğu olduğu, toplamda kaç çocuk istediği ve gebeliğin riskli olma durumu arasında istatistiksel olarak anlamlı fark bulunmuştur ($p > ,05$). Ayrıca çalışmada babaların %66,5’inin daha önce bebek bakımı ile ilgili bilgi aldığı, %82,5’inin bebeklerini kaybetme korkusu yaşadığı ve %52,5’inin eşlerinin doğuma katılmak istemediklerini ifade ettikleri saptanmıştır. RİBBÖ puan ortalaması ile daha önce bebek bakımı ile ilgili bilgi alma durumu, daha önce bebek bakımı ile ilgili deneyim yaşama durumu, bebeğin bakımında çoğunlukla kimin sorumlu olduğu,

Received/Geliş Tarihi: 16.02.2023
Accepted/Kabul Tarihi: 24.04.2023
Publication Date/Yayın Tarihi: 02.06.2023
Corresponding Author/Sorumlu Yazar:
Sevgül DÖNMEZ
E-mail: donmezsevgul@gmail.com

Cite this article as: Gümüüşsoy, S., Dönmez, S., & Alp Dal, N. (2023). Investigation of the level of attachment of fathers to the fetus and factors affecting such attachment in the prenatal period. *Journal of Midwifery and Health Sciences*, 6(3), 150-158.



Content of this journal is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License

ailesi tarafından verilen desteği yeterli bulma durumu, evliliğin neyi ifade ettiği, eşinin doğumuna katılmayı isteme durumu, gebe okullarına katılmayı isteme durumu, bebeğin sosyal ilişkilerini etkileme durumu arasında istatistiksel olarak fark bulunurken ($p < .05$); bebeğini kaybetme korkusu yaşama durumu ve bebeğin kime benzemesini istedikleri arasında ise istatistiksel olarak anlamlı fark bulunmamıştır ($p > .05$).

Sonuç: Araştırmanın regresyon sonucunda daha önce bebek bakımı ile ilgili bilgi almanın, bebe bakımından en çok kimin sorumlu olduğunun, eğitim durumunun, doğuma ve gebe okullarına katılmak istemenin, eş ile olan ilişkiden memnuniyetin RİBBÖ puanı üzerinde anlamlı bir etkiye sahip olduğunu göstermiştir.

Anahtar Kelimeler: Bağlanma, baba, fetüs, doğum öncesi dönem

Introduction

It is known that during the antenatal period, parents develop a strong emotional tie with the fetus, and the development of this emotional tie is effective for both mothers and fathers to adapt to pregnancy successfully (Brandão et al., 2020; Türkmen & Güler, 2022). Intrauterine attachment refers to the unique relationship between the fetus in the uterus and the parents before the delivery (Brandão et al., 2020; Dönmez & Gümüşsoy, 2019; Esposito et al., 2017; Göbel et al., 2020; Türkmen, & Güler, 2022). This relationship is considered the oldest and most basic form of human sincerity (Pisoni et al., 2015). Although being a father is felt stronger at the first moment when the father takes the baby in his arms or in the following years, the first step of the fatherhood role is in fact the first moment when the decision to have a baby is made and develops in the months following the delivery (Fletcher et al., 2014). The father develops attachment behaviors during the antenatal period just like the mother. But, fathers start to assume parenting role without the biological process that women undergo during pregnancy, breastfeeding, and maternity leave, so they start parenting with less practice, experience, support, time, and knowledge (Nelas et al., 2016; Türk Dündükcü & Taş Aslan, 2020). Additionally, for women, the attachment may be more easily accomplished because they feel the physical signs of pregnancy in their bodies, but for men, the lack of tangible signs of the existence of the child may turn attachment more difficult, and this process may take longer than expected (Brandão et al., 2020).

The fact that several factors play a role in the establishment of attachment between the father and the baby has been demonstrated in a limited number of studies. In line with these studies, the relationship between the father and his wife, his marital satisfaction, whether the pregnancy is a planned pregnancy, his participation in the care of the baby, his psychological well-being, and his perceived social support were determined to affect the attachment (Condon et al., 2013; Fletcher et al., 2014; Nosrati et al., 2018). In several studies, it is emphasized that there is a positive relationship between the father's desire for pregnancy and attachment to the fetus (Camarneiro & Miranda Justo, 2017; Köse et al., 2013). In another study, it is reported that first-time fathers and young fathers experience better attachment and higher affect intensity (Vreeswijk et al., 2014).

Attachment is a very important way for the father to have a deeper and more meaningful relationship with his child from the very beginning of his child's life. What is more, it is thought that the stronger the man's relationship is, the more his daughter or son will benefit from this relationship, which will ensure that children of future generations will be emotionally safer and healthier (Rollè et al., 2020; Verny & Kelly, 2016). Father–infant attachment

significantly affects the child's growth, behavioral, and spiritual development. Therefore, maximizing family health, especially child health, was thought of if the factors affecting the formation of secure attachment are known and if health professionals carry out necessary evaluations considering these factors and perform effective interventions. This study was designed to determine the level of attachment of fathers to the fetus and the factors affecting such attachment in the prenatal period.

Methods

Design

This cross-sectional and descriptive study was designed to determine the level of attachment of fathers to the fetus and the factors affecting such attachment in the prenatal period.

Setting

The study was conducted in the obstetrics outpatient clinic of the University Research and Practice Hospital Gynecology Department between December 2019 and April 2020. Firat University Hospital established in 1984 is a regional hospital located in Eastern Anatolia, Turkey.

Sample

This study was conducted with the spouses of 24- to 38-week pregnant women who presented to the aforementioned hospital for routine pregnancy control. The study sample consisted of 463 fathers. The inclusion criteria were as follows: being >18 years old, being married, not having had a psychiatric illness, being literate and able to speak Turkish, and having a 24- to 38-week pregnant wife.

A posthoc power analysis was performed with the G-Power Data Analysis program based on the data of the present study. In the power analysis using independent samples *t*-test at 95% confidence interval and $p < .05$ significance level, the sample size was calculated as 463 fathers. The effect size of the study was moderate (0.5), its power was determined as 0.96, and it was concluded that the sample was a good representative of the population (Chow et al., 2018).

Measurements

"Fathers' Descriptive Information Form" (FDIF) containing the identifying features of fathers and the Intrauterine Father Attachment Scale (IFAS) which determines the level of fathers' attachment to the baby before birth were used as data collection tools of this study.

The purpose of this study was explained to the fathers included in the sample, by stating that participation in the research was completely voluntary and that they could withdraw from the research whenever they wanted. The participants were then asked to fill in the data collection tools individually. Implementation of data collection tools took approximately 10-15 minutes.

Fathers' Descriptive Information Form

Fathers' Descriptive Information Form is a form developed by the researchers in this study, consisting of 18 items including various sociodemographic characteristics of the fathers such as age, gender, and the father's knowledge about pregnancy and fetus (Condon et al., 2013; Pisoni et al., 2015; Türk Düdükü & Taş Aslan, 2020).

The Intrauterine Father Attachment Scale

Dönmez and Gümüşsoy (2019) developed the IFAS to measure the level of attachment of the father to the fetus before birth. The scale consists of 23 items, with 4 options as "Never=1 point," "Sometimes=2 points," "Mostly=3 points," and "Always=4 points" in each item. Out of the 23 items in the scale, statements of 17th, 18th, 20th, 22nd, and 23rd items are reversed. (examples of items: 1. I talk to my baby, 2. I feel my baby by touching my wife's belly, 5. I cant 'for my baby to be born, 6. I dream about my baby, 10. I wonder who my baby is like, 19. I am affectionate with my baby). The total score that can be obtained from the scale varies between 23 and 92. High scores mean that the level of paternal antenatal attachment is high, and low scores mean that the level of intrauterine father attachment is low. In the present study, Cronbach's alpha internal consistency value was found as 0.74. In Dönmez and Gümüşsoy's study, it was determined that the scale is valid and reliable for the Turkish society (Dönmez & Gümüşsoy, 2019). The internal consistency value was found to be 0.84 in this study.

Variables

The dependent variables of this study were the mean scores on the IFAS. The independent variables to evaluate the fathers were based upon the data collected from the items of the FDIF.

Statistical Analysis

The Statistical Package for Social Sciences (IBM SPSS Statistics version 22.0; SPSS Inc., Armonk, NY, USA) was used for statistical analysis. Categorical variables were presented as numbers and percentages, while continuous variables were provided as means and standard deviations. The Kolmogorov-Smirnov test was used to assess the normal distribution of the data. *t* and *F* tests and stepwise regression analysis were used to determine the relationship between the independent variables and the dependent variable. Cronbach's alpha reliability coefficients of the scales were determined using reliability analysis. Additionally, a power analysis was performed to reveal the power of the study. The results were evaluated at a confidence interval of 95%, and the significance level was established at $p < .05$. Moreover, Cohen's *d* value was used in calculating the effect size according to the difference of the group averages.

Results

Analysis of the Intrauterine Father Attachment Scale by Their Sociodemographic and Some Variables

This study showed that the average score in IFAS was 62.22 ± 10.66 (min = 34, max = 87). When the sociodemographic and some variables of the participants were examined, 243 (52.5%) of the participants were between the ages of 29 and 39, 178 (38.4%) were high school graduates, 320 (69.1%) were working, 201(43.4%) married for 1-5 years, and 278 (60.0%) of them had a poor level of income, 175 (37.8%) had 3 and higher children, 277 (59.8%) gender of the baby was women, 256 (55.3%) desired total number of children was 3-4, 391 (84.4%) requested pregnancy, 380 (82.1%)

spouse's requested pregnancy, and 344 (74.3%) spouse's had risky pregnancy. When the analyses of these characteristics according to the mean scores of the participants on the IFAS were conducted, a statistically significant difference was found between the average IFAS score and the variables that included educational status ($F= 8.110, p = .001$), length of marriage ($F= 27.273, p = .001$), income status ($F= 4.376, p = .013$), number of children ($F= 10.632, p = .001$), the desired number of children ($F= 9.477, p = .001$), and the risky pregnancy ($t=3.696, p = .001$). The mean IFAS scores of the fathers who had a high educational level, had a less marriage period, had a good income level, had less children, who want to have more children, whose spouse's pregnancy was not risky were found to be higher than those of the fathers who did not (Table 1).

Furthermore, this study revealed that 308 (66.5%) of fathers previously received information about baby care, 312 (67.4%) had a baby care experience before, 228 (49.2%) of fathers said the mother is most responsible for the baby's care, 219 (47.13%) of them found the support given by his family is sufficient, for 326 (70.4%) of them marriage meant happiness, 382 (82.5%) had a fear of losing their babies, 243 (52.5%) did not want to attend the birth, 255 (55.1%) did not want to join pregnant schools, 235 (50.8%) wanted him to look like him when the baby grows up, and 209 (45.1%) thought the baby positively affected their social relationships. When the analyses of these characteristics according to the mean scores of the participants on the IFAS were conducted, a statistically significant difference was found between the average IFAS score and the variables that included knowledge about baby care ($t= -5.038, p = .001$), experience on baby care ($t= -4.404, p = .011$), mostly responsible person for baby's care ($F= 13.588, p = .001$), support from family members ($F= 41.86, p = .001$), meaning of marriage ($F= 5.786, p = .003$), attendance to birth ($F= 11.997, p = .001$), status of wanting to join pregnant schools ($F= 9.734, p = .001$), and baby's effect on social life ($F= 8.170, p = .001$). On the other hand, a statistically significant difference was not found between the average IFAS score and the variables that included fear of losing the baby ($F= 1.666, p = .202$) and the desire of who the baby will look like ($F= 2.724, p = .067$).

Of the fathers those who were previously knowledgeable about baby care and who were experienced in baby care thought that both of the parents should be responsible for the care of the baby, perceived the support given by his family as sufficient, thought that marriage means happiness, wanted to attend their wives' childbirth in the delivery room, wanted to attend pregnancy schools, and thought that the social relations affect the baby positively obtained higher scores from the IFAS (Table 2).

Regression Analysis of the Average Scores of the Intrauterine Father Attachment Scale with Independent Variables

The IFAS score and independent variables were examined using a stepwise regression analysis (forward) (Table 3). Regression results have shown that getting information about baby care, who is mostly responsible for a baby's care, what is the educational qualification, and what is the status of wanting to join pregnant schools, has a significant impact on IFAS scores. The model was statistically significant ($F=10.98, p < .001$). Getting information about baby care variable received the strongest weight in the model followed by who is mostly responsible for the baby's care, but education and status of wanting to join pregnant schools received the lowest of the 4 weights.

Table 1.
Sociodemographic and Mean Scores of Some Variables According to the Intrauterine Father Attachment Scale

Variables	n	%	Mean ± SD	Min-Max		
Age groups (years)						
18–28	157	33.9	63.61 ± 9.33	43–87	F= 2.973 p = .052	Cohen's d = .117 (Small)
29–39	243	52.5	61.92 ± 11.24	34–86		
40–60	463	13.6	59.88 ± 11.09	37–83		
Educational status						
Primary school	59	12.7	59.10 ± 10.04	34–84	F= 8.110 p = .001*	Cohen's d = .730 (medium)
Middle school	101	21.8	60.09 ± 9.56	43–87		
High school	178	38.4	61.94 ± 9.91	43–85		
University/college	125	27.1	65.80 ± 8.53	47–87		
Working status						
Yes	320	69.1	62.01 ± 11.00	34–86	t = -.624 p = .533	Cohen's d = .055 (Small)
No	143	30.9	62.68 ± 9.87	37–87		
Marriage period (years)						
1-5	201	43.4	66.04 ± 9.57	34–87	F= 27.273 p = .001*	Cohen's d = .942 (large)
6-10	119	25.7	60.60 ± 10.05	35–81		
11-30	143	30.9	58.19 ± 10.83	34–85		
Income status						
Good	96	20.7	64.60 ± 11.45	41–86	F= 4.376 p = .013*	Cohen's d = .545 (medium)
Middle	89	19.2	63.17 ± 11.16	34–85		
Bad	278	60.0	61.09 ± 10.09	37–87		
Number of children						
1	155	33.5	65.09 ± 10.06	34–87	F= 10.632 p = .001*	Cohen's d = .841 (large)
2	133	28.7	62.07 ± 11.20	34–84		
3 and higher	175	37.8	59.78 ± 10.17	34–85		
Gender of the baby						
Women	277	59.8	61.75 ± 10.75	34–96	t = 2.082 p = .126	Cohen's d = .146 (small)
Men	173	37.4	62.56 ± 10.55	37–87		
Do not know	13	2.8	67.69 ± 8.84	51–85		
Desired total number of children						
1–2	63	13.6	60.69 ± 10.80	44–84	F= 9.477 p = .001*	Cohen's d = .975 (large)
3–4	256	55.3	60.82 ± 10.30	34–87		
5–8	144	31.1	65.37 ± 10.52	34–86		
Requesting pregnancy						
Yes	391	84.4	62.52 ± 10.63	34–87	t = 1.409 p = .159	Cohen's d = .340 (medium)
No	72	15.6	60.59 ± 10.73	35–85		
Spouse's requesting pregnancy						
Yes	380	82.1	62.28 ± 10.80	34–87	t = .799 p = .255	Cohen's d = .138 (small)
No	83	17.9	61.95 ± 10.03	35–85		
Risk of having a spouse during pregnancy						
Yes	344	74.3	61.15 ± 10.22	34–86	t = 3.696 p = .001*	Cohen's d = .971 (large)
No	119	25.7	65.29 ± 11.31	34–87		

Note: *p < .05.

Among the independent variables used in the regression analysis, factors like “Getting information about baby care, Who is most responsible for the baby’s care?, Educational status and willingness to attend Pregnant Schools” significantly predicted IFAS. Among the independent variables, “Getting information

about baby care, Who is most responsible for the baby’s care?, Educational status and willingness to attend Pregnant School” explains 22% of fathers’ level of attachment to their fetus. The variable “getting information about infant care” is the strongest factor explaining fathers’ attachment to fetuses, explaining 7% of

Table 2. Average Scores of Some Variables by Intrauterine Father Attachment Scale						
Variables	n	%	Mean ± SD	Min-Max		
Getting information about baby care						
Yes	308	66.5	65.65 ± 9.71	34–85	t = -5.038 p = .001*	Cohen's d = .963 (large)
No	155	33.5	60.49 ± 10.71	37–87		
Information source on baby care (n = 308) ^{a,b}						
Health personnel	191	62.0	58.09 ± 10.77	34–83	—	—
Spouse/friend/relative	238	77.3	59.79 ± 9.95	41–84		
Internet/TV/books	189	61.4	59.67 ± 9.52	44–85		
Having a baby care experience before						
Yes	312	67.4	60.73 ± 10.46	34–85	t = -4.404 p = .011*	Cohen's d = .620 (medium)
No	151	32.6	65.29 ± 10.44	34–87		
Who is mostly responsible for the baby's care						
Mother	228	49.2	59.67 ± 10.57	34–86	F = 13.588 p = .001*	Cohen's d = .874 (large)
Father	30	6.5	64.33 ± 4.40	48–73		
Mother and father	205	44.3	64.75 ± 10.76	34–87		
Finding the support given by his family (mother, father, sibling, etc.) as sufficient						
Yes	219	47.3	64.36 ± 10.68	34–87	F = 41.86 P = .001*	Cohen's d = .857 (large)
No	66	14.3	63.06 ± 9.14	37–80		
Partially	178	38.4	59.28 ± 10.52	41–86		
What does marriage mean?						
Happy	326	70.4	63.30 ± 10.89	34–87	F = 5.786 p = .003*	Cohen's d = .702 (medium)
Unhappy	17	3.7	59.82 ± 10.95	34–78		
Between happiness and unhappiness	120	25.9	59.62 ± 9.48	41–85		
Fear of losing his baby						
Yes	382	82.5	62.10 ± 10.89	34–87	F = 1.666 p = .202	Cohen's d = .284 (medium)
No	38	8.2	64.92 ± 9.32	37–83		
Sometimes	43	9.3	60.83 ± 9.33	41–81		
The situation of wanting to participate during childbirth						
Yes	117	25.3	66.22 ± 10.39	34–87	F = 11.997 p = .001*	Cohen's d = .764 (medium)
No	243	52.5	60.52 ± 10.89	34–85		
Not sure	103	22.2	61.68 ± 9.21	45–85		
Status of wanting to join pregnant schools						
Yes	96	20.7	66.40 ± 10.46	34–87	F = 9.734 P = .001*	Cohen's d = .851 (large)
No	255	55.1	61.00 ± 10.01	34–85		
Not sure	112	24.2	61.40 ± 11.42	43–86		
Who does he want his baby to look like the most when he/she grows up						
Me	235	50.8	61.91 ± 10.36	34–84	F = 2.724 P = .067	Cohen's d = .146 (small)
Mother	201	43.4	61.95 ± 10.77	43–87		
My sibling	27	5.8	66.85 ± 11.71	34–85		
Baby's effect on the social relationships						
Positive	209	45.1	64.37 ± 9.75	34–87	F = 8.170 P = .001*	Cohen's d = .815 (large)
Negative	55	11.9	59.78 ± 10.36	34–80		
It did not affect	199	43.0	60.63 ± 11.26	37–86		

Note: *p < .05. ^aOnly those who receive information about baby care. ^bNo statistical analysis was performed because more than one item was marked.

fathers' attachment to fetuses. Other "Who is most responsible for the care of the baby?, Educational status and Desire to attend Pregnant Schools" contributed to the total variance of 15%.

Finally, the results of regression analysis showed that age groups, working status, marriage period, income status, number of children, gender of the baby, requesting pregnancy, spouse's

Table 3.
Stepwise Regression Analysis of the Intrauterine Father Attachment Scale Mean Score with Independent Variables

Model	Variables	B	t	R	R ²	sr ²	df	F
1	(Constant)	52.57	21.78**	.305	.093	.068	156	15.96**
	Getting information about baby care	7.01	3.99**					
2	(Constant)	47.04	16.89**	.404	.163	.053	155	15.13**
	Getting information about baby care	6.85	4.05**					
	Who is mostly responsible for the baby's care	2.83	3.61**					
3	(Constant)	41.46	11.40**	.438	.192	.044	154	12.20**
	Getting information about baby care	7.89	4.57**					
	Who is mostly responsible for the baby's care	2.52	3.21*					
	Educational status	1.93	2.33*					
4	(Constant)	48.06	10.76**	.472	.223	.022	153	10.98**
	Getting information about baby care	8.11	4.77**					
	Who is mostly responsible for the baby's care	2.15	2.73*					
	Educational status	2.03	2.50*					
	Status of wanting to join pregnant schools	-3.13	-2.47*					

Note: * $p < .05$, ** $p < .001$, $t = t$ -test, $F =$ ANOVA test, $sr^2 =$ squared semi-partial correlation.
Prenatal dönemde babaların fetüse bağlanma düzeyi ve bu bağlanmayı etkileyen faktörler

requesting pregnancy, risk of having a spouse during pregnancy, finding the support given by his family, desired total number of children, meaning of marriage, fear of losing the baby, the situation of wanting to participate during childbirth, who does he want his baby to look like the most when he/she grows up, and baby's effect on social life have no significant effect on the IFAS scores ($p > .05$). Therefore, stepwise regression analysis did not include these variables in the analysis.

Discussion

The roots of the father–baby bond go back to before the baby was born. This bond that begins before pregnancy develops more as trimesters pass, strengthens with birth, and continues exponentially after birth. Father–baby attachment has a sensitive place in the mental, developmental, and behavioral development of children and in their later life success (Aslan et al., 2017; Dönmez & Gümüşsoy, 2019). For this reason, this study was conducted to determine the level of paternal antenatal attachment and factors affecting attachment in the prenatal period.

This study showed that as the educational level of fathers increased, their attachment scores also increased. Other previous studies found similar results such that as the level of education of fathers increased, their awareness of parental responsibilities increased, they were more willing to participate in baby care, and therefore, their attachment levels to their babies increased (Hildingsson et al., 2014). In this context, it is an expected finding that the attachment scores of fathers with higher education levels are higher. Studies also found that a significant difference was found between the income levels of fathers and average score of father–baby attachment scale (Benli & Aksoy, 2020). As with other previous studies, this study also found that as the income level increased, the attachment scores also increased.

Other previous studies reported that fathers awaiting their first child had a better attachment and more intensive engagement with the fetus than fathers who already had children, but the quality of attachment did not change according to the number

of previous children (Türk Düdükü & Taş Aslan, 2020). As with other previous studies, this study also found that as the number of children increases, the attachment score also decreases. Additionally, this study revealed that the level of paternal attachment decreased as the length of marriage increased. A statistically significant relationship was found between marriage length and paternal attachment in studies similar to this study (Bawadi, 2015; De Mendonça et al., 2015; Condon et al., 2013). Our finding shows compatibility with the previous studies.

One of the most important factors affecting prenatal attitudes is the desire for pregnancy. Unwanted pregnancies may lead to difficulties for parents while connecting with their child, and it may cause bad parenting and eventually incompatibilities with the baby. Studies showed that the quality of attachment was significantly higher in men who participated in the planning of pregnancy compared to those who did not (Gibbs et al., 2018; Hildingsson et al., 2014). This study found that the attachment scores of fathers who wanted the pregnancy were higher. Additionally, as the number of desired children increased, the attachment levels of the fathers also increased.

Another important condition that affects attachment is risky pregnancy. Since high-risk pregnancies are generally a crisis period for mothers and fathers, this affects their parenting behaviors negatively and may cause problems in the attachment (Pisoni et al., 2015). Studies reported that fathers who had negative experiences during pregnancy had difficulty in switching to paternity and adapting to their paternity role. Moreover, studies found that the spouses of women with high-risk pregnancies had a lower level of attachment than the spouses of women with low-risk pregnancies (Bawadi et al., 2015; Salehi et al., 2019). Similarly, this study found that the attachment scores of fathers whose spouses had risky pregnancies were lower. Psychological and social support may help couples with risky pregnancies to handle the attachment process better in the prenatal period.

The involvement of the father in baby care helps him adapt to the role of paternity more easily and initiates the social development

of the baby. Studies found that all kinds of counseling and education (breastfeeding, baby care, baby feeding, etc.) given to parents during pregnancy and postpartum increase the self-efficacy of the parents in terms of baby care and thus affect the parent–baby bond positively (Li et al., 2019; Yang et al., 2016). Also, this study showed that the attachment scores of fathers who previously got information about baby care were higher than the scores of fathers who did not. The father's knowledge of the baby's physical, psychological, and social needs may increase his development of positive behaviors in attachment to the baby.

The social support that parents receive from family, friends, and their environment is also important in establishing an attachment safely. The support provided to the parents during the perinatal period increases the self-confidence of parents in the baby care, positively affects the adaptation processes to the role of parenthood, and also increases the sensitivity and communication between them and their babies (Yılmaz & Beji, 2013). Lack of support in the perinatal period can negatively affect both the mother's and father's experience. Also, this study revealed that the attachment scores of the fathers who thought that having a baby had a positive effect on their social relationships and who found the support given by their family is adequate were higher than those who did not find it sufficient.

The active participation and support of the father in the process of pregnancy and childbirth is important to establish the first contact with the baby, to accept the baby, and also develop the perception of paternity. Studies reported that fathers who attended the birth of their babies and paid attention to their babies after birth had a strong attachment to their babies (Aslan et al., 2017). Similarly, this study showed that the attachment scores of fathers who wanted to attend the birth were higher. The probability of developing a secure attachment between fathers and their babies may increase due to their presence during childbirth.

Not only the mother but also the father needs antenatal class. The knowledge and skills related to pregnancy, birth, postpartum, and parenting in these classes increase the self-confidence of fathers as a spouse and as a father, making it easier to adapt and attach to the role of paternity (Fletcher et al., 2014). This study showed that the attachment scores of fathers who wanted to attend pregnancy classes were higher. Expectant fathers who are expecting their first baby should be directed to antenatal classes in order to increase their self-esteem and competence in baby care, strengthen their bond with their child, improve their support for the mother, and establish an effective bond with their baby.

The father fulfilling his responsibilities regarding the baby for the father–baby connection is very important. Establishing a 2-way bond between the baby and the father requires the father to take responsibility, participate in baby care, and make physical contact with the baby such as holding and dressing (Şahin & Demiriz, 2014). This study found that the fathers who thought that both mother and father should be responsible for the baby had higher attachment scores. Similar to this study, other studies stated that the father must directly participate in all activities related to baby care in the first year after birth to establish a healthy and strong bond between the father and the baby (Karakulak & Alparslan, 2016; Şahin & Demiriz, 2014; Yogman & Garfield, 2016).

One of the important factors that determine father–baby attachment is communication and harmony between father and

mother. A significant relationship was found between the father–baby attachment and other variables which included the perceptions of the spouses about marriage, the degree of contentment they had with their relationship, and the ratio of their satisfaction with the relationship (Nosrati et al., 2018). Tension between the parents affects the relationship and attachment between father and baby negatively (De Mendonça et al., 2015; Koptur & Güner Emül, 2017). Similar to previous studies, this study found that the fathers who thought that marriage brought happiness to them had higher attachment scores.

Study Limitation

The research was a cross-sectional study. Therefore, it contains the limitations of a cross-sectional research. It is not free from recall biases. There is a potential response bias. There is also a selection bias as the study included only the volunteers. Moreover, the research was conducted in one city in the eastern region of Turkey at a single location, and thus the results cannot be readily generalized. Different results may be obtained in studies that are conducted with fathers of different religious, ethnic, and cultural groups.

Conclusion and Recommendations

Fathers who were younger had higher education and income levels, had shorter marriage length, had fewer children, willingly wanted pregnancy, and did not have a risky pregnancy had higher attachment levels. Moreover, this study found that getting information about baby care before, being responsible for the baby care, having baby care experience, having family support, wanting to attend birth and pregnancy classes, and satisfaction with the spouse are important factors affecting the attachment of the father to the fetus prenatally. Making appropriate health professionals interventions to prepare males for fatherhood since the beginning of the pregnancy is important. During pregnancy, the mother and father should be informed about the changes in their baby. Fathers should play an active role in this process to establish a better attachment with their baby. Especially, mothers- and fathers-to-be who are expecting their first baby should be directed to antenatal classes to increase their self-confidence and knowledge about baby care. Hospital policies may be rearranged so that fathers can be included in the process starting from the pregnancy period.

Ethics Committee Approval: Ethics committee approval was received for this study from the ethics committee of Ege University (Date: November 5, 2019, Number: 6/2).

Informed Consent: Verbal consent was obtained from the patients before the study data were collected.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept – S.G., S.D.; Design – S.G., S.D.; Supervision – S.G., S.D.; Resources – S.G., S.D.; Materials – S.G., S.D.; Data Collection and/or Processing – N.A.D.; Analysis and/or Interpretation – S.G., N.A.D.; Literature Search – S.G., S.D.; Writing Manuscript – S.G., S.D., N.A.D.; Critical Review – S.G., S.D.

Acknowledgment: We are grateful to Ege University Planning and Monitoring Coordination of Organizational Development and Directorate of Library and Documentation for their support in editing and proofreading service of this study.

Declaration of Interests: The authors declare that they have no competing interests.

Funding: The authors declared that this study has received no financial support.

Etik Komite Onayı: Bu çalışma için etik komite onayı Ege Üniversitesi'nden (Tarih: 5 Kasım 2019, Sayı: 6/2) alınmıştır.

Hasta Onamı: Çalışma verileri toplanmadan önce hastalardan sözlü onam alınmıştır.

Hakem Değerlendirmesi: Dış bağımsız.

Yazar Katkıları: Fikir– S.G., S.D.; Tasarım – S.G., S.D.; Denetleme – S.G., S.D.; Kaynaklar – S.G., S.D.; Malzemeler – S.G., S.D.; Veri Toplanması ve/veya İşlenmesi – N.A.D.; Analiz ve/veya Yorum – S.G., N.A.D.; Literatür Taraması – S.G., S.D., N.A.D.; Yazıyı Yazan – S.G., S.D.; Eleştirel İnceleme – S.G., S.D.

Çıkar Çatışması: Yazarlar çıkar çatışması bildirmemişlerdir.

Finansal Destek: Yazarlar bu çalışma için finansal destek almadıklarını beyan etmişlerdir.

References

- Aslan, E., Ertürk, S., Demir, H., & Aksoy, O. (2017). Fathers' attachment status to their infants. *International Journal of Caring Sciences*, *10*(3), 1410–1418.
- Bawadi, H. A. (2015). Knowledge of fathers' support during labor: From Arabic fathers' perspective. *Health*, *07*(11), 1545–1551. [CrossRef]
- Benli, T. E., & Aksoy, D. Y. (2020). Turkish validity and reliability study of intrauterine Father attachment Scale. *Perspectives in Psychiatric Care*, 1–9.
- Brandão, T., Brites, R., Hipólito, J., Pires, M., Vasconcelos, M. L., & Nunes, O. (2020). Depressive symptoms, dyadic coping, and attachment to the fetus in expectant fathers: A moderated-mediation analysis. *Journal of Child and Family Studies*, *29*(6), 1649–1658. [CrossRef]
- Camarneiro, A. F. P., & Miranda Justo, J. M. R. (2017). Prenatal attachment and sociodemographic and clinical factors in Portuguese couples. *Journal of Reproductive and Infant Psychology*, *35*(3), 212–222. DOI: [CrossRef]
- Chow, S. C., Shao, J., Wang, H., & Lokhnygina, Y. (2018). *Sample size calculations on clinical research* (p. 13, 3rd edn). CRC Press, Taylor&Francis Group.
- Condon, J., Corkindale, C., Boyce, P., & Gamble, E. (2013). A longitudinal study of father-to-infant attachment: Antecedents and correlates. *Journal of Reproductive and Infant Psychology*, *31*(1), 15–30. [CrossRef]
- De Mendonça, J. S., Raad Bussab, V. S., Lucci, T. K., & Kärtner, J. (2015). Father-child interactional synchrony in Brazilian families with maternal depression. *Human Ethology Bulletin*, *30*(1), 121–138.
- Dönmez, S., & Gümüşsoy, S. (2019). Development of the father's attachment scale in intrauterine period. *Kocaeli Medical Journal*, *8*(2), 13–19. [CrossRef]
- Esposito, G., Setoh, P., Shinohara, K., & Bornstein, M. H. (2017). The development of attachment: Integrating genes, brain, behavior, and environment. *Behavioural Brain Research*, *325*(B), 87–89. [CrossRef]
- Fletcher, R., May, C., & St. George, J. (2014). A fathers prenatal relationship with "their" baby and "her" pregnancy—Implications for antenatal education. *International Journal of Birth & Parent Education*, *1*(3), 23–22.
- Gibbs, B. G., Forste, R., & Lybbert, E. (2018). Breastfeeding, parenting, and infant attachment behaviors. *Maternal and Child Health Journal*, *22*(4), 579–588. [CrossRef]
- Göbel, A., Barkmann, C., Goletzke, J., Hecher, K., Schulte-Markwort, M., Arck, P., Diemert, A., & Mudra, S. (2020). Psychometric properties of 13-item versions of the maternal and paternal antenatal attachment scales in German. *Journal of Reproductive and Infant Psychology*, *38*(4), 455–467. [CrossRef]
- Hildingsson, I., Johansson, M., Fenwick, J., Haines, H., & Rubertsson, C. (2014). Childbirth fear in expectant fathers: Findings from a regional Swedish cohort study. *Midwifery*, *30*(2), 242–247. [CrossRef]
- Karakulak, A. H., & Alparslan, Ö. (2016). Anne-bebek bağlanma ölçeğinin Türk topluma uyarlanması: Aydın örneği. *Journal of Contemporary Medicine*, *6*(3), 188–199.
- Koptur, A., & Güner Emül, T. (2017). Fetüs ve yenidoğanda bağlanmanın iki yüzü: Maternal ve paternal bağlanma ve hemşirelik. *Ege Üniversitesi Hemşirelik Fakültesi Dergisi*, *33*(3), 153–164.
- Köse, D., Çınar, N., Altınkaynak, S. (2013). Yenidoğanın anne ve baba ile bağlanma süreci. *Sürekli Tıp Eğitim Dergisi*, *22*(6), 239–245.
- Li, T., Guo, N., Jiang, H., & Eldadah, M. (2019). Breastfeeding self-efficacy among parturient women in Shanghai: A cross-sectional study. *Journal of Human Lactation*, *35*(3), 583–591. [CrossRef]
- Nelas, P., Gandara, D., Chaves, C., Coutinho, E., Cruz, C., & Ferreira, M. (2016). Father/baby bonding: Impact of vulnerability to stress. *European Proceedings of Social and Behavioural Sciences*, 246–253. [CrossRef]
- Nosrati, A., Mirzakhani, K., Golmakani, N., Esmaeily, H., Mohsen, S., & Nekah, A. (2018). The effect of paternal-fetal attachment training on marital satisfaction during pregnancy. *Journal of Midwifery and Reproductive Health*, *6*, 1132–1140.
- Pisoni, C., Garafoli, F., Tzialla, C., Orcesi, S., Spinillo, A., Politi, P., & Stronati, M. (2015). Complexity of parental prenatal attachment during pregnancy at risk for preterm delivery. *Journal of Maternal-Fetal and Neonatal Medicine*, *1*(6).
- Rollè, L., Giordano, M., Santoniccolo, F., & Trombetta, T. (2020). Prenatal attachment and perinatal depression: A Systematic review. *International Journal of Environmental Research and Public Health*, *17*(8), 2644. [CrossRef]
- Salehi, K., Taleghani, F., & Kohan, S. (2019). Effect of attachment-based interventions on prenatal attachment: A protocol for systematic review. *Reproductive Health*, *16*(1), 42. [CrossRef]
- Şahin, H., & Demiriz, S. (2014). The investigation of the relationship between the perception of fatherhood role and the participation into family participation activities. *Journal of Turkish Social Research*, *18*(1), 273–294.
- Türk Düdükçü, F., & Taş Aslan, F. (2020). Paternal-infant attachment and determination of factors affecting attachment. *Archives of Health Science and Research*, *7*(1), 43–49.
- Türkmen, H., & Güler, S. (2022). Factors Affecting intrauterine paternal-foetal attachment and the responsibility status of fathers concerning mothers and babies. *Journal of Reproductive and Infant Psychology*, *40*(5), 451–464. [CrossRef]
- Verny, T., & Kelly, J. (2016). The secret life of the unborn child. In Ç Erendag (Eds.), *Anatolialit*. Kuraldışı Yayıncılık.
- Vreeswijk, C. M. J. M., Maas, A. J. B. M., Rijk, C. H. A. M., & van Bakel, H. J. A. (2014). Fathers' experiences during pregnancy: Paternal prenatal attachment and representations of the fetus. *Psychology of Men & Masculinity*, *15*(2), 129–137. [CrossRef]
- Yang, X., Gao, L. L., Ip, W. Y., & Sally Chan, W. C. (2016). Predictors of breastfeeding self-efficacy in the immediate postpartum period: A cross-sectional study. *Midwifery*, *41*, 1–8. [CrossRef]
- Yılmaz, S. D., & Beji, N. K. (2013). Prenatal Bağlanma Envanteri'nin Türkçe'ye uyarlanması: Güvenilirlik ve geçerlilik çalışması. *Journal of Anatolia Nursing and Health Sciences*, *16*(2), 103–109.
- Yogman, M., Garfield, C. F., & COMMITTEE ON PSYCHOSOCIAL ASPECTS OF CHILD AND FAMILY HEALTH (2016). Fathers' Roles in the Care and Development of Their Children: The Role of Pediatricians. *Pediatrics*, *138*(1), e20161128. [CrossRef]

Genişletilmiş Özet

Amaç: Baba bebek bağlanması, çocuk gelişimini davranışsal, gelişimsel ve ruhsal olarak birçok açıdan önemli derecede etkilemektedir. Bu sebeple güvenli bağlanmanın oluşumunu etkileyen faktörlerin bilinmesi, sağlık profesyonellerinin bu faktörleri göz önünde bulundurarak gerekli değerlendirmeleri yapması ve etkili müdahalelerde bulunması sayesinde başta çocuk sağlığı olmak üzere aile sağlığının üst düzeylere çıkacağı düşünülmektedir. Bu araştırma, doğum öncesi dönemde babaların fetüse bağlanma düzeylerinin ve bağlanmayı etkileyen faktörlerin belirlenmesi önemlidir. Bağlanma terimi bebeklerle ebeveynleri arasında duygusal olarak olumlu ve karşılıklı yardım edici bir ilişkinin kurulması olarak tanımlanmaktadır. Bir ebeveyn ile fetüs arasındaki ilişki, doğum öncesi bağlanma olarak adlandırılmakla birlikte bu ilişki insan samimiyetinin en eski ve en temel biçimi olarak kabul edilmektedir. Baba olmak, bebeğin kucağa alındığı ilk anda veya sonraki yıllarda daha kuvvetli hissedilse de aslında babalık rolünün ilk adımı bebek sahibi olmaya karar verilen ilk andır. Anne ve baba adayları birlikte bir çocuk sahibi olma isteğini taşımaya başladığı andan itibaren doğacak bebekleri ile ilişkileri başlar. Baba adayının bebeği ile ilgili hayaller kurması, sorular sorması, tasarımlar yapması onunla duygusal bağ kurmaya başladığının işaretleridir. Bu bağ, baba ve bebek ilişkisinin temellerini oluşturmaktadır. Baba ile bebek arasında bağlanmanın gelişmesinde birçok faktörün rol oynadığı sınırlı sayıda araştırılarda ortaya konmuştur.

Bu çalışmanın amacı, prenatal dönemde babaların fetüse bağlanma düzeylerini ve bu bağlanmayı etkileyen faktörleri belirlemek.

Yöntem: Tanımlayıcı tipte olan bu araştırma, Aralık 2019-Nisan 2020 tarihleri arasında bir Üniversite Araştırma ve Uygulama Hastanesi Kadın Hastalıkları ve Doğum polikliniğinde eşleri 24-38 haftalık gebe olan 463 baba ile yapılmıştır. Çalışmaya alınma kriterleri 18 yaşından büyük olmak, evli olmak, psikiyatrik hastalığı bulunmamak, okuma yazma bilmek ve Türkçe konuşabilmek ve 24-38 haftalık hamile eşi olmak olarak belirlendi. Örneklem kapsamına alınan babalara araştırmanın amacı açıklanarak, araştırmaya katılımın tamamen gönüllük esasına dayandığı ve istediklerinde araştırmadan çekilebilecekleri belirtilerek "Tanılama Formu" ve ölçeği doldurmaları istenmiştir. Araştırmanın veri toplama aracı olarak; babaların tanıtıcı özelliklerini içeren "Tanıtıcı Bilgi Formu" ve babaların doğum öncesi bebeğe bağlanma düzeylerini belirleyen "Rahim İçi Baba Bağlanma Ölçeği (RİBBÖ)" kullanılmıştır.

Bulgular: Çalışmada RİBBÖ toplam puan ortalaması $62,22 \pm 10,66$ (min=34, max=87) olup, katılımcıların %52,5'i 29-39 yaş aralığında, %38,4'ü lise mezunu ve %60,0'ünün gelir durumunun kötü seviyede olduğu belirlenmiştir. RİBBÖ puan ortalaması ile eğitim durumu, evlilik süresi, gelir durumu, bu gebeliğin kaçınıcı çocuğu olduğu, toplamda kaç çocuk istediği ve gebeliğin riskli olma durumu arasında istatistiksel olarak anlamlı fark bulunmuştur ($p > ,05$). Ayrıca çalışmada babaların %66,5'inin daha önce bebek bakımı ile ilgili bilgi aldığı, %82,5'inin bebeklerini kaybetme korkusu yaşadığı ve %52,5'inin eşlerinin doğuma katılmak istemediklerini ifade ettikleri saptanmıştır. Ayrıca bu araştırmada, babaların 308'inin (%66,5) daha önce bebek bakımı hakkında bilgi aldığı, 312'sinin (%67,4) daha önce bebek bakımı deneyimi olduğu, 228'inin (%49,2) bebeğin bakımından en çok annenin sorumlu olduğunu söylediği, 219'u (%47,13) ailesinin verdiği desteği yeterli bulduğunu, 326'sının (%70,4) evliliğin anlamının kendisi için mutluluk olduğunu, 382'sinin (%82,5) bebeğini kaybetme korkusu yaşadığını, 243'ünün (%52,5) doğuma katılmak istemediğini, 255 (%55,1) gebe okullarına gitmek istemediğini, 235 (%50,8) bebek büyüdüğünde kendisine benzemesini istediğini ve 209 (%45,1) bebeğinin olmasının sosyal ilişkilerini olumlu etkilediğini ifade ettikleri bulunmuştur. RİBBÖ puan ortalaması ile daha önce bebek bakımı ile ilgili bilgi alma durumu, daha önce bebek bakımı ile ilgili deneyim yaşama durumu, bebeğin bakımında çoğunlukla kimin sorumlu olduğu, ailesi tarafından verilen desteği yeterli bulma durumu, evliliğin neyi ifade ettiği, eşinin doğumuna katılmayı isteme durumu, gebe okullarına katılmayı isteme durumu, bebeğin sosyal ilişkilerini etkileme durumu arasında istatistiksel olarak fark bulunurken ($p < 0,05$); bebeğini kaybetme korkusu yaşama durumu ve bebeğin kime benzemesini istedikleri arasında ise istatistiksel olarak anlamlı fark bulunmamıştır ($p > ,05$).

Sonuç: Araştırmanın sonucunda babaların doğum öncesi fetüse bağlanma düzeylerinin orta düzeyde olduğu; genç olan, eğitim seviyesi ve gelir düzeyi yüksek olan, evlilik süresi daha az olan, daha az çocuğu olan, gebeliği isteyen, eşinin gebeliği riskli olmayan babalarda bağlanma düzeyi daha yüksek bulunmuştur. Ayrıca daha önce bebek bakımı ile ilgili bilgi almanın, bebe bakımından sorumlu olmanın, bebek bakımı tecrübesi yaşamanın, aile desteğinin olmasının, doğuma ve gebe okullarına katılmak istemenin, eş ile olan ilişkiden memnuniyetin babanın doğum öncesi fetüse bağlanmasını etkileyen önemli faktörler olduğu belirlenmiştir. Gebelik döneminden itibaren erkekleri babalığa hazırlamak için uygun ebelik/hemşirelik girişimlerinde bulunmak önemlidir. Baba-bebek bağının kökleri bebek doğmadan önceye kadar gitmektedir. Gebelikten önce başlayan bu bağ, trimesterler geçtikçe daha da gelişir, doğumla birlikte güçlenir ve doğumdan sonra katlanarak devam eder. Baba-bebek bağlanması çocukların zihinsel, gelişimsel ve davranışsal gelişimlerinde ve ileriki yaşam başarılarında hassas bir yere sahiptir. Bu yüzden gebelik süresince anne ve babaya bebeğinde olan değişimler anlatılmalı bu süreçte aktif olarak babaya baba-bebek bağlanması olabilmeleri için yer verilmelidir. Özellikle ilk bebeklerini bekleyen anne ve baba adayları özgüvenleri ve bebek bakımı konusundaki bilgilerinin artırılması amacıyla doğum öncesi hazırlık sınıflarına yönlendirilebilir. Hastane politikalarının değerlendirilip gebelik döneminden başlanarak babaların sürece dahil olması için düzenlemeler yapılabilir.