

Exploring the correlation regarding strong maternal attachment and knowledge of early childhood development

Güçlü maternal bağlanma ve erken çocukluk gelişimi bilgisi arasındaki ilişkinin incelenmesi

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ABSTRACT

Purpose: The study aims to investigate the correlation of maternal attachment with knowledge of early childhood development.

Method: In this correlational study, data were collected from 211 mothers having children aged 1-24 months in the pediatric outpatient clinics of two hospitals using a parent-infant information form, the Maternal Attachment Inventory, and the Caregiver Knowledge of Child Development Inventory.

Results: The study revealed a statistically significant positive correlation between the Maternal Attachment Inventory and the Caregiver Knowledge of Child Development Inventory. In the regression analysis, an increase in the Maternal Attachment Inventory by one point increased the score of the Caregiver Knowledge of Child Development Inventory by 0.268 units.

Conclusion: It was concluded that maternal attachment increased mothers' knowledge of early childhood development. Mothers with strong attachments to their infants may seek more child development knowledge that enables their sensitive caregiving.

Keywords: Attachment; caregiver knowledge; child development; early childhood; maternal

ÖZET

Amaç: Bu çalışma, maternal bağlanmanın erken çocukluk gelişimi bilgisiyle ilişkisini araştırmayı amaçlamaktadır.

Yöntem: Bu korelasyonel çalışmada, iki hastanenin çocuk polikliniklerinde 1-24 aylık çocukları olan 211 anneden, ebeveyn-bebek bilgi formu, Maternal Bağlanma Ölçeği ve Ailelerin Gelişim Bilgisi Ölçeği kullanılarak veri toplandı.

Sonuçlar: Çalışma, Maternal Bağlanma Ölçeği ile Ailelerin Gelişim Bilgisi Ölçeği arasında istatistiksel olarak anlamlı pozitif bir korelasyon olduğunu ortaya koymuştur. Regresyon analizinde, Maternal Bağlanma Ölçeği'ndeki bir puanlık artış, Ailelerin Gelişim Bilgisi Ölçeği puanını 0.268 birim artırmıştır.

Sonuç: Maternal bağlanmanın, annelerin erken çocukluk gelişimi bilgisini artırdığı sonucuna varılmıştır. Bebeklerine güçlü bir şekilde bağlanan anneler, daha hassas bakım vermelerini sağlayan daha fazla çocuk gelişimi bilgisi arayabilirler.

Anahtar kelimeler: Bağlanma; bakımveren bilgisi; çocuk gelişimi; erken çocukluk dönemi; maternal

Introduction

Attachment is the emotional bond that develops in the form of a child's search for closeness with his/her caregiver and becomes evident in stressful situations (Ainsworth, 1979; Bowlby, 1969; Bowlby, 1973). The attachment relationships that develop between children and their parents or caregivers during the first years of life are the most important in children's lives. These relationships carry over into other close relationships in childhood, adolescence, and young adulthood (Grossmann & Grossmann, 2019; Li, 2023; Persram & Konishi, 2022; Runze et al., 2024; Weistra, van Bakel & Mathijssen, 2024). Three different attachment styles have been defined between the infant and the caregiver (Ainsworth, 1979). These are secure attachment, insecure-avoidant attachment, and insecure-anxious attachment (McFarland-Piazza, Jacobvitz & Boyd-Soisson, 2011; Yu et al., 2012; Jeong, Sullivan & McCann, 2023; Maselko et al., 2019). Parents' approaches to meeting the baby's basic needs on time affect the development of parent-infant attachment and the

personality development of the children (Behrendt, Scharke, Herpertz-Dahlmann, Konrad & Firk, 2019; Bretherton, Lambert & Golby, 2005; Hurtado-Mazeyra, Alejandro-Oviedo, Rojas-Zegarra & Sánchez, 2022; Jia et al., 2024; Manning, 2022; Young, Simpson, Griskevicius, Huelsnitz & Fleck, 2017). According to attachment theory, parents' attachment affects their parenting. Therefore, parents' attachment style may affect their behavior toward their children (Ainsworth, 1979; Alhusen, Hayat & Gross, 2013). There are studies on the mother's prenatal attachment and its effect on the child's early childhood developmental outcomes (Arguz Cildir, Ozbek, Topuzoglu, Orcin & Janbakhishov, 2020; Punamäki, Isosävi, Qouta, Kuittinen & Diab, 2017; Montealegre-Ramón, Martínez-Fuentes, Pérez-López & Sierra-García, 2024). However, there is a limited body of research examining the association between postnatal mother–infant attachment and developmental outcomes in early childhood (Alhusen et al., 2013; McCartney, Owen, Booth, Clarke-Stewart & Vandell, 2004). Current evidence indicates that mothers with secure attachment styles tend to respond more sensitively to their children's needs, which may subsequently promote more favorable developmental outcomes (Alhusen et al., 2013). However, while the existing literature has primarily focused on the impact of mother–infant attachment on developmental outcomes, studies examining the relationship between maternal knowledge of early childhood development and mother–infant attachment remain limited. This represents an important gap in the literature, as understanding this relationship may provide a foundation for developing interventions aimed at strengthening mother–infant attachment.

Early childhood development affects children throughout their lives; therefore, most interventions intending to promote the health and development of young children aim to support mothers' relationships and interactions with their children. Basic skills acquired by parents in the early years, training in appropriate communication, proper care and stimulus provision, and providing a rich environment for their children can prevent future developmental problems and benefit society (Arguz Cildir et al., 2020; Ertem, 2007; Bayrakdar, 2023; Cuartas et al., 2023; Frongillo, Kulkarni, Basnet & de Castro, 2017). However, a limited number of studies have been conducted on maternal knowledge and beliefs about early childhood development (Ertem et al., 2007; Şahinöz & Ayhan, 2020).

Although mother–infant attachment and parental knowledge of early childhood development have been studied separately (Alhusen et al., 2013; Şahinöz & Ayhan, 2020), research examining the relationship between these two constructs remains limited, highlighting an important gap in the existing literature. Elucidating this relationship may provide an evidence base for the early identification of mother–infant dyads at risk of attachment difficulties and inform the development of educational and counseling interventions designed to strengthen mother–infant attachment. For this reason, this study aims to investigate the correlation of maternal attachment with knowledge of early childhood development.

Methods

Study Design

This is a correlational study. This study was planned and reported in accordance with the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) checklist, which is recommended for observational studies.

Sample

The Maternal Attachment Inventory (MAI) can be applied to mothers with a postpartum infant aged at least one month and the Caregiver Knowledge of Child Development Inventory (CKCDI) can be applied to families with 0-3 year-old children. Maternal attachment occurs between 0-18 months and this period covers the early childhood developmental period. For these reasons, mothers with infants aged 1-24 months were included in this study (Bowlby, 1969, 1973; Ertem et al., 2007; Kavlak & Şirin, 2009). For the correlation analysis, the sample size was calculated as at least 211, at effect size = 0.2, type 1 error = 0.05, and statistical power = 0.90.

Mothers of infants born at or after 37 weeks' gestation, aged 1-24 months, with normal early childhood development, who were literate in Turkish and could understand what they read, were included in the study. Questionnaires of mothers having infants suffering from acute diseases, chronic diseases, and abnormalities, data of incompletely answered questionnaires, and questionnaire data sent online more than once (a total of 30 data) were excluded from the study.

Data Collection

Neurological The study was conducted between November 2020 and June 2021. The study included 211 mothers of infants born at and after 37 weeks and aged 1-24 months, with and displaying normal early childhood development, who were literate in Turkish and could understand what they read. The data were collected from mothers who came to the pediatric outpatient clinics of a university hospital and a private hospital in Izmir.

The data were collected online during the pandemic-related restrictions and face-to-face in the pediatric outpatient clinics during periods when the restrictions were lifted. Data were obtained from 194 mothers (91.9%) through an online questionnaire and from 17 mothers (8.1%) via face-to-face interviews.

When the face-to-face interview conditions were appropriate at the hospital, the researcher asked the questions on the printed questionnaire to the mothers who volunteered to participate in the study and marked their answers on the form. A link to the online questionnaire prepared via the Google Documents Website was sent to the mothers via social media tools, short message service, and e-mail to invite their participation in the study. When filling out the online questionnaires, those who filled out the questionnaire by snowball sampling were asked to send the questionnaire to those having infants aged between 1-24 months in their circle. The study was completed with 211 mothers.

Although two different data collection methods were used, both methods employed identical questionnaires and standardized procedures. Therefore, every effort was made to ensure consistency across data collection methods; however, method-related bias cannot be completely excluded.

Data Collection Tools

The data were collected with a parent-infant information form, the MAI, and the CKCDI.

Parent-Infant Information Form

It consists of thirty-eight questions about information about parents and their infants, such as the socio-demographic characteristics, the planned pregnancy status, the delivery mode, the times when the parents hold their infants in their arms and breastfeed them after the birth, the feeding style for the infants, and the status of receiving information and support about infant care. The parent-infant information form was prepared by the literature (Kavlak & Şirin, 2009; Şahinöz & Ayhan, 2020).

Caregiver Knowledge of Child Development Inventory

The scale was developed and validated by Ertem et al., in 2007 to measure the knowledge of caregivers with children aged 0-3 about infancy and early childhood development and support of development. The Cronbach's alpha value of internal consistency of the scale, which has a total of 20 items, was calculated as .61. The scale consists of 20 questions, 10 of which include questions about the components of developmental stages, and the other 10 about the components of supporting development (Öztürk Ertem et al., 2008, 2018). When scoring the scale, "two" points are given if the answers given are within the correct age range specified for each item, and "one" point is given if they are one month younger or older than the specified age range. All answers other than these are considered incorrect and given a score of "zero". The total score of the scale

ranges between 0-40. High scores signify that caregivers' knowledge of child development is high (Ertem et al., 2007). The Cronbach's alpha reliability coefficient of the scale was 0.61 in the original study, whereas it was 0.74 in the present study.

Maternal Attachment Inventory

The MAI was developed by Müller in 1994 to assess the mother's loving and caring attachment to her infant. The Cronbach's alpha reliability coefficient of the scale was found to be 0.85 for mothers with one-month-old infants and 0.76 for mothers with four-month-old infants (Müller, 1994). Kavlak and Şirin conducted Turkish adaptation of the MAI and tested its validity and reliability in mothers with one-month and four-month-old infants. The Cronbach's alpha reliability coefficient of the scale was found to be 0.77 for mothers with one-month-old infants and 0.82 for mothers with four-month-old infants. The scale is a four-point Likert-type scale consisting of 26 items. Each item is rated between 1-4 points. Always gets 'four' points and never gets 'one' point. Each item includes direct statements. A total score is obtained from the sum of all items. The lowest score is 26 and the highest score is 104. A high total score signifies that maternal attachment to the infant is high (Kavlak & Şirin, 2009). The Cronbach's alpha reliability coefficient was 0.82 in the present study.

Data Analyses

The data were assessed in the IBM SPSS Statistics Standard Concurrent User V 26 statistical software (IBM Corp., Armonk, New York, USA). The normality of the numeric variables was assessed using the Shapiro–Wilk test. Homogeneity of variances was evaluated using Levene's test. Independent two-sample t-test was used to compare the scale scores according to the two-category characteristics of the mothers and one-way analysis of variance was used to compare them according to the characteristics of more than two categories. Tukey test was used as a multiple comparison test if there was a difference between categories as a result of one-way analysis of variance. As the variables included in the correlation analysis did not satisfy the assumption of normality, the relationships between the continuous variables and the scale scores were assessed using Spearman's correlation analysis. The effects of the scale scores on one another were investigated using linear regression analyses. Variables found to be statistically associated with the scale scores in the univariate analyses were included in the regression models as potential confounding factors. Categorical variables were entered into the models as dummy variables. The assumptions of normality of residuals and absence of multicollinearity were assessed and confirmed to be satisfied for all regression models. A p-value of <0.05 was considered statistically significant in the study.

Ethical Considerations

For the study, written permissions were obtained from the institutions after the ethics committee approval (Decision No: 1036, Date: 22.10.2020) was obtained from the Non-Invasive Trials Ethics Committee of a state university. Verbal and written informed consent was obtained from the mothers.

Results

Two hundred-eleven mothers were included in the study. Table 1 summarizes the socio-demographic characteristics of the parents. Table 2 summarizes the descriptive characteristics of the infants.

Table 1. Socio-demographic characteristics of the parents (n=211)

Characteristics of the Parents	n	%
Mothers' age groups		
20-29 years	105	49.8
30-40 years	106	50.2
Educational level		
Primary school	21	10.0
Secondary school	27	12.8
High school	47	22.3
College-Faculty	105	49.7
Postgraduate	11	5.2
Profession		
Housewife	93	44.0
Healthcare professional	34	16.1
Educator	35	16.6
Finance	17	8.1
Other	32	15.2
Status of working after the delivery		
Employed	43	20.4
Unemployed	168	79.6
Term elapsed till the mothers started working after the delivery (in months)	n=43	
0-3 months	11	25.6
4-6 months	14	32.5
7-9 months	10	23.3
10 months and above	8	18.6
Fathers' age groups		
23-32 years	110	52.1
33-42 years	101	47.9
Educational level		
Primary school	16	7.6
Secondary school	25	11.8
High school	62	29.4
College-Faculty	98	46.4
Postgraduate	10	4.8
Profession		
Military personnel	24	11.4
Engineer	16	7.6
Educator	10	4.7
Public official	24	11.4
Worker	65	30.8
Other	72	34.1
Employment status		
Employed	200	94.8
Unemployed	11	5.2
Presence of health problem		
No	206	97.6
Cardiovascular disease	3	1.4
Respiratory system disease	1	0.5
Digestive system disease	1	0.5
Family type		
Nuclear family	192	91.0
Extended family	19	9.0
Economic situation/ income level		
Income less than expenses	79	37.4
Income equalling to expenses	106	50.2
Income more than expenses	26	12.4

Table 2. Descriptive characteristics of the infants (n=211)

Descriptive Characteristics of the Infants	<i>n</i>	%
Gender		
Girl	123	58.3
Boy	88	41.7
Age (months)		
<i>M</i> (<i>Q</i> ₁ - <i>Q</i> ₃)	11.2 (7.4-17.4)	
<i>min-max</i>	1 - 24	
Gestational week		
37 weeks	10	4.7
38 weeks	80	37.9
39 weeks	61	28.9
40 weeks and above	60	28.5
Birth weight (grams)		
<i>M</i> (<i>Q</i> ₁ - <i>Q</i> ₃)	3250 (2980-3500)	
<i>min-max</i>	2500-4580	
Current weight (grams)		
<i>M</i> (<i>Q</i> ₁ - <i>Q</i> ₃)	8700 (6500-10500)	
<i>min-max</i>	3200-20000	
Order of the infant among living children		
1	146	69.2
2	49	23.2
3	16	7.6

M: Median, *Q*₁: First quartile value, *Q*₃: Third quartile value, *min*: minimum, *max*: maximum

Table 3 shows statistics for the MAI and the CKCDI. According to Table 3, the internal consistency of the items in both scales was at a sufficient level. There was a statistically significant positive correlation between the two scale scores.

Table 3. Statistics for Maternal Attachment Inventory and Caregiver Knowledge of Child Development Inventory (n=211)

Scales	Cr α	$\bar{x}$	<i>sd</i>	<i>M</i>	<i>Q</i> ₁	<i>Q</i> ₃	<i>min</i>	<i>max</i>	<i>r</i>	<i>p</i>
MAI	0.829	97.8	4.8	99.0	95.0	102.0	81.0	104.0	0.306	< 0.001
CKCDI	0.742	21.2	7.2	22.0	17.0	27.0	4.0	35.0		

CKCDI: Caregiver Knowledge of Child Development Inventory, MAI: Maternal Attachment Inventory, Cr α : Cronbach's alpha internal consistency value, $\bar{x}$: Mean, *sd*: Standard deviation, *M*: Median, *Q*₁: First quartile value, *Q*₃: Third quartile value, *min*: minimum, *max*: maximum
r: Correlation analysis, *p*: significance value

In Table 4, two separate linear regression models were constructed to examine the association between MAI and CKCDI, with each variable entered separately as the dependent variable. In Model-I, scores of the MAI were taken as the dependent variable and scores of the CKCDI were taken as the independent variable. In Model-II, scores of the CKCDI were taken as the dependent variable and scores of the MAI were taken as the independent variable. In order to see the effect of the scale scores only on each other, the variables that were associated with the MAI or CKCDI in the univariate analyses were included as confounding factors in the regression models, and the effect of confounding factors was excluded. Both models established according to Table 4 were found to be statistically significant. The confounds were taken into account when discussing the link between principal variables. A statistically significant correlation was found between MAI and CKCDI scores.

In Model-I, the regression constant coefficient and CKCDI scores were statistically significant. One point increase in the CKCDI increased the MAI score by 0.178 points. In Model II, MAI scores were statistically significant. An increase in the MAI score by one point increased the CKCDI score by .268 units. While the adjusted R² value for Model-I was 0.257, the adjusted R² value for Model-II was .493. The explanatory value of Model II was numerically higher than the value of Model-I.

Table 4. Linear regression analysis results for Maternal Attachment Inventory and Caregiver Knowledge of Child Development Inventory

	Regression Coefficients				
	β	se	95% CI for β	t	p
Model I-Dependent Variable: Maternal Attachment Inventory					
Constant	94.046	5.023	84.130-103.961	18.723	< 0.001
Caregiver Knowledge of Child Development Inventory	0.178	0.061	0.058 - 0.299	2.922	0.004
Model-I Statistics: $F=2.812$; $p < .001$, $R^2=0.398$; Adjusted $R^2=0.257$; Effect Size=0.048; Statistical Power=0.828					
Model II-Dependent Variable: Caregiver Knowledge of Child Development Inventory					
Constant	-5.560	10.798	(-26.817) - (15.697)	-0.516	0.606
Maternal Attachment Inventory	0.268	0.092	0.087 - 0.449	2.922	0.004
Model-II Statistics: $F=6.104$; $p < .001$, $R^2= .590$; Adjusted $R^2= .493$; Effect Size = .048; Statistical Power = .828					

Confounding Factors Included in Models I and II: Mother's education level, mother's profession, mother's status of working after the delivery, father's age, father's education level, father's profession, assessment of economic status, infant's feeding style, the order of the infant among living children, planned pregnancy, infant's birth weight, mode of delivery, mother's time to see her infant after the delivery, time of mother's holding her infant in her arms after the delivery, getting support for infant care, feeling ready for having a baby

β : Regression coefficient, se: Standard error, CI: Confidence interval

Table 5 summarizes the comparison of MAI and CKCDI scores according to the socio-demographic characteristics of the parents. The MAI scores of the mothers who were high school and college-faculty graduates were statistically higher than the scores of the mothers who had primary, secondary and postgraduate degrees. CKCDI scores were statistically higher in the mothers with college-faculty and postgraduate degrees than the other groups. High school graduate mothers had higher CKCDI scores compared to the primary and secondary school graduate mothers. ($p<0.001$) (Table 5).

CKCDI scores of college-faculty and postgraduate graduate fathers were statistically higher than the other education groups. The CKCDI scores of the high school graduate fathers were statistically higher than the scores of the secondary school and primary school graduate fathers ($p<0.001$). MAI scores of those who had an income equal to their expenses were statistically higher than the other groups. On the other hand, CKCDI scores were the lowest in those with an income less than their expenses (Table 5).

Table 5. Comparison of Maternal Attachment Inventory and Caregiver Knowledge of Child Development Inventory scores according to socio-demographic characteristics of the parents

	Maternal Attachment Inventory					Caregiver Knowledge of Child Development Inventory			
	<i>n</i>	<i>̄x</i>	<i>sd</i>	<i>t/F</i>	<i>p</i>	<i>̄x</i>	<i>sd</i>	<i>t/F</i>	<i>p</i>
Mother's educational level									
Primary school	21	95.8 ^a	4.5	8.019	< 0.001	11.1 ^a	6.0	46.811	< 0.001
Secondary school	27	94.7 ^a	6.1			13.9 ^a	6.3		
High school	47	99.5 ^b	4.1			20.7 ^b	5.2		
College-Faculty	105	98.5 ^b	4.1			24.8 ^c	5.0		
Postgraduate	11	94.3 ^a	6.7			26.2 ^c	4.6		
Father's educational level									
Primary school	16	96.1	5.1	0.991	0.416	13.6 ^a	7.8	22.964	< 0.001
Secondary school	25	98.8	3.6			15.3 ^a	6.8		
High school	62	97.3	5.6			19.4 ^b	6.8		
College-Faculty	98	97.9	4.6			24.8 ^c	5.1		
Postgraduate	10	98.5	5.1			24.3 ^c	5.3		
Assessment of economic situation									
Income less than expenses	79	96.5 ^a	5.1	7.674	0.001	16.9 ^a	7.7	29.537	< 0.001
Income equalling to expense	106	99.0 ^b	4.8			23.5 ^b	5.6		
Income more than expenses	26	96.4 ^a	3.5			25.0 ^b	5.2		

$\bar{x}$: Mean, sd: Standard deviation, t: Two independent samples t-test, F: One-way analysis of variance. The superscripts a, b, and c show the difference between categories. Categories with the same letters are statistically similar.

Table 6 presents the comparison of MAI and CKCDI scores according to mothers' knowledge of infant care. Mothers who had knowledge about infant care had significantly higher CKCDI scores than those who did not ($p = 0.007$).

Table 6. Comparison of Maternal Attachment Inventory and Caregiver Knowledge of Child Development Inventory scores according to status of having knowledge about infant care of the mothers

	Maternal Attachment Inventory					Caregiver Knowledge of Child Development Inventory			
	<i>n</i>	$\bar{x}$	<i>sd</i>	<i>t/F</i>	<i>p</i>	$\bar{x}$	<i>sd</i>	<i>t/F</i>	<i>p</i>
Status of having knowledge about infant care									
Yes	206	97.8	4.8	1.936	0.054	21.4	7.1	2.732	0.007
No	5	93.6	5.8			12.6	5.7		

$\bar{x}$: Mean, *sd*: Standard deviation, *t*: Independent two samples *t*-test, *F*: One-way analysis of variance, The superscripts *a*, and *b* show the difference between categories. Categories with the same letters are statistically similar.

Discussion

The relationship between maternal attachment and early childhood development knowledge

The findings of this study show that there was a statistically significant positive correlation between MAI and CKCDI. Regression analysis found that maternal attachment was significantly associated with mothers' knowledge of early childhood development. According to Ainsworth (Ainsworth et al., 1972, 2015; Salter Ainsworth, 1985), attachment has an extrinsic goal of maintaining the physical closeness of the infant to the caregiver and an intrinsic goal of obtaining a sense of security. Consistent with attachment theory, we assert that mothers who have a high level of attachment to their infants are motivated to increase their knowledge about early child development to take better care of their infants. There are many studies in the literature showing the positive effects of maternal attachment (Ainsworth et al., 1972, 2015; Ainsworth, 1979; Arslan, Arslan & Ari, 2012; Çoktay & Turk, 2020; Deneault, Hammond & Madigan, 2023; Erduran & Yaman Sözbir, 2023; Herek, 2018; Lindh et al., 2023; Montealegre-Ramón et al., 2024; Salter Ainsworth, 1985). In a study, it was reported that mothers' prenatal attachment levels were predictive of both behavioral and emotional competence and development in early childhood (Arguz Cildir et al., 2020). Another study reported that prenatal attachment predicted infant development (sensory-motor and language development) (Punamäki et al., 2017). Although the existing literature has primarily focused on the impact of mother–infant attachment on developmental outcomes, no published studies investigating the relationship between mothers' knowledge of early childhood development and mother–infant attachment were identified.

Factors affecting maternal attachment and early childhood development knowledge

This study also examined factors affecting knowledge of maternal attachment and early childhood development. Analyses confirmed a statistically significant difference between mothers' educational level, economic situation, and MAI scores. It was determined that there was a statistically significant difference between the mother's education level, father's education level, economic situation, the order of the baby that the mother had among the living children, whether the mother knew infant care and CKCDI scores.

The finding that maternal attachment levels increased as the education level of mothers increased is compatible with the literature (Çelebi & Okumuş, 2021; Gümüşsoy et al., 2020; Yılmaz Dereli & Beji Kızılkaya, 2010). In an early childhood development study conducted in low, middle, and high-income countries, it was determined that one of the most important factors affecting development was maternal education (McCoy, Waldman & Fink, 2018). Providing adequate stimulation to the child at home is an important factor affecting child development (McCoy et al., 2018). It can be asserted that mothers with fewer children have more knowledge of development because they have more time to spare for their children and are more eager to support their children's development (Ertem et al., 2007). On the contrary, a study reported

that education level and the number of children do not significantly affect the CKCDI mean score (Şahinöz & Ayhan, 2020). It has been reported that low education levels increase the anxiety levels of mothers (Şahinöz & Ayhan, 2020). Increased anxiety levels may affect maternal attachment. The child that the majority of the mothers participating in our study have is their first, and therefore it is estimated that they can devote more time to their babies. It is thought that mothers with a high level of education have higher knowledge of early childhood development and therefore higher maternal attachment, as it is easy to access information thanks to the resources and opportunities they have.

The CKCDI scores of the mothers who had a high school graduate partner were statistically higher than the scores of the mothers who had a partner with secondary school and primary school. It is an expected result that mothers with partners with high education levels also had high CKCDI scores. Individuals whose fathers have a low level of education are more avoidant and individuals whose fathers have a high level of education have a secure attachment style (Subaşı & Kazan, 2020). Since avoidant individuals define their relationship with their parents as distant and rejective (Hazan & Shaver, 1987), it can be said that as the father's education level decreases, so does his sensitivity. Father involvement in infant care during the first year of life has been reported to be associated with children's socioemotional development and maternal mental health (Maselko et al., 2019). The effect of the father model on attachment and early childhood development should not be ignored, and it should be ensured that fathers, along with mothers, benefit from education and counseling at every stage.

When examining the economic situation, MAI scores of those having an income equal to their expenditure were found to be higher than the scores of the other groups. Different studies reported that economic status did not affect maternal attachment (da Rosa et al., 2021; Gümüşsoy et al., 2020). Upon assessment of the income situation, it was found that CKCDI scores of those having an income less than their expenses statistically had the lowest value among other groups. In the literature, it has been reported that income status did not cause a significant difference in the CKCDI mean scores, but it created a significant difference in anxiety levels (Şahinöz & Ayhan, 2020). Low-income level increases the anxiety level of the mother (Şahinöz & Ayhan, 2020). When the income level is low, it becomes difficult to make a living and meet the needs of the children. It is thought that mothers' overthinking about this situation disrupts their attention, and they do not have time to increase their level of knowledge about child development. In addition, it is thought that limited access to information due to financial difficulties causes this situation. Since the income level increases the anxiety level of the mother, it can be considered a factor that significantly affects attachment and early childhood development knowledge.

The findings of the present study revealed that the CKCDI scores were statistically higher in mothers who stated that they knew infant care. It is thought that more than half of the mothers who participated in our study had a higher level of education and that the majority of them had only one child, so they were able to spend more time with their infants and learn through experience, as well as increasing their knowledge levels.

The harmony between parental knowledge and experience and the care provided is very important in determining the needs of the child during the development process and deficiencies in health and safety issues, and in increasing maternal bonding (Gondim et al., 2022). It is reported that the mother education program offered to mothers contributes to the mothers' parenting knowledge and self-efficacy and also contributes to the development of their children (Kunduracı & Aksoy, 2025).

It has been reported that parenting interventions improve early child cognitive, language, motor, socio-emotional development and attachment, and reduce behavioral problems (Jeong et al., 2021).

Strengths and Limitations

It was planned to collect data through face-to-face interviews with parents with different socio-cultural characteristics; however, data collection was affected by pandemic conditions. Therefore, the vast majority of data were collected online. The targeted parents with different socio-cultural characteristics could not be

reached adequately, and parents with a high level of education were reached online at a higher rate. Additionally, this study is based on mothers' self-reports. Mothers may have difficulty recalling situations related to items requiring memory on the scales, which could have influenced their responses. This limits the generalization of the findings. Another limitation of this study is its cross-sectional design, in which all study variables were measured at a single time point rather than across multiple measurement occasions (e.g., Time 1 and Time 2). Finally, we acknowledge that our correlational data do not explicitly establish causal pathways as we did not conduct mediation analyses. Unexamined variables (e.g., maternal personality, infant temperament) may have also affected both maternal attachment and maternal knowledge of early childhood development.

Conclusion and Recommendations

In our investigation of maternal attachment and knowledge about early childhood development, a statistically significant positive correlation was found between MAI and CKCDI scores among mothers of children aged 1-24 months. In the regression analysis, two linear regression models were created; both were statistically significant even when confounding factors were included.

Based on the conclusion that there is a relationship between maternal attachment and knowledge of early childhood development, we recommend expanding maternal education programs on infant care starting from the prenatal period.

In light of our findings with mothers having infants with normal early childhood development, we recommend comparative studies with parents of children with developmental delay in early childhood and children at risk of developmental delay. Since maternal attachment and developmental knowledge of families may be lower in populations with low education levels, we recommend carrying out studies and programs with parents of lower education levels in Türkiye.

The findings of this study suggest that as maternal attachment increases, mothers' knowledge of early childhood development may also increase. This increased knowledge can enable them to provide sensitive care to their babies. Therefore, it highlights the need for approaches to enhance maternal attachment to support children's healthy early childhood development. Parenting interventions should be enhanced, starting in the prenatal period, considering the factors influencing maternal attachment. The impact of the father model on attachment and early childhood development should not be ignored, and it should ensure that fathers, along with mothers, benefit from education and counseling at every stage. This can strengthen fathers' roles as care partners and contribute to their children's early childhood development by enriching their experiences.

Acknowledgement: We would like to thank all the children and their parents who participated in the present study for their interest. Thanks to Assoc. Dr. Ferhan Elmali for supporting the study on the data analysis. Thanks to Emel Zindan for providing academic language translation support.

Ethics Committee Approval: Ethics committee approval was obtained from Izmir Katip Çelebi University Non-Interventional Clinical Research Ethics Committee (Decision No: 1036, Date: 22.10.2020).

Informed Consent: Informed consent was obtained from all individual participants included in the study.

CRedit Author Statement: **S. B.** Conceptualization; data curation; formal analysis; investigation; methodology; visualization; resources; writing – original draft; writing – review and editing. **H. Y. S.** Conceptualization; formal analysis; investigation; methodology; supervision; resources; visualization; writing – original draft; writing – review and editing.

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

Funding: The authors received no financial support for the research, authorship, and/or publication of this article.

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