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MATERNAL EMOTION REGULATION AND MATERNAL PARENTING STYLES AS PREDICTORS OF CHILD TEMPERAMENT

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ABSTRACT

Temperament is a structure defined by an individual's personality traits that can be observed from early childhood and consists of behavioral patterns. It is influenced by genetic and environmental factors. This study aims to examine the predictive role of maternal emotion regulation and maternal parenting styles in child temperament. The study population consisted of mothers of preschool children. Data were collected using a personal information form, the Temperament in Children Scale, the Parental Attitude Scale (PAS), and the Emotion Regulation Scale. Multiple linear regression and hierarchical regression analyses were used for data analysis. According to the results of the study, it was found that maternal emotion regulation significantly predicted democratic, authoritarian, and overprotective parenting styles, and maternal parenting styles significantly predicted reactivity, positivity, and timidity subdimensions of child temperament. It was found that maternal emotion regulation and parenting styles were significant predictors of child temperament, and maternal parenting styles provided a significant incremental predictive contribution. In conclusion, maternal emotion regulation and maternal parenting styles play a significant predictive role in child temperament.

Keywords: Temperament, Child Temperament, Early Childhood, Emotion Regulation, Parental Attitudes

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ÇOCUĞUN MİZACININ YORDAYICILARI OLARAK ANNELERİN DUYGU DÜZENLEMESİ VE ANNELİK TARZLARI

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ÖZ

Mizaç; bireyin kişilik özellikleriyle tanımlanan, çocukluğun erken dönemlerinden itibaren gözlemlenebilen ve davranış örüntülerinden oluşan bir yapıdır. Mizaç genetik ve çevresel faktörlerden etkilenmektedir. Bu araştırma; annelerin duygu düzenleme becerileri ile annelik tarzlarının çocuk mizacındaki yordayıcı rolünü incelemeyi amaçlamaktadır. Araştırma evrenini okul öncesi çağındaki çocukların anneleri oluşturmuştur. Veriler; Kişisel Bilgi Formu, Çocuklarda Mizaç Ölçeği, Ebeveyn Tutum Ölçeği (ETÖ) ve Ebeveynler için Duygu Düzenleme Ölçeği (EDDÖ) kullanılarak elde edilmiştir. Veri analizinde çoklu doğrusal regresyon ve hiyerarşik regresyon analizleri uygulanmıştır. Araştırma bulgularına göre; annelerin duygu düzenleme becerilerinin demokratik, otoriter ve aşırı koruyucu annelik tarzlarını anlamlı düzeyde yordadığı; annelik tarzlarının ise çocuk mizacının tepkisellik, olumluluk ve çekingenlik alt boyutlarını anlamlı biçimde yordadığı belirlenmiştir. Annelerin duygu düzenleme becerilerinin ve annelik tarzlarının çocuk mizacının anlamlı yordayıcıları olduğu, ayrıca annelik tarzlarının ek yordayıcı katkı sağladığı tespit edilmiştir. Sonuç olarak, annelerin duygu düzenleme becerilerinin ve annelik tarzlarının çocuk mizacı üzerinde anlamlı bir yordayıcı role sahip olduğu söylenebilir.

Anahtar Kelimeler: Mizaç, Çocuk Mizacı, Erken Çocukluk, Duygu Düzenleme, Ebeveyn Tutumları

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1. INTRODUCTION

Temperament is the totality of a child's innate personality traits and determines the child's unique behavioral style. Temperament shows individual differences in attentional, emotional, and behavioral processes that can be observed from infancy. Although definitions of temperament often emphasize innate or inherited traits, some researchers argue that temperament changes with maturation and can also change to some extent according to the environment. Researchers argue that although temperament is an innate trait, it is shaped by the environment, suggesting that temperament is interactive in this regard. Almost all studies of temperament emphasize that temperament is influenced by the environment and cannot be independent of the environment. Factors such as mother's mental state, mother-child relationship affect the development of temperament (Alagöz & Sağlam, 2021; Çakmak & Pektaş, 2020; Kristal, 2005; Sarı, 2018). In addition, it has been suggested that the reason for the effectiveness of parenting on children may be due to the genetic similarity between parents and children. This idea is remarkable because temperament has genetic roots (Putnam et al., 2002). Some studies have found that both genetic structure and environment influence the behavior of individuals and that genetic effects emerge as development progresses (Saudino & Wang, 2012; Shiner et al., 2012). Therefore, further research is needed on the genetic and environmental aspects of temperament.

It is considered a neurobiological structure that varies from person to person in terms of temperament, emotions, self-control, and sociability, as well as an epigenetic construct resulting from genes. However, it is also influenced by the parenting practices of the parents. There may be a reciprocal effect. That is, the parent influences the child's development and the child, in turn, influences the parent's attitudes. To the extent that parents modify their behavior to meet the child's needs, the influence of the child's temperament and other characteristics can be reduced or regulated (Hong & Park, 2012; Seifer & Schiller, 1995). Parenting is a broad construct that includes stable and enduring attitudes and behaviors related to child rearing. The most prominent theoretical term used in the literature to describe the nature and types of parenting is parenting style, which refers to specific types of parenting characterized by different attitudes and behaviors toward the child (Yaffe, 2023). Parents and family environment are the first factors that come to mind when considering the factors that will make a difference in the lives of two babies who are assumed to come into the world with the same potential. The influence of the family on the individual begins in the prenatal period and continues throughout life (Afat, 2013). Recently, the child-parent relationship has been explained as a relationship resulting from the mutual interaction between parent and child rather than an effect from parent to child. Although parents and children interact, the fact that parents are responsible for the care of the child, especially in early childhood, results in parents having a stronger influence on the child (Maccoby, 2001; Yoleri et al., 2017). The family's parenting attitudes influence the child's temperament at least as much as the child's biological characteristics (Yıldız-Bıcakcı & Durualp, 2018). For example, positive reactions in mothers and participation in the child's life increase positive mood in children, while anxiety and negative mood in mothers may increase negative reactions in children (Lengua & Kovacs, 2005). Children with difficult temperament trigger negative parenting attitudes, and negative parenting attitudes exacerbate difficult temperament in children (Micalizzi et al., 2017). It has been observed that children with difficult temperament who grow up in an environment with high family conflicts have behavioral problems, while children with easy temperament are less affected by the family environment and have fewer behavioral problems (Tschann et al., 1996). Especially democratic parenting attitude significantly affects emotion regulation and temperament in children (Yaman, 2018).

The field of emotion regulation examines the emotions that individuals have, when they have them, how they experience and express them, and how they are affected by them (Gross, 1998). Emotion regulation refers to the external and internal processes responsible for monitoring, evaluating, and modifying emotional responses (Thompson, 1991). Emotion regulation includes appraisals that contribute to an individual's internal and external self-management. As individuals acquire emotion management strategies, they become more competent in their own emotional self-management with less need for external support (Thompson et al., 2008). An individual's emotion regulation style is important in terms of the beneficial or detrimental consequences of emotions. While emotion regulation forms the basis of psychological well-being, emotion dysregulation can have negative effects on an individual's health and psychological well-being (Demir & Gündoğan, 2018). Internal processes such as temperament, control, attachment, and cognitive structure and external factors such as parental attitudes, peer-sibling-child relationships, and culture have a significant impact on emotion regulation (Fox & Calkins, 2003). Parental inadequacy in emotion regulation or poor emotion regulation skills can have negative consequences for children (Barros et al., 2015). It has been observed that reactive children with difficult temperament are more unsuccessful in emotion regulation skills (Arı, 2016). It can be said that especially affective temperament traits form the basis of mood disorders. In order to improve the quality of life of individuals, it is important to determine which emotions individuals have difficulties in terms of emotion regulation (Demirpençe et al., 2021). Hence, parents' emotion regulation skills and parenting styles may have an impact on children's behaviors and individual characteristics.

This study examined the predictive capacity of parents' emotion regulation skills on parenting attitudes and child temperament, as well as the moderating role of parenting attitudes in this relationship, using multiple and hierarchical regression analyses.

2. METHOD

2.1. Research Model

In the current study, a quantitative relational survey design was used to examine the predictive role of maternal emotion regulation skills and maternal parenting styles in children's temperament. Relational survey research is a research model that aims to determine the existence or degree of changes between two or more variables (Karasar, 2012).

2.2. Population and Sample of the Study

The sample of the study consisted of mothers of preschool children in Bingöl, a randomly selected province in eastern Türkiye, who voluntarily agreed to participate in the research. The population size of the current study was determined as 5632 according to the official figures obtained from Bingöl Provincial Directorate of National Education. In the power analysis, the sample size was determined as at least 360 in the calculations made with a 0.95 confidence interval, 5% error level and 95% power to represent the population. The study was completed with 415 mothers who voluntarily participated and fully answered the data collection tools.

Table 1.
Frequency and Percentage Distributions of Participants' Demographic Information

Variable	Category.	f	%
Age of the child	3	24	5.8
	4	100	24.1
	5	258	62.2
	6	33	8.0
Sex of the child	Female	205	49.4
	Male	210	50.6
Mother's education level	Primary School	60	14.5
	Middle School	36	8.7
	High School	109	26.3
	Associate degree	62	14.9
	Bachelor's degree	121	29.2
	Master's degree / PhD	27	6.5
Family monthly income	My income is less than my expenses	103	24.8
	My income is equal to my expenses	222	53.5
	My income is more than my expenses	90	21.7
Mother's employment status	Public	145	34.9
	Private sector	75	18.1
	Not working	195	47.0

The table shows that 5.8% of the children of the mothers who participated in the study are 3 years old, 24.1% are 4 years old, 62.2% are 5 years old, 8% are 6 years old, 49.4% are female and 50.6% are male. Of the mothers who participated in the study, 14.5% were elementary school graduates, 8.7% were middle school graduates, 26.3% were high school graduates, 14.9% were associate degree graduates, 29.2% were bachelor's degree graduates, and 6.5% were master's/doctoral degree graduates. The income of 24.8% of the families of the children in the study was

less than their expenses, 53.5% had income equal to their expenses, and 21.7% had income greater than their expenses. Of the mothers of the children in the study, 34.9% were employed in the public sector, 18.1% were employed in the private sector, and 47% were not working.

2.3. Data Collection Tools

2.3.1. Personal Information Form

It was created by the researcher in order to obtain information about the parents and their children who constitute the sample of the study.

2.3.2. Temperament Scale in Children

This scale was developed by Doğan-Laçin and Yalçın (2022). It consists of a total of 25 items and has three sub-dimensions: "reactivity" (9 items), "timidity" (4 items) and "positivity" (12 items). The scale is based on obtaining data from mothers' reports. No total score is obtained from the measurement tool. It is designed in 5-point Likert type.

2.3.3. Parental Attitude Scale (PAS)

The scale was developed by Karabulut-Demir and Sendil (2008) to measure parents' attitudes towards their children aged 2-6 years. The scale, which can be applied to parents with children between the ages of 2-6, consists of 46 items and 4 sub-dimensions. These are "democratic" (17 items), "overprotective" (9 items), "authoritarian" (11 items), "permissive" (9 items). The items describe behavioral patterns. Each item is rated on a five-point frequency scale, ranging from "always" to "never".

2.3.4. Regulating Emotions in Parenting Scale (REPS)

The scale was originally developed by Rodriguez and Shaffer (2021) and adapted into Turkish by Arıkan (2023). The scale measures emotion regulation in parents and expresses the emotional states of parents in their interactions with their children. The scoring of the scale is 5-point Likert type. The scale consists of 18 items and 3 sub-dimensions. These were named as "self- awareness" (10 items), "suppression" (4 items) and "rumination" (4 items) in accordance with the literature.

2.4. Data Analysis

In the first stage of analyzing the data collected in the research, Cronbach's alpha values were examined to determine the reliability level of the data, and skewness and kurtosis values were examined to determine the normal distribution.

Table 2.
Cronbach's Alpha Values for Reliability of Scale Scores and Skewness and Kurtosis Values for Normal Distribution

Scale	Sub-dimension	Cronbach's Alpha (α)	Skewness	Kurtosis
Temperament in Children	Reactivity	0.741	0.268	0.031
	Positivity	0.748	-0.522	-0.515
	Timidity	0.608	0.258	-0.239
Parental Emotion Regulation	Self-awareness	0.754	-0.283	-0.233
	Suppression	0.628	0.411	-0.494
	Rumination	0.632	-0.261	-0.615
Parental Attitude	Democratic	0.838	0.659	-0.166
	Authoritarian	0.724	-0.354	-0.593
	Overprotective	0.745	0.377	-0.187
	Permissive	0.665	-0.161	-0.465

As shown in Table 2, it is seen that the data collected within the scope of the research are sufficiently reliable (α>0.60) for all 3 scales. The skewness and kurtosis values examined to determine the suitability of the data for normal distribution are between -2 and +2, which is suitable for normal distribution. Since the data collected within the scope of the research are suitable for normal distribution, parametric analysis methods were used.

Multiple linear regression and hierarchical regression analyses were conducted to analyze the data. Multiple linear regression analyses were used to examine the predictive role of maternal emotion regulation in maternal parenting styles, the predictive role of maternal parenting styles in children's temperament, and the predictive role of maternal emotion regulation in children's temperament. Hierarchical regression analysis was used to examine the incremental predictive contribution of maternal parenting styles to children's temperament alongside maternal emotion regulation. Regression analysis is one of the most common statistical tools used to analyze multifactorial data. It is of interest because it provides a conceptually simple method for explaining functional relationships between variables. The standard approach to regression analysis is to collect data, fit them into a model, and evaluate the fit using statistics. Regression analysis can also be defined as a set of data analysis techniques that examine the relationships between a given set of variables (Chatterjee & Hadi, 2015).

3. FINDINGS

Table 3.

Descriptive Statistics Related to Scale Scores

Scale	Sub-dimension	N	Score range	X	SD
Temperament in Children	Reactivity	415	1-5	2.94	0.63
	Positivity	415	1-5	4.33	0.46
	Timidity	415	1-5	2.70	0.79
Parental Emotion Regulation	Self-awareness	415	10-50	40.44	4.85
	Suppression	415	4-20	9.86	3.64
	Rumination	415	4-20	15.43	3.17
Parental Attitude	Democratic	415	17-85	76.04	6.18
	Authoritarian	415	11-55	20.23	5.02
	Overprotective	415	9-45	34.71	5.68
	Permissive	415	9-45	20.44	5.05

As presented in Table 3, it is seen that the levels of reactivity and timidity perceived by the parents participating in the study in their children are at medium level, while the levels of positivity are at high level. Regarding emotion regulation, it is seen that the suppression levels of the parents are at a medium level, while self-awareness and rumination levels are above the medium level. In terms of parental attitudes, it is seen that the levels of authoritarian attitude and permissive attitude of the parents participating in the study are below the medium level, overprotective attitude levels are above the medium level, and democratic attitude levels are at high level.

Table 4.

Multiple Linear Regression Analysis Predicting Democratic and Authoritarian Maternal Parenting Styles from Maternal Emotion Regulation

	Democratic Parental Attitude					Authoritarian Parental Attitude				
Variables	**B**	**Std. Error**	**β**	**t**	**p**	**B**	**Std. Error**	**β**	**t**	**p**
Fixed	56.105	2.865		19.581	.000	28.857	2.234		12.914	.000
Self-awareness	.427	.059	.335	7.275	.000	-.382	.046	-.369	-8.343	.000
Suppression	-.142	.078	-.083	-1.809	.071	.176	.061	.127	2.883	.004
Rumination	.264	.090	.135	2.935	.004	.329	.070	.208	4.696	.000

	R=.362, R^2=.125, F(3,411)=20.67, p <.001	R=.446, R^2=.193, F(3,411)=34.05, p < .001

When the table is examined, maternal emotion regulation accounts for 12.5% of the variance in mothers' democratic parenting style; in other words, maternal emotion regulation significantly predicts democratic parenting style (R^2 = .125, p < .05). An evaluation of the sub-dimensions reveals that the contribution of the suppression sub-dimension is not statistically significant (β = -.083, p > .05), whereas self-awareness (β = .335, p < .05) and rumination (β = .135, p < .05) are significant predictors, with self-awareness making a stronger contribution than rumination. Furthermore, maternal emotion regulation accounts for 19.3% of the variance in mothers' authoritarian parenting style (R^2 = .193, p < .05). When analyzed on the basis of sub-dimensions, all sub-dimensions significantly predict authoritarian parenting style, with the relative predictive contribution ordered as self-awareness (β = -.369, p < .05), rumination (β = .208, p < .05), and suppression (β = .127, p < .05), respectively.

Table 5.
Multiple Linear Regression Analysis Predicting Overprotective and Permissive Maternal Parenting Styles from Maternal Emotion Regulation

	Overprotective Parental Attitude					**Permissive Parental Attitude**				
Variables	**B**	**Std. Error**	**β**	**t**	**p**	**B**	**Std. Error**	**β**	**t**	**p**
Fixed	21.464	2.711		7.919	.000	23.319	2.498		9.333	.000
Self-awareness	.129	.056	.110	2.321	.021	-.097	.051	-.093	-1.892	.059
Suppression	.226	.074	.145	3.053	.002	.038	.068	.027	.556	.579
Rumination	.376	.085	.210	4.424	.000	.043	.078	.027	.544	.587
	R=.282, R^2=.073, F(3,411)=11.83, p<.001					R=.101, R^2=.003, F(3,411)=1.40, p=.241				

As shown in Table 5, maternal emotion regulation accounts for 7.3% of the variance in mothers' overprotective parenting style; in other words, maternal emotion regulation significantly predicts overprotective parenting style (R^2 = .073, p < .05). When analyzed on the basis of sub-dimensions, all sub-dimensions make a significant predictive contribution, with the relative predictive contribution ordered as rumination (β = .210, p < .05), suppression (β = .145, p < .05), and self-awareness (β = .110, p < .05), respectively. Conversely, maternal emotion regulation did not significantly predict mothers' permissive parenting style (R^2 = .003, p > .05).

Table 6.
Multiple Linear Regression Analysis Predicting Children's Reactivity Subdimension from Maternal Parenting Styles

Variables	**B**	**Std. Error**	**β**	**t**	**p**
Fixed	1.081	.434		2.490	.013
Democratic	.006	.005	.060	1.207	.228
Authoritarian	.032	.006	.256	5.171	.000
Overprotective	.010	.005	.087	1.799	.073
Permissive	.020	.006	.160	3.335	.001
R = .344, R^2 = .109, F(4, 410) = 13.72, p < .001					

An examination of the data reveals that maternal parenting styles account for 10.9% of the variance in children's reactivity levels; in other words, maternal parenting styles significantly predict reactivity (R^2 = .109, p < .05). When analyzed on the basis of sub-dimensions, democratic (β = .060, p > .05) and overprotective (β = .087, p > .05) parenting styles do not make a significant contribution, whereas authoritarian (β = .256, p < .05) and permissive (β = .160, p < .05) parenting styles are significant predictors, with authoritarian parenting style making a stronger contribution than permissive parenting style.

Table 7.
Multiple Linear Regression Analysis Predicting Children's Positivity Subdimension from Maternal Parenting Styles

Variables	B	Std. Error	β	t	p
Fixed	2.204	.313		7.038	.000
Democratic	.027	.004	.364	7.397	.000
Authoritarian	.004	.004	.038	.787	.432
Overprotective	.003	.004	.040	.848	.397
Permissive	-.006	.004	-.066	-1.397	.163
$R = .372, R^2 = .130, F(4, 410) = 16.49, p < .001$					

As presented in Table 7, maternal parenting styles account for 13% of the variance in children's positivity levels; in other words, maternal parenting styles significantly predict positivity ($R^2 = .130$, $p < .05$). When analyzed on the basis of sub-dimensions, authoritarian ($\beta = .038$, $p > .05$), overprotective ($\beta = .040$, $p > .05$), and permissive ($\beta = -.066$, $p > .05$) parenting styles do not make a significant contribution, whereas democratic parenting style is a statistically significant predictor ($\beta = .364$, $p < .05$).

Table 8.
Multiple Linear Regression Analysis Predicting Children's Timidity Subdimension from Maternal Parenting Styles

Variables	B	Std. Error	β	t	p
Fixed	3.179	.574		5.543	.000
Democratic	-.016	.007	-.128	-2.451	.015
Authoritarian	.002	.008	.012	.240	.811
Overprotective	.018	.007	.132	2.596	.010
Permissive	.004	.008	.028	.556	.579
$R = .168, R^2 = .019, F(4, 410) = 2.97, p = .019$					

As detailed in Table 8, maternal parenting styles account for 1.9% of the variance in children's timidity levels; in other words, maternal parenting styles significantly predict timidity ($R^2 = .019$, $p < .05$). When analyzed on the basis of sub-dimensions, authoritarian ($\beta = .012$, $p > .05$) and permissive ($\beta = .028$, $p > .05$) parenting styles do not make a significant contribution, whereas democratic ($\beta = -.128$, $p < .05$) and overprotective ($\beta = .132$, $p < .05$) parenting styles are significant predictors, with overprotective parenting style making a slightly stronger relative contribution than democratic parenting style.

Table 9.
Hierarchical Regression Analysis Predicting Children's Reactivity Subdimension from Maternal Emotion Regulation and Maternal Parenting Styles

Model	Variables	B	Std. Error	β	t	p
Model 1	Fixed	2.741	.303		9.040	.000
	Self-awareness	-.014	.006	-.106	-2.225	.027
	Suppression	.008	.008	.044	.925	.355
	Rumination	.044	.010	.222	4.646	.000
	Model Statistics: $R = .254, R^2 = .058, F(3, 411) = 9.463, p < .001$					
Model 2	Fixed	1.124	.482		2.333	.020

	Self-awareness	-.005	.007	-.039	-.763	.446
	Suppression	.002	.008	.010	.202	.840
	Rumination	.031	.010	.157	3.220	.001
	Democratic	.005	.005	.047	.908	.364
	Authoritarian	.025	.007	.200	3.735	.000
	Overprotective	.007	.005	.059	1.197	.232
	Permissive	.021	.006	.166	3.502	.001
	Model Statistics: $R = .376$, $R^2 = .126$, $\Delta R^2 = .068$, $F(7, 407) = 9.562$, $p < .001$					

Note. N = 415. Dependent variable: Children's reactivity temperament. Model 1 predictors: Maternal self-awareness, suppression, rumination. Model 2 predictors: Model 1 predictors + democratic, authoritarian, overprotective, permissive maternal parenting styles. $\Delta R^2 = .068$ for Model 2 ($p < .001$).

According to the results in Table 9, maternal emotion regulation significantly accounted for 5.8% of the variance in children's reactivity levels ($R^2 = .058$, $p < .05$). An analysis of the sub-dimensions revealed that the predictive contribution of suppression ($\beta = .044$, $p > .05$) was not statistically significant. Conversely, self-awareness ($\beta = -.106$, $p < .05$) and rumination ($\beta = .222$, $p < .05$) were significant predictors, with rumination demonstrating a stronger predictive relative contribution than self-awareness. When maternal parenting styles were added to the model (Model 2), the proportion of explained variance in children's reactivity increased significantly to 12.6% ($R^2 = .126$, $p < .05$; $\Delta R^2 = .068$, $p < .001$). In Model 2, the significant predictive role of self-awareness observed in Model 1 became non-significant ($\beta = -.039$, $p > .05$), whereas rumination remained a significant predictor ($\beta = .157$, $p < .05$). The substantial increase in the explained variance following the addition of maternal parenting styles indicates that maternal parenting styles provide a significant incremental predictive contribution to the explanation of children's reactivity alongside maternal emotion regulation.

Table 10.
Hierarchical Regression Analysis Predicting Children's Positivity Subdimension from Maternal Emotion Regulation and Maternal Parenting Styles

Model	Variables	B	Std. Error	β	t	p
Model 1	Fixed	3.317	.221		15.024	.000
	Self-awareness	.020	.005	.215	4.513	000
	Suppression	-.012	.006	-.093	-1.944	.053
	Rumination	.019	.007	.134	2.814	.005
	Model Statistics: $R = .261$, $R^2 = .068$, $F(3, 411) = 10.032$, $p < .001$					
Model 2	Fixed	1.886	.348		5.422	.000
	Self-awareness	.012	.005	.123	2.404	.017
	Suppression	-.010	.006	-.078	-1.661	.097
	Rumination	.010	.007	.072	1.495	.136
	Democratic	.024	.004	.319	6.251	.000
	Authoritarian	.006	.005	.064	1.204	.229
	Overprotective	.003	.004	.035	.707	.480
	Permissive	-.005	.004	-.060	-1.280	.201
	Model Statistics: $R = .399$, $R^2 = .159$, $\Delta R^2 = .091$, $F(7, 407) = 11.023$, $p < .001$					

Note. N = 415. Dependent variable: Children's positivity temperament. Model 1 predictors: Maternal self-awareness, suppression, rumination. Model 2 predictors: Model 1 predictors + democratic, authoritarian, overprotective, permissive maternal parenting styles. $\Delta R^2 = .084$ for Model 2 ($p < .001$).

As detailed in Table 10, maternal emotion regulation significantly accounted for 6.1% of the variance in children's positivity levels ($R^2 = .061$, $p < .05$). An evaluation of the sub-dimensions revealed that the predictive contribution of suppression ($\beta = -.093$, $p > .05$) was not statistically significant. Conversely, self-awareness ($\beta = .215$, $p < .05$) and rumination ($\beta = .134$, $p < .05$) were significant positive predictors, with self-awareness making a stronger relative contribution than rumination. When maternal parenting styles were added to the model (Model 2), the total explained variance in children's positivity levels increased significantly to 14.5% ($R^2 = .145$, $p < .05$; $\Delta R^2 = .084$, $p < .001$). In Model 2, the significant predictive role of rumination observed in Model 1 became non-significant ($\beta = .072$, $p > .05$), whereas self-awareness retained its statistically significant positive predictive role ($\beta = .123$, $p < .05$). The substantial increase in the explained variance demonstrates that maternal parenting styles provide a significant incremental predictive contribution to children's positivity alongside maternal emotion regulation.

Table 11.
Hierarchical Regression Analysis Predicting Children's Timidity Subdimension from Maternal Emotion Regulation and Maternal Parenting Styles

Model	Variables	B	Std. Error	β	t	p
Model 1	Fixed	3.317	.221		15.024	.000
	Self-awareness	.020	.005	.215	4.513	.000
	Suppression	-.012	.006	-.093	-1.944	.053
	Rumination	.019	.007	.134	2.814	.005
	Model Statistics: $R = .110$, $R^2 = .012$, $F(3, 411) = 1.669$, $p = .173$					
Model 2	Fixed	2,988	.643		4.649	.000
	Self-awareness	.001	.009	.009	.163	.871
	Suppression	.011	.011	.049	.986	.325
	Rumination	.017	.013	.068	1.312	.190
	Democratic	-.017	.007	-.136	-2.495	.013
	Authoritarian	-.001	.009	-.009	-.152	.879
	Overprotective	.015	.007	.110	2.100	.036
	Permissive	.005	.008	.032	.645	.520
	Model Statistics: $R = .186$, $R^2 = .035$, $\Delta R^2 = .023$, $F(7, 407) = 2.087$, $p = .044$					

Note. N = 415. Dependent variable: Children's timidity temperament. Model 1 predictors: Maternal self-awareness, suppression, rumination. Model 2 predictors: Model 1 predictors + democratic, authoritarian, overprotective, permissive maternal parenting styles. $\Delta R^2 = .013$ for Model 2 ($p < .05$).

As detailed in Table 11, maternal emotion regulation alone did not play a statistically significant predictive role in children's timidity levels in Model 1 ($R^2 = .005$, $p > .05$). When maternal parenting styles were added to the model (Model 2), the overall model became statistically significant, explaining 1.8% of the variance in children's timidity ($R^2 = .018$, $p < .05$; $\Delta R^2 = .013$, $p < .05$). Although maternal emotion regulation demonstrated no significant baseline predictive relationship with children's timidity, the significant increase in explained variance following the addition of maternal parenting styles indicates that maternal parenting styles make a statistically significant incremental predictive contribution to children's timidity.

4. DISCUSSION AND CONCLUSION

In the present study, it was observed that children had high positive temperament traits, while reactive and timid temperament traits were at moderate levels. In general, it can be seen that 65% of children are included in one of the three types of temperament categories, while the remaining 35% cannot be fully included in any category (Usta et

al., 2021). When examining the literature, apart from the three types of temperament categories determined in children, nine types of temperament categories are also found in some sources (Gökkaya, 2020; Yılmaz et al., 2017). In addition, this may also be due to the mothers' responses to the scale questions.

When the emotion regulation characteristics of the mothers in this study were examined, it was found that the scores for self-awareness and rumination were above the average level, and the scores for suppression were at the average level. In a study on healthy and unhealthy emotion regulation, emotion regulation was examined in two main categories: reappraisal and suppression. In the current study, reappraisal was found to have a healthier profile than suppression in terms of short-term emotional, cognitive, and social outcomes (Rothbart, Ahadi & Evans, 2000). When the current study was analyzed in terms of parental attitudes, it was found that mothers' democratic attitudes were at a high level, protective attitudes were at a medium level, and authoritarian and permissive attitudes were below the medium level. As in the study, there are some studies in the literature that show that democratic parenting attitude, which is accepted as a positive parenting type, is high among mothers (Conrade & Ho, 2001; Yaffe, 2023).

In the present study, parental emotion regulation was found to explain parental attitudes in general. Parenting attitudes and behaviors cannot be fully understood without considering parents' emotion dysregulation and emotion regulation strategies. However, there are very few studies that focus on the effects of parents' emotion regulation strategies on parenting behaviors (Putnam et al., 2002). It is almost impossible to discuss the parenting experience without considering positive and negative, temporary and permanent, internally experienced and externally displayed emotions. In recent years, there have been studies on how emotions organize parenting behaviors and how parenting-related emotions accumulate and contribute to more general behaviors (Hajal & Paley, 2020; Zhang et al., 2023). Based on the research, it can be argued that emotions can serve important functions in parenting motivation. If emotions are not appropriately regulated, they may lead to inappropriate parenting behaviors (Dix, 1991). In the literature, there are some studies that show a relationship between parents' attitudes and emotion regulation skills (Çakır & Ertem, 2021; Safrancı, 2015). In a study conducted with mothers, it was found that mothers with inadequate emotion regulation skills also had problems with parenting skills. It was also stated that this situation had a negative impact on children's behavior (Crandall et al., 2016). In another study, it was reported that irregularities in parents' emotion regulation skills indirectly affected their parenting skills through their own parenting stress (Hu et al., 2019). It can be said that parental attitudes are related to parental emotion regulation, emotional regulation or dysregulation affect the individual psychologically, and this effect is reflected in behaviors and indirectly affects parental attitudes. In a meta-analysis study conducted by Zimmer-Gembeck et al. (2022), it was found that parents who generally had better emotion regulation skills or had less difficulty in this regard had higher positive parenting behaviors. These parents were found to have children with better emotion regulation and less internalizing symptoms.

In the present study, maternal parenting styles were found to play a significant overall predictive role in child temperament. Maternal parenting styles have received a great deal of research interest from various scientific disciplines. In general, it has been emphasized that parenting plays an important role in child development (Kuppens & Ceulemans, 2019). There are studies that suggest that the relationship between child temperament and parenting behaviors is significant. Studies show that parenting behaviors exhibited by mothers can determine the direction of child temperament (Aring & Renk, 2010; Blandon et al., 2010). Laukkanen et al. (2014) stated that there is a relationship between difficult temperament traits and negative parental attitudes in children. In this study, a direct proportional relationship was found between children's positivity and mothers' positivity. In other words, positive attitudes of mothers increase positive temperament traits in children, while negative attitudes increase negative temperament traits in children.

Studies provide evidence that parent-child interactions, parenting behaviors, and negative parental attitudes are associated with negative temperamental traits in children and that these negatively affect the child's future social competence. Unsupportive, neglectful, and risky family structures can lead to perceived emotional and behavioral problems in children or cause more serious problems that can threaten children's mental and physical health (Bariola et al., 2011; Repetti et al., 2002; Rispoli et al., 2013). It can be said that parenting and family experiences play a fundamental role in children's emotional development.

Mothers' low role satisfaction affects children's temperament. Low maternal role satisfaction, depressive tendencies, and difficult child temperament predict negative parenting styles. It has been observed that mothers with low role satisfaction reject their children more and consequently have more difficult children (Katainen et al., 1999; Lerner & Galambos, 2013). Mothers' self-perceptions or depressive tendencies may influence parenting attitudes and thus child temperament. The fact that child temperament can be influenced by parental attitudes may help parents to regulate their relationships with their children.

In the present study, maternal emotion regulation was found to play a significant predictive role in children's temperament, except for the timidity subdimension. When maternal parenting styles were included in the model,

the total proportion of explained variance in children's temperament (except for the timidity dimension) increased significantly. This finding demonstrates that maternal parenting styles provide a significant incremental predictive contribution to child temperament alongside maternal emotion regulation. Since maternal emotion regulation demonstrated no significant baseline predictive relationship with children's timidity, the incremental contribution in this specific subdimension was limited to the direct predictive contribution of maternal parenting styles. The results of this study support that positive parenting attitudes and positive emotional regulation in parents may have positive consequences for children. Although it is emphasized that genetics plays an important role in temperament (Bokhorst et al., 2003), the findings of this study show that child temperament can be influenced by the child's interactions with the environment. There is a strong relationship between child temperament and maternal emotions (Bryan & Dix, 2009). Havighurst and Kehoe (2017) stated that when parents are unable to regulate their own emotions, or in other words, when they are unable to manage their emotional reactions, their parenting skills and their children's emotional and behavioral responses are compromised. Research has shown that parental attitudes and emotion regulation have a strong impact on children and influence them (Hajal & Paley, 2020; Kılıç et al., 2015; Tekin & Kayılı, 2023). In another study, the role of children's temperament and parenting styles on children's emotion regulation was investigated. According to the results of this study, positive temperament traits were found to be associated with better emotion regulation skills, and positive parenting skills showed positive developmental outcomes in children (Yagmurlu & Altan, 2010).

Child temperament can be influenced by the family in which the child grows up and the parental care (Gilissen et al., 2008). In a study on child temperament and parental attitudes, Yoleri et al. (2017) found a positive relationship between democratic parental attitudes and positive temperament traits in children, and a negative relationship with authoritarian parental attitudes. In addition to studies that show that parental attitudes affect child temperament, there are also studies that argue that the child also affects parental temperament (Achtergarde et.al., 2015; Aytemiz, 2010). At this point, a reciprocal relationship can be mentioned. On the other hand, there are studies that conclude that the child's temperament does not affect parental attitudes (Mizrakçi, 1994). These results show us that more studies are needed to determine the effect of environmental variables on child temperament.

Although this study examines the predictive role of maternal emotion regulation and maternal parenting styles in child temperament, it should be noted that additional variables may also contribute to the explanation of child temperament. For example, parental emotion regulation and attitudes may indirectly affect child temperament by affecting children's emotion regulation, behaviors, and many physical and mental characteristics. Milojevich et al. (2020) stated in their study that emotion regulation difficulties experienced by parents are a strong predictor in determining children's emotion regulation skills. Through their parenting strategies and behaviors, parents shape their children's behavior over a long period of time and in a range of different situations and contexts. Parental behaviors can have an impact on children's mental health and can cause children to experience emotional and behavioral problems. From this perspective, it can be said that emotional and behavioral problems in children are not independent from parental behaviors. In one study, it was found that parental emotion dysregulation led to internalizing behavior in children (Han et al., 2016).

In light of these findings, it can be said that children's temperament cannot be independent of external factors, even if there is a certain type of temperament to which each child is predisposed. Like many other factors that can affect children's temperament, parents' emotion regulation and attitudes toward their children can affect their children's temperament. For example, parents may soften or make more dominant difficult temperamental traits in children, increase or decrease positive temperamental traits or reactivity in children.

When the literature is reviewed, it is seen that studies on the influence of child temperament on parental attitudes, behaviors, and personality are more extensive than those on parental influences on the development of child temperament (Wang & Gai, 2024; Warfel et al., 2026). On the other hand, it is seen that studies on the effects of parental influences on behavioral problems in children are concentrated (Güzel & Osmanoğlu, 2024). Even if behavioral problems evolve into some extent to difficult temperament traits, the two concepts are fundamentally very different from each other. Consequently, it can be said that studies on the effects of parental influences on temperament development in children are limited. At this point, the current study is important.

4.1. Recommendations

The present study has several limitations that should be considered when interpreting the findings. First, due to the cross-sectional design of the study, causal inferences cannot be drawn. Consequently, future research could employ alternative methods and designs to address this limitation. Second, the participants in this study are limited to mothers residing in Bingöl province; thus, the results can only be generalized to populations with similar characteristics. Finally, future studies are recommended to conduct cross-cultural research to compare and validate these findings.

Perhaps the most important limitation of this study is that it was conducted from the mother's perspective. In the present study, only maternal perspectives were evaluated, and the predictive role of maternal parenting styles and maternal emotion regulation in child temperament was examined. Other variables that may affect the child's temperament such as school, teachers, father, social environment, friends, other experiences or attachment, and the child's emotion regulation were not included in the study. Hence, these factors can be taken into consideration in future studies. The reason for using only mothers' reports in the present study was that, from a theoretical perspective, it was thought that the mother's views and experiences of her child were particularly important in terms of parenting efforts and child well-being. Consequently, the effects of fathers or other individuals with whom the child has a close relationship on the child can also be included. It is also important to examine the relationship between fathers' parenting and child temperament in future studies.

The study found that parents can influence their children's temperament. Thus, the use of intervention strategies aimed at increasing mothers' knowledge of the effects of parenting practices may help to reduce the possible negative effects of mothers' negative attitudes on children. By implementing early intervention programs for mothers, a general mechanism can be provided to strengthen long-term positive outcomes for children by increasing mothers' awareness of knowledge and beliefs. Considering that parental emotion regulation has an effect on both parental attitudes and child temperament, and parental attitudes also have an effect on child temperament, it may be important to develop awareness of parents' emotions and attitudes. Awareness training can be given on this subject.

The quality of the spousal relationship and the amount of support provided by the spouse in child rearing were not controlled in the study. Since it is possible that children's temperament may have different effects on mothers' parenting and mothers' emotion regulation depending on the degree of spousal relationship and support, further studies that take these variables into account may be included.

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ETHICAL PERMISSION TO WORK

In this study, all rules specified within the scope of the "Scientific Research and Publication Ethics Directive of Higher Education Institutions" have been strictly followed. None of the actions specified under the heading "Actions Against Scientific Research and Publication Ethics" in the second part of the directive have been performed.

Ethics Committee Approval Information

Name of the ethics review board: Bingol University Health Sciences Committee on Research and Publication Ethics

Date of the ethics review decision: 26.02.2024

Ethics review certificate number: E-46040105-044-147676

THE CONTRIBUTION RATE OF RESEARCHERS

The first author’s contribution to the research is 70%, and the second author’s contribution is 30%.

Author 1: Contributed to all sections.
Author 2: Contributed to all sections.

CONFLICT OF INTEREST STATEMENT

There are no financial or personal ties to any individual or organization in connection with this study. There is no conflict of interest in this study.

ARTIFICIAL INTELLIGENCE USAGE STATEMENT

During the preparation and revision of this manuscript, the authors utilized AI-based tools for text refinement and language and grammar checking. The research design, data collection process, statistical analyses, interpretation of findings, and scientific conclusions are entirely the original intellectual contribution of the authors. The authors are ultimately responsible for the accuracy, integrity, and ethical compliance of the academic content of the study.