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TEMPERAMENT AND PARENT-CHILD RELATIONSHIP AS PREDICTORS OF PROSOCIAL BEHAVIOR OF 60-72-MONTH-OLD CHILDREN

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Abstract

This research aims to determine to what extent temperament and parent-child relationship predict the prosocial behaviors of 60-72-month-old children. The study group of the research consists of 313 mothers and 126 fathers. Data analyzes were carried out separately in mother and father groups. "Personal Information Form", "Child Prosocialness Scale", "Short Temperament Scale for Children", "Child-Parent Relationship Scale" were used as data collection tools. Data were analyzed using Pearson product-moment correlation coefficient and multiple regression analysis. The results obtained from the mothers in the study group revealed that approach, persistence, rhythmicity, reactivity which are the child temperament, and negative mother-child relationship together significantly predicted children's prosocial behaviors. As for the results obtained from the father participants in the study group, it was found that approach, the persistence of the child temperament, and negative father-child relationship together significantly predicted children's prosocial behaviors. As a result of the study, the importance of the relationship between child temperament and the child-parent relationship with prosocial behaviors was revealed. The findings of the research were discussed in light of the literature and research, and suggestions were presented.

Keywords: Prosocial behavior, temperament, parent child relationship, preschool period.

INTRODUCTION

As genuinely social creatures, human beings have always strived to socialize and integrate themselves into society (Malti & Dys, 2018). There are a lot of values helping individuals to enhance their well-being in society, and these values affect them positively by allowing both individuals and societies to become more contended and more robust. When people display behaviors in accordance with the goals of people around them rather than merely focusing on achieving their own life goals, they start to lead a more meaningful life (Van-Tongeren et al., 2016). Such behaviors are called prosocial behaviors.

Prosocial behaviors play a significant role in social development and a coherently functioning society (Eisenberg, 2003; Eisenberg et al., 2006; Zhao, 2009). They basically involve behaviors displayed by individuals on their own will for the benefit and well-being of others (Eisenberg & Mussen, 1997) and emotions reflecting how they care and worry about others. Prosocial behaviors provide invaluable benefits for the self, others, and society (Eisenberg et al., 2006). They are often explained by referring to different concepts such as cooperation (Malti & Dys, 2018; Svetlova et al., 2010) and sharing, helping, and comforting a troubled person (Carlo et al., 2011; Dunfield et al., 2011; Knafo-Noam et al., 2015; Knafo- Noam et al., 2018; Warneken & Tomasello, 2013; Zahn- Waxler et al., 1992). All

societies attach special importance to prosocial behaviors, and those who display such behaviors promote a positive social environment and a sensitive and healthy society (Caprara et al., 2000). Children start to exhibit prosocial behaviors starting from the pre-school period. The preschool period, which covers the 0-6 age group, is very vital in terms of the realization of linguistic, cognitive, sexual, social, and emotional development. In addition to these, children's empathy skills and positive peer relations also develop in the preschool period. They build up their inclination to display prosocial behaviors while developing their perceptions of others and the world (Grusec et al., 2002; Hay, Cook, 2007). The studies reported that children who display prosocial behaviors while solving the problems they encounter in their social life are more successful in making friends and maintaining their relationships (Özkan, 2015; Webster-Stratton et al., 1999). Prosocial behaviors have a therapeutic effect on both individuals and societies, which allows especially children to maintain their social relationships in an effective and quality way (Altıntaş & Bıçakçı, 2017; Güngör Aytar, 2015).

It has been suggested that social skills develop significantly between 5 and 6 years of age, which also corresponds to the late preschool period (Ekici, 2015; Göktaş & Gülay, 2010; Karoğlu & Ünüvar, 2017). Preschool children with developed social skills display more prosocial behaviors and contribute to the development of a positive social environment (Caprara et al., 2000). Under proper conditions, preschool children can help others (Liszkowski, 2005), they can noticeably express their sadness when someone has problems or feels troubled and embrace him/her with affection (Brownell et al., 2009; Zahn-Waxler et al., 1992), cooperate with others to achieve common goals (Brownell et al., 2006; Warneken & Tomasello, 2007) and voluntarily share his toys and food (Brownell et al., 2009; Dunfield et al., 2011). However, there are some individual differences among preschool children in terms of displaying such behaviors (Yağmurlu & Sanson, 2009). Some children might voluntarily and easily display prosocial behaviors such as comforting, helping, and sharing while others might find it difficult to show these behaviors, may not be sensitive towards their environment or may not display prosocial behaviors although they are aware that others need help (Padilla-Walker & Carlo, 2014). In order to explain prosocial behaviors, researchers deal with temperament as a biological factor (Knafo & Plomin, 2006; Kumru et al., 2005; Laible et al., 2014; Laible et al., 2017; Malti & Dys, 2018; Prior et al., 2000; Sanson et al., 2004; Yağmurlu et al., 2005; Yağmurlu & Sanson, 2009) and parental behaviors as an environmental factor (Bureau et al., 2017; Daniel et al., 2015; Ferreira et al., 2016; Gryczkowski et al., 2018; Hallers-Haalboom, 2014; Padilla-Walker, 2015; Ruiz-Ortiz et al., 2017; Robinson et al., 2021).

Temperament, which is a factor affecting prosocial behavior, is defined as biological and partially stable features in emotion, behavior, and attention processes as well as personality traits that can be shaped according to environmental experiences (Callueng & Oakland, 2014). Temperament also refers to certain characteristics that exist in the early phases of human life and often lead to different reactions to the experiences regarding social relationships shaped within the framework of social and environmental interactions (Shiner & Caspi, 2003). Temperament contributes to social development by determining how the child perceives his environment and how he reacts accordingly (Rothbart & Bates, 2006). Relatively calm and patient children have better social relationships with their peers (Laiable et al., 2017; Yağmurlu & Sanson, 2009). On the other hand, children with a fiery temperament, i.e those who are more prone to display anger and frustration, have weaker social skills in their relationships with their peers and tend to display anti-social behaviors more (Acar et al., 2019; Diener & Kim, 2004; Yağmurlu & Altan, 2010). The related studies show that flexibility and persistence correlate with positive emotional and behavioral adjustment and social skills (Laible et al., 2014), and fiery temperament correlates with problematic behaviors (Arı & Yaban, 2012; Diener & Kim, 2004; Yağmurlu et al., 2005; Yağmurlu & Sanson, 2009; Yağmurlu & Altan, 2010). Temperament correlates also with ego resilience (Önder et al., 2018), emotion regulation skills (Akbaba, 2017), self-regulation skills (Özdemir & Budak, 2019), attention and focusing skills (Laible et al., 2014) and quality time spent with parents (Brown et al., 2011). Temperament plays a crucial role in the social and emotional development of children, and it has a long-term effect on to what extent they adapt to life in a wider circle of relationships in school environment (Rothbart & Bates,

2006; Sanson et al., 2004; Stright et al., 2008). As for prosocial behaviors, the presence of a social environment to encourage these behaviors is crucial for children with different temperaments (Carlo et al., 2010; Mc Ginley, 2008). The closest social environment to a child at his birth and throughout the preschool period is his parents. Therefore, parent-child relationship is vital in the development of social skills, which might affect children's interpersonal relationships in the following years.

Social environment as well as personality traits have remarkable effects on the development of an individual. Behaviors to be acquired by children at early ages are inevitably the outcomes of an ongoing mutual interaction in this social environment (Yazıcı & Salıkutluk, 2018). When we consider the fact that children interact for the first time in a social environment with their parents, it is obvious that the way parents interact with their children builds up a strong basis for the development of prosocial behaviors that are essential for many areas of functionality (Gryczkowski et al., 2018). Especially, the experiences in the preschool period are significant in terms of parent-child relationship, and the related studies showed that such experiences lead to the most rapid changes in the development process in the first six years of a human's life (Kleim & Jones, 2008). Children need the care of their parents and should develop trust in them. They gain new experiences as a result of their interactions with their parents throughout the developmental phases. These experiences help children to form a basis for their emotions and behaviors towards themselves, others, and the world (Fabes et al., 2001; Fraley et al., 2013; McElwain et al., 2007). The effects of parent-child relationship differ depending on whether the parent is a mother or father. The mother and the father independently have strong effects on the development of the child (Daniel et al., 2015). The time spent with the child, the activities they do together, and their interaction style might vary according to the gender of the parent (Hallers-Haalboom et al., 2014; Lewis & Lamb, 2003). It has been emphasized that the recent studies conducted with preschool children have often focused on mother-child relationship (Buraeu, 2016; Daniel et al., 2015). In addition, father-child relationship plays a significant role in children's social development (Cabrera et al., 2007). Fathers are now being involved in children's social development more and more (Robinson et al., 2021).

Healthy mother-child and father-child relationships allow children to enhance their sensitivity and direct their attention towards understanding others as well as their own emotions and needs (Malti et al., 2013; Grusec & Davidov, 2010; Hastings et al., 2007). A healthy parent-child relationship and mutual sensitivity contribute to the development of prosocial behaviors, which also require the development of empathy with others (Daniel et al., 2015). A negative parent-child relationship implies the presence of conflict. In other words, a hostile, conflicting, and aggressive parent-child relationship may result in conflicting relationships between the child and others. These negative experiences might also affect the child's relationships with others (Myers & Pianta, 2008). Parents feel insufficient and distressed in a conflicting relationship, and children feel insecure and develop negative schemes and become insensitive toward others' needs (McGinley, 2008). On the other hand, a mutually sensitive and positive parent-child relationship in preschool period positively affects children's social development (Hastings et al., 2007; Kochanska & Murray, 2000; Padilla-Walker & Carlo, 2015); however, there is a negative correlation between conflicting and negative parent-child relationship and the child's prosocial behaviors (Cornell & Frick, 2007; Deater-Deckard et al., 2001; Knafo & Plomin, 2006; Romano et al., 2005; Padilla-Walker, 2014; Smetana et al., 2009). Mothers and fathers have unique effects on their children, it is seen that the variables related to parents regarding children's positive social behaviors in both Turkish and foreign literature are mostly related to mothers (Laible et al., 2017; Padilla-Walker & Carlo, 2014). While there is no research examining the relationship between children's positive social behaviors and father-child relationship in Turkey, it is seen that it is a variable that has just started to be investigated abroad (Bureau et al., 2017; Daniel et al., 2015; Ferreira et al., 2016; Gryczkowski et al., 2018; Hallers-Haalboom et al., 2014; Robinson et al., 2021; Ruiz-Ortiz et al., 2017). As valuable as it is to examine the place of mothers in child development, it is also important to evaluate how fathers affect children's development.

Temperament has also an undeniable effect on children's social development and their communication with important people (mother and father) in their environment (Yağmurlu & Sanson, 2009). A common finding reported by many studies on social development is that environment affects temperament and social relationship and it is not possible to deal with this correlation as an issue independent from the nearby environment (Sarı, 2018). Studies found that there was a relationship between prosocial behaviors and temperament (Acar, 2013; Eisenberg et al., 2019; Hipson & Seguin, 2016; Laible et al., 2017; MacGowan & Schmidt, 2020a; MacGowan & Schmidt, 2021; Song et al., 2018; Stright et al., 2008; Yağmurlu & Sanson, 2009; Waller et al., 2001; Laible et al., 2017; Romano et al., 2005; Gross et al., 2017; Hastings et al., 2007; Padilla-Walker, 2014) prosocial behaviors and the mother-child relationship (Cornell & Frick, 2007; Deater-Deckard et al., 2001; Laible et al., 2017; Romano et al., 2005; Gross et al., 2017; Hastings et al., 2007; Padilla-Walker, 2014) prosocial behaviors and father-child relationship (Bureau et al., 2017; Daniel et al., 2015; Ferreira et al., 2016; Gryczkowski et al., 2018; Haller-Haalboom et al., 2014; Robinson et al., 2021; Ruiz-Ortiz et al., 2017). However, examining the relationship between child temperament and parent-child relationship with prosocial behaviors together is as essential as examining them separately.

It is thought that it is important to investigate both environmental and individual characteristics together, rather than associating positive social behaviors with only environmental or only individual characteristics, and to address the interaction of environmental and individual characteristics that affect the child's development. Temperament, one of the individual characteristics, manifests itself, especially in social environments (Prior et al., 2000). When considered in the context of 60-72 months, this age period is the period when children begin to be actively involved in peer groups. When children start preschool education and begin to be actively involved in peer groups, it is seen concretely how the characteristics of their temperament and their relationship with their parents affect their social life. In the preschool period, while playing games with their friends, children face some problems brought about by being in collective activities. While solving these problems, they may use the relationship models they have adopted as a result of their experiences in their relationships with their parents or exhibit behaviors brought about by their temperamental characteristics. Therefore, it is considered valuable that the parents of children who have started and continue preschool education and who are included in peer groups constitute the study group of this research. It is important to reveal the effects of temperament, mother-child, and father-child relationships that affect positive social behaviors in this group. As a result of revealing these effects, the ways that can be followed to improve positive social behaviors according to temperament types can be evaluated and suggestions can be made to improve the relationship of mother and father with the child. Thus, prosocial behaviors, which are reflections of a child's personality traits, are evaluated together with the child's temperament and the parent-child relationship. The aim of the current study is to examine whether temperament and parent-child relationship are predictors of prosocial behavior in 60-72-month-old children.

METHOD

Research Model

This research was carried out with a prediction study, which is one of the correlational designs. Prediction studies aim to identify which of a set of variables is most highly correlated with the dependent variable (Gay et al., 2009; McMillan & Schumacher, 2006). This study, which was conducted by using correlational design, examined to what extent temperament and parent-child relationship were predictors of prosocial behavior of 60-72-month-old children.

Participants

The study group consisted of parents of 60-72-months-old children who attended preschool educational institutions. The data were collected from 439 parents (313 mothers and 126 fathers). Table 1 and Table 2 below presented the frequency and percentages of the demographic information about the children for the following variables: gender, order of birth, duration of preschool education, the number of siblings, age of mother, age of father, educational background of mother and

educational background of father.

Table 1. The demographics of the recruited study participants (Mother Group).

Variables		*n*	%
Gender	Female	164	52.4
	Male	149	47.6
Birth Order	First Child	155	49.5
	Second or Older Child	158	50.5
Preschool education period	1 Year	233	74.4
	2 Years or Above	79	25.2
	None	1	.3
Siblings Number	No Sibling	73	23.3
	1 Sibling	169	54
	2 Siblings or Above	71	22.7
Mother Age	20-25	19	6.1
	26-30	75	25.5
	31-35	98	33.3
	36-40	87	29.6
	41 +	34	11.6
Father Age	20-25	1	.3
	26-30	29	9.3
	31-35	87	27.9
	36-40	108	34.6
	41+	83	26.6
Mother Education	None	5	1.6
	Elementary School	83	26.5
	High School	97	31
	Bachelor's degree or higher	131	41.9
Father Education	None	2	.6
	Elementary School	84	26.8
	High School	93	29.7
	Bachelor's degree or higher	130	41.5
	None	6	1.9
	Total	313	100

Table 1 includes the demographic information of the children of 313 mothers in the study. When the table is examined, 164 (52.4%) of the children are girls and 149 (47.6%) are boys.

Table 2. The demographics of the recruited study participants (Father Group).

Variables		*n*	%
Gender	Female	60	47.6
	Male	66	52.4
Birth Order	First Child	58	46
	Second or Older Child	68	50.5
Preschool education period	1 Year	98	77.8
	2 Years or Above	28	22.2
Siblings Number	No Sibling	27	21.4
	1 Sibling	63	50
	2 Siblings or Above	36	28.6
Mother Age	20-25	4	3.2
	26-30	31	29
	31-35	40	37.4
	36-40	36	33.6
	41+	15	11.9

Table 2 (Continued). The demographics of the recruited study participants (Father Group).

Variables		*n*	%
Father Age	20-25	0	0
	26-30	10	7.9
	31-35	38	32.8
	36-40	40	34.5
	41+	38	32.8
Mother Education	Elementary School	38	30.2
	High School	49	38.9
	Bachelor's degree or higher	38	30.2
	None	1	.8
Father Education	Elementary School	36	28.6
	High School	33	26.2
	Bachelor's degree or higher	56	44.4
	None	6	1.9
	Total	126	100

Table 2 shows the demographic information of the children of 126 fathers who participated in the research. According to the table, 60 (47.6%) of the children are girls and 66 (52.4%) are boys.

Data Collection Tools

The data regarding demographic information about the children and the parents were collected by administering the "Personal Information Form". In addition, "Child Prosocialness Scale" was used to measure the children's prosocial behavior levels and the data to evaluate their temperament were collected by administering the "Short Temperament Scale for Children". Finally, the "Child Parent Relationship Scale" was employed to determine levels of child-mother and child-father relationships. The data instruments used in the present study are explained in detail below.

Personal Information Form

The Personal Information Form was developed by the researchers to indicate the demographic characteristics of the participants. The form includes the child's gender, duration of preschool education, the number of siblings, the ages of mother and father, their educational background, and their marital status.

Child Prosocialness Scale

Developed by Bower (2012) and adapted to Turkish by Bağcı and Öztürk Samur (2015), *Child Prosocialness Scale* aims to determine prosocial behavior levels of 5-7-year-old children. A pilot study was carried out with parents and teachers of 30 children for the validity and reliability studies of the scale. This 5-point Likert scale uses the following ranking: (1) Never, (2) Rarely, (3) Sometimes, (4) Usually, and (5) Always. The scale has three different forms: Mother, Father, and Teacher. The present study used the "Mother and Father Forms" to collect the data. A high score obtained from the scale indicates a high level of prosocial behaviors. The Mother Form consists of 21 items and the Father Form has 22 items, and both forms have a single-dimensional structure. The exploratory factor analysis of the Mother Form showed that it accounted for 37.45% of the total variance and the Father Form 38.09% of the total variance. The single factor structure of both forms was confirmed by the results of the confirmatory factor analysis. The reliability coefficient was calculated as .91 for the Mother Form and .92 for the Father Form in the reliability study of the scale (Bağcı & Özturk Samur, 2015). In this research, the Cronbach alpha coefficient was found to be .81 for the Mother Form and .91 for the Father Form.

Short Temperament Scale for Children

The *Short Temperament Scale for Children* was developed by Prior et al. (1989) to evaluate temperament characteristics in early childhood and adapted to Turkish by Yağmurlu and Sanson (2009). The first step of the adaptation process was to employ the translation-back translation method, which was followed by its administration to the parents of 58 Turkish children residing in Australia.

This scale consists of 30 items under four dimensions: reactivity, persistence, approach/withdrawal, and rhythmicity. Approach/withdrawal dimension refers to the ability to adapt to new people and environments and reactivity is about being alert for reacting to an instruction and situation while persistence explains the ability to focus one's attention on an activity and rhythmicity means the regularity of a child's routine behaviors in his daily life such as eating and sleeping patterns. This 6-point Likert scale uses the following ranking system: (1) Almost never; (2) Not very often; (3) It depends, it generally happens; (4) It depends, it generally does not happen, (5) Often; and (6) Almost always. A high score from each dimension indicates high reactivity, high persistence, high approach and high rhythmicity. Yağmurlu and Altan (2010) administered this scale to the mothers of 46-70 months-old children who attend daycare centers in İstanbul. The participant mothers (n=145) were from middle-class and upper-class families. The reliability of the scale for each dimension was calculated as follows: .75 for approach/withdrawal, .69 for reactivity, .75 for persistence, and .63 for rhythmicity. In this research for the Cronbach alpha values for the mothers, the following values were found for each dimension: .72 for approach/withdrawal, .76 for reactivity, .73 for persistence, and .53 for rhythmicity. For the fathers were calculated as .72 for approach/withdrawal, .81 for reactivity, .73 for persistence, and .39 for rhythmicity.

Child-Parent Relationship Scale

The Child-Parent Relationship Scale was developed by Pianta (1992) in order to explore the parent-child relationship. The scale was adapted to Turkish by Akgün and Yeşilyaprak (2010) in a study conducted with 234 mothers of children whose ages range between 4 and 6. The analyses done for reliability and validity showed that this 24-item scale has two dimensions: "conflict" (14 items) and "positive relationship" 10 items. It has a 5-point Likert scale that uses the following ranking system: (1) not true of me at all, (2) not true of me, (3) undecided, (4) true of me, and (5) certainly true of me. A high overall score obtained from the scale indicates a conflicting relationship and a low score a positive relationship. The results of the exploratory factor analysis showed that positive relationship accounts for % 22 of the total variance while conflict accounts for %14 of the total variance and both dimensions % 36 of the variance. The test-retest reliability coefficient was calculated as .98 for conflict, .96 for positive relationship, and .96 for the overall scale. As for the internal consistency coefficients of the scale, the researcher found the following values: .85 for the conflict dimension, .73 for the positive relationship dimension, and .73 for the overall scale (Akgün & Yeşilyaprak, 2010). In the current study, Cronbach alpha value was found to be .80 for the data collected from the mothers and .77 for those obtained from the fathers.

Data Collection

The dataset of the study includes the data collection instruments used in the present study. In the first part of the data set is the *Informed Consent Form* which provides detailed information about the purpose of the study, information about the researcher, and how to fill out the questionnaire. The form also specifies that participation in the study is on a voluntary basis and the personal data collected will not be shared with anyone and will be used only for the purposes of the study. The later sections of the data set involve personal information form as well as the instructions for the scales and the items. The data was uploaded as a Google Form link in an electronic environment so that they could be printed out when needed. The ethical clearance was obtained from a state university and the Aydın Provincial Directorate of National Education. The principals of public and private kindergartens and primary schools in the city were informed about the study so that the researcher could collect the data from these educational institutions. The preschool teachers were accessed via the principals, and the printed or electronic versions of the scales were provided for the parents of children in 60-72 months age range. The data collection procedure lasted approximately 10 minutes, and the data were collected in January - February 2022.

Data Analysis

SPSS 28.0 software was used for the statistical analyses at .05 level of significance. Multiple regression analysis was done in order to examine to what extent child's temperament and his

relationship with either of the parents predict prosocial behaviors. Skewness and kurtosis values and whether the data have normal distribution or not were examined prior to the regression analysis. The skewness and kurtosis values ranging between -2 and +2 indicate normal distribution (Bryne, 2010; George & Mallery, 2010; Kline, 2011). Mahalanobis distances were employed while determining the extreme values and the criteria here was that the values should not be lower than .001, which is the critical value (Büyüköztürk, 2012). The results did not reveal any extreme values and the data showed a multi-variable normal distribution, which is a requirement to do regression analysis (Büyüköztürk, 2012). Other assumptions to be met in order to do multiple regression analysis are that the correlation between dependent and independent variables should be linear and there should not be a high correlation between predictive variables (correlation should be lower than .80) (Field, 2005). Pearson correlation analysis showed that the correlation between the variables was not higher than .80. Another way to determine the multiple correlation between predictive variables is to examine variance inflation factors (VIF) or tolerance values, which refers to the percentage of the variance that is not accounted by other independent variables (Can, 2020) When VIF value is 4 or lower (Black et al., 2010) and tolerance value is higher than 0.2, there is not a multiple correlation that might cause a problem for the analysis (Field, 2005). The analysis showed that tolerance and VIF values are within the acceptable range: negative relationship (tolerance =.84, VIF=1.17), approach (tolerance =.99, VIF=1.01), persistence (tolerance =.80, VIF=1.25), and rhythmicity (tolerance =.88, VIF=1.15) in the data collected from the mother group; and negative relationship (tolerance =.93, VIF=1.07), approach (tolerance =.99, VIF=1.00), persistence (tolerance =.92, VIF=1.08) and rhythmicity (tolerance =.88, VIF=1.15) in the data collected from the father group. Therefore, multiple correlation analysis was done since all the conditions were met.

RESULTS

First, the mean, standard deviation, and standard error values of the scales were analyzed. The values for the mother and father groups are presented in Table 3.

Table 3. The descriptive statistics of the variables (Mother and Father Group).

Variables (Mother group)	**n**	**Mean**	**Std.Error**	**Std.Dev.**
Prosocial Behavior	313	79	.73	12.92
Approach	313	27.92	.42	7.51
Persistence	313	29.64	.40	7.07
Rhythmicity	313	29.64	.32	5.66
Reactivity	313	25.09	.48	8.55
Negative relationship	313	50.43	.62	10.96
Variables (Father group)	**n**	**Mean**	**Std.Error**	**Std.Dev.**
Prosocial Behavior	126	84	1.16	13.09
Approach/Withdrawal	126	26.92	.64	7.21
Persistence	126	28.08	.63	7.12
Rhythmicity	126	29.10	.46	5.16
Reactivity	126	24.23	.80	9.03
Negative relationship	126	50.62	.92	10.37

Pearson correlation analysis was conducted to determine the relationships between prosocial behavior, temperament, and parent-child for the mother and father groups. Later, the multiple regression analysis is conducted to child temperament and mother-child relationship predict prosocial behaviors, the prediction of prosocial behaviors of child temperament and father-child relationship.

Correlation values between .01 and .29 indicate a low-level, and correlation values between .30 and .70 indicate a medium-level relationship (Pallant, 2011). As can be seen in Table 4, a moderately positive and significant relationship between prosocial behavior and approach (r=.35, p<.01), a low level of positive significant correlation between prosocial behavior and persistence (r=. 28, p<.01), a low level of positive significant correlation was found between prosocial behavior and rhythmicity

(r=.23, p<.01). On the other hand, there is a low level, negative significant relationship between prosocial behavior and reactivity (r= -.11, p<.05).

Table 4. Result of correlation analysis to determine the prediction of child temperament and parent-child relationship on prosocial behaviors in the mother and father group.

Variables (Mother Group)	1	2	3	4	5	6
1. Prosocial Behavior	-					
2. Approach	.35**	-				
3. Persistence	.28**	-.04	-			
4. Rhythmicity	.23**	.04	.33**	-		
5. Reactivity	-.11*	-.11*	-.13*	-.20**	-	
6. Negative Relationship (Mother-child)	-.25**	-.05	-.36**	-.24**	.43**	-
Variables (Father Group)	1	2	3	4	5	6
1. Prosocial Behavior	-					
2. Approach	.18*	-				
3. Persistence	.42**	-.08	-			
4. Rhythmicity	.12	.037	.28**	-		
5. Reactivity	-.17	-.22**	-.30**	-.30**	-	
6. Negative Relationship (Father-child)	-.32**	-.01	-.26**	-.24**	.44**	-

**p<.05; **p<.01*

There is a low level of negatively significant relationship between prosocial behaviors and negative mother-child relationships (r=-.25, p<.01). Lastly, Pearson correlation analysis was conducted to determine the relationship between the prosocial behavior, child temperament and negative father-child relationship of the children in the father group. According to the results of the analysis, there is a low level of positive and significant relationship between prosocial behavior and approach (r=.18, p<.05), and a moderately positive significant relationship between prosocial behavior and persistence (r=.42, p<.01) was found. In addition, there is a moderate and negative relationship between the prosocial behavior and the negative father-child relationship (r=-.32, p<.01). On the other hand, no significant correlation was found with rhythmicity (r=-.12, p>.05) and reactivity (r=-.17, p>.05).

Table 5. Result of regression analysis to determine the prediction of child temperament and parent-child relationship on prosocial behaviors in the mother group.

Variables (Mother Group)	**B**	**SE**	**β**	**t**	**p**	**Binary r**	**Partial r**
Approach	.610	.086	.355	7.102	.000	.354	.376
Persistence	.391	.101	.214	3.867	.000	.287	.215
Negative Relationship	-.168	.069	-.143	-2.438	.015	-.252	-.138
Rhythmicity	.284	.122	.125	2.331	.020	.238	.132
Reactivity	.062	.084	.041	.732	.465	-.115	.042
R=.248	R^2=.236						
$F_{(4\text{-}308)}$ = 20.28	p=.000						

In Table 5, multiple linear regression analysis was conducted to reveal the relationships between temperament (approach, persistence, rhythmicity, and reactivity) and negative mother-child relationship which is thought to have an effect on the prosocial behaviors of 60–72-month-old children. According to the analysis results, approach, persistence, reactivity, rhythmicity, and negative relationship variables significantly predict children's prosocial behaviors (R=.248; R^2=.236; $F_{(4\ 308)}$ =20.28; p<.01). When these variables are evaluated together, they explain about 24% of the change in prosocial behaviors. According to the standardized regression coefficients, the effect sizes of the independent variables on prosocial behaviors are approach (β=.355), persistence (β=.214), negative mother-child relationship (β=-.143), rhythmicity (β =.125), and reactivity (β=.041).

Table 6. Result of regression analysis to determine the prediction of child temperament and parent-child relationship on prosocial behaviors in the father group.

Variable (Father Group)	B	Sh.	β	t	p	Binary r	Partial r
Persistence	.701	.148	.381	4.746	.000	.422	.395
Approach	.394	.141	.217	2.800	.006	.185	.246
Negative Relationship	-.283	.101	-.224	-2.806	.006	-.326	-.246
R=.274	R^2=.256						
$F_{(3-122)}$ = 15.35	p=.000						

In Table 6, multiple linear regression analysis was conducted to reveal the relationships between temperament (approach and persistence) and negative father-child relationship which is thought to have an effect on the prosocial behaviors of 60–72-month-old children. According to the analysis results, persistence, approach, and negative relationship variables significantly predict children's prosocial behaviors (R=.274; R^2 = .256; $F_{(3-122)}$=15.35; p<.01). When these variables are evaluated together, they explain about 26% of the change in prosocial behaviors. According to the standardized regression coefficients, the effect sizes of the independent variables on prosocial behaviors are persistence (β=.381), approach (β =.217), and negative father-child relationship (β=-.224).

DISCUSSION and CONCLUSION

The results obtained from the mothers in the study group revealed that approach, persistence, rhythmicity, and reactivity, which are the dimensions of child temperament, and negative mother-child relationship together significantly predicted children's prosocial behaviors. As for the results obtained from the father participants in the study group, it was found that approach, persistence, and negative father-child relationship, which are the dimensions of child temperament, together significantly predicted children's prosocial behaviors.

According to the results obtained from both mother and father groups, the approach increases prosocial behavior. There are some studies in the literature reporting a similar finding (Diener & Kim, 2004; Eisenberg et al., 2017; Laible et al., 2017; Mathieson & Banerjee, 2010; Yağmurlu et al., 2005; Yağmurlu & Sanson, 2009; Sanson et al., 2011). The longitudinal study conducted by Laible et al. (2017) examined children with high levels of approach for three years between the age of 4 and 7. The results showed that the 6-year-old children with high levels of approach display more prosocial behaviors such as cooperation and comfort when they become 7 years old. Eisenberg et al., (2006) also reported that approach and being sociable affect children's prosocial behaviors. Similarly, the study carried out by Song et al. (2018) showed that children with high levels of approach and who worry about others share more, make up for their mistakes, and defend those who are bullied. Acar (2013) also found that the approach highly correlates with increased prosocial behaviors when a child interacts with his peers.

Temperament affects a child's social development by determining how he perceives his nearby environment and how he reacts to the events (Rothbart & Bates, 2006; Qian, et al., 2020). Approach refers to how the child deals with new people and environments (Sanson et al., 2004), his sociability, and his adaptation to a different environment (Arabacıoğlu, 2019; Prior et al., 2000). The children with high levels of approach have better social skills (Kumru et al., 2005; Laible et al., 2017). A longitudinal study concluded that the approach strongly predicts social behaviors (Sanson et al., 2011). Children with high levels of approach experience social anxiety less. Similarly, sociable children with low social anxiety are more likely to help others (Diener & Kim, 2004). Also, the children with approach feel more comfortable and less anxious about using the skills required for prosocial behaviors when they notice people who need help, comfort, and sharing or similar situations (Akçay & Alabay, 2022). In addition, they are more successful in initiating and sustaining interaction with others and are more interested in other people and their needs. When considered in terms of prosocial

behaviors, it might be concluded that it would be easier for children who have high levels of approach and are more sociable to approach, help, share with, and comfort a troubled person.

Another finding obtained from both mother and father groups showed that persistence increases prosocial behaviors, which is a finding supported by some related research in the literature (Beceren & Özdemir, 2019; Laible et al., 2017; Youngblade & Mulvihill, 1998; Yağmurlu & Altan, 2010; Yağmurlu & Sanson, 2009; Yağmurlu et al., 2005). Beceren and Özdemir (2019), in their study, concluded that high levels of persistence temperament enhance children's empathy skills and predict social and emotional satisfaction. The intercultural study conducted by Yağmurlu and Sanson (2009) with 4-6-year-old Australian and Turkish children showed that persistence significantly predicts prosocial behaviors of children who are 5 and 6 years old. Also, according to the results of a similar intercultural study (Kumru et al., 2005) conducted with Australian and Turkish children (the mean age: 61 months), persistence increases prosocial behaviors. Persistence means employing cognitive processes that are required when one participates in a task, needs to focus his attention on the task and control his effect (Yağmurlu & Altan, 2010). Persistence affects a child's perception of his environment as a temperament feature related to attention and affects his social development since it allows him to determine how he will react to the situation. Yağmurlu and Altan (2010), in their study conducted with 4–6-year-old children, concluded that children with high levels of persistence have better emotion regulation skills. Persistence, which allows a child to focus his attention, is considered a necessity while employing required cognitive processes in order to control emotions (Laible et al., 2017). Persistent children can focus their attention on anything for a longer time and are more careful about the clues and messages received from others, and they can understand these clues and messages more effectively (Yağmurlu & Sanson, 2009). Children who can regulate their attention and are more skillful at focusing can notice others' needs and problems, develop their ability to develop new perspectives for situations, and in turn, increase their prosocial behaviors such as comforting, helping, and sharing so that they can solve others' problems (Teke & Şen, 2022).

According to the data collected from the mother participants, rhythmicity increases prosocial behavior. Rhythmicity refers to a child's regular activity patterns including eating and sleep order as well as the predictability of this pattern (Laible et al., 2017). The literature suggests that rhythmicity correlates with the social development of children (Laible et al., 2017; Sanson et al., 2004). Some studies report that rhythmicity correlates with the role of 5-6-year-old children in their relationships with their friends (Arı & Arat, 2018), social skills in preschool period (Yiğit et al., 2020), and self-regulation and play interactions (Özdemir & Budak, 2019). The study conducted by Kahraman and Yılmaz Irmak (2019) with 6–13-year-old children showed that high levels of rhythmicity lead to positive parenting behaviors and attitudes, which decreases problematic behaviors of children. Beceren and Özdemir (2019) reported that rhythmicity predicts social and emotional adaptation. In addition, when the effect of rhythmicity on children's prosocial behaviors is considered, it can be concluded that rhythmic children have a more regular life (Sanson et al., 2004). Having a regular and predictable life contributes to the development of more positive relationships. A child might feel more secure and calmer in a predictable world. When he feels secure, he focuses on the outer world more effectively and is more aware of troubled people around him, which in turn leads to increased prosocial behaviors.

The present study did not reveal any correlation between rhythmicity and prosocial behaviors in the data collected from the fathers in the study group. This lack of correlation might be due to the low predictability regarding the eating, sleep, and activity patterns of the children. As mentioned by Gryczkowski et al. (2018) mothers spend most of their time on their children's self-care activities while fathers often spend their time with children by playing games. When this relationship is interpreted within the framework of Turkish culture, the role of fathers in parenting has been more active and they spend more social time with their children than in the past since women have been involved in working life more and parents are now more conscious about parenting. Despite the increasingly active contribution of fathers to their children's social development in Turkish culture, they are not very active in their children's self-care as much as mothers yet. Therefore, fathers might

encounter problems in this issue since they spend time with their children only at specific times of the day, which can explain the lack of correlation in terms of rhythmicity for the fathers and correlation for the mothers in the study group.

Another result obtained from the data collected from the mothers in the study group indicates that reactivity significantly predicts prosocial behaviors together with persistence, approach, rhythmicity, and the negative mother-child relationship. However, due to the negative low significant correlation between reactivity and prosocial behaviors, it did not itself significantly affect prosocial behaviors when it was included in the analysis, which might imply that the effect of reactivity's order of importance is lower when compared to other types of temperament and mother-child relationship. Reactivity is defined as the reaction time to a situation or an event, and it is about a child's expressing his negative emotions by exhibiting negative behaviors (shouting, crying, throwing himself on the floor, etc.) (Sanson et al., 2004). Reactivity is often associated with anti-social or negative behaviors in the literature (Arı & Yaban, 2012; Diener & Kim, 2004; Gür, 2016; Obsuth et al., 2016; Yağmurlu et al., 2005; Yağmurlu & Sanson, 2009; Yağmurlu & Altan, 2010). There are also some studies reporting that a decrease in reactivity increases prosocial behaviors, which is consistent with the results of the present study (Arı & Yaban, 2012; Laible et al., 2017; Sanson et al., 2011). The children who tend to give negative reactions might feel distressed and avoid prosocial behaviors such as helping, comforting, and sharing. For instance, the longitudinal conducted by Laible et al. (2017) showed a significant decrease in helping behaviors of 6-year-old children with high levels of reactivity when they become 7 years old. Acar et al. (2019) and Rubin et al. (2003) reported that children with high levels of reactivity and low levels of self-regulation skills tend to behave more aggressively and impulsively during some social activities such as chatting and playing games. Therefore, it might be concluded that children with reactivity are at a great risk for social exclusion and maladjustment (Acar et al., 2019). While predicting prosocial behaviors, each temperament dimension interacts with each other rather than functioning separately. To illustrate, it is suggested that reactivity interacts with self-regulation in order to help the child to display prosocial behaviors. Children with high reactivity but high self-regulation tend to display prosocial behaviors more since they are able to control their negative emotions. However, those with high reactivity but low self-regulation is expected to display less prosocial behavior (Eisenberg et al., 2006; Sanson et al., 2011). Therefore, it might be concluded that reactivity itself is not enough to discriminate social behaviors while other temperament types and their characteristics significantly determine these behaviors and correlation for the mothers in the study group.

There was no correlation between reactivity and prosocial behaviors in the fathers' group. Accordingly, the results are consistent with each other despite the significant difference between the results obtained from the mothers and the fathers in the study group. In addition, the most common channel allowing parents to communicate with their children in many cultures is games (Buraeu et al., 2017; Robinson et al., 2021). Interaction during games is based on agreement, cooperation, and sharing (Robinson et al., 2021). Also, game activities are associated with high levels of parental sensitivity and a more cheerful relationship (Buraeu et al., 2017). When it is assumed that the father gets to know his child and establishes a relationship through games, the child might fail to observe and be aware of reactivity in a positive relation in an accurate and objective way.

According to another result of the study, a negative parent-child relationship decreases the prosocial behaviors of children. In other words, prosocial behaviors are negatively affected because of children's perception of parents as a source of punishment and criticism, frequent conflicts between parents and children, the insincere approach of parents towards their children, parents' feeling of burn-out and dissatisfaction in this relationship, and parents' failing to express their feelings and experiences. There are some studies in the literature which support the findings of the present study by reporting that negative mother-child relationship (Cornell & Frick, 2007; Deater-Deckard et al., 2001; Daniel et al., 2015; Knafo & Plomin, 2006; Padilla-Walker, 2015; Romano et al., 2005) and negative mother-child

relationship (Bureau et al., 2017; Robinson et al., 2021) negatively affect the social development of children.

The research focusing on the mother-child relationship showed that a positive relationship between mother and child increases social behavior (Daniel et al., 2015; Davidov & Grusec, 2006; Gross et al., 2017; Gryczkowski et al., 2017; Hastings et al., 2007; Kiang et al., 2004; Miklikowska et al., 2011; Newton et al., 2014; Newton et al., 2016; Ruiz-Ortiz et al., 2017; Pastorelli et al., 2016; Spinrad & Gal, 2018; Spinrad & Stifter, 2006; Sroufe et al., 2010; Taylor et al., 2013). A negative relationship, on the other hand, weakens children's empathy skills (Cornell & Frick, 2007). Children having a disciplined mother display less prosocial behavior (Romano et al., 2005). A consistently developing relationship between mother and child starting from infancy and based on love, affection, trust, sensitivity and sincerity and supported by positive relationship contributes to the positive social development in the following developmental phases of the child (Daniel et al., 2015; Kiang et al., 2004; Moreno et al., 2008; Newton et al., 2014; Spinrad & Stifter, 2006; Taylor et al., 2013). Another interesting finding of the study is that a negative and conflicting mother-child relationship influences social relationships more than a positive mother-child relationship. The studies show that a negative mother-child relationship predicts children's social relationships more strongly than a positive mother-child relationship (Acar et al., 2019; Shaw et al., 2004).

There are some studies in the literature reporting that a positive father-child relationship increases the prosocial behaviors (Bureau et al., 2017; Daniel et al., 2015; Ferreira et al., 2016; Gryczkowski et al., 2017; Hallers-Haalboom et al., 2014; Newton et al., 2014; Ruiz-Ortiz et al., 2017; Robinson et al., 2021). Increased mobility from infancy onwards, a desire for playful interaction, more exploratory behavior, improved communication skills, and reduced dependence on mothers for basic needs such as nutrition increase the father's involvement in the child's development (Buraeu et al., 2017; Robinson, et al., 2021**).** Interaction during play is consensual, cooperative, and collaborative (Robinson, et al., 2021). Play activities are also characterized by a higher level of parental sensitivity and a more joyful relationship, and these experiences are especially important in the early childhood years (Bureau et al., 2017; Gryczkowski et al., 2018). Lucassen et al. (2011) also found that fathers' play activities were related to child-father attachment. Fathers tend to be more physical, spontaneous, and playful in their play. Through play interactions, fathers can provide new experiences as a familiar and safe friend (Grossman et al., 2002). In addition, some studies concluded that fathers affect the social development of their children in preschool period more strongly than in other following developmental phases (Gryczkowski et al., 2018; Newton et al., 2014; Robinson et al., 2021). Robinson et al. (2021), in a systematic review of past research on play in the father-child relationship, found that the ages at which these interactions predicted children's social development at the highest level were in the preschool period and that these experiences were critical in the first six years of life. Another study assessing mother-child and father-child relationships together (Bureau et al., 2017) found that a negative father-child relationship increases social adaptation problems of the child and father-child relationship is a stronger predictor than mother-child relationship. Similarly, Ferraira et al. (2016), in their study conducted with children whose ages range between 3 and 6, examined the correlation between mother-child, father-child and teacher-child relationships and prosocial behaviors. They found that mother-child relationship indirectly predicts prosocial behaviors through teacher-child relationship while father-child relationship directly predicts children's prosocial behaviors, which remarkably indicates the importance of father-child relationship. The present study also found a moderate correlation between father-child relationship and prosocial behaviors while these behaviors had a low correlation with mother-child relationship. All these results provide clear evidence that father-child relationship in preschool period is crucial for the development of the child.

In conclusion, for the mother group approach, persistence, rhythmicity, and reactivity of child temperament and negative mother-child relationship together significantly predicted children's

prosocial behaviors. As for the results obtained from the father group, the approach and persistence of child temperament and negative father-child relationship, together significantly predicted children's prosocial behaviors. This study revealed that temperament and parent-child relationship together affect prosocial behaviors of 60-72 months-old children both in mother and father groups. The fact that this study was conducted in Aydın province, located in the west of Turkey, is a limitation in that the results of the study cannot be generalized to parents living in Turkey. Further studies might examine the correlation between prosocial behaviors and temperament and parent-child relationships in different cities in Turkey so that the results can be generalized and evaluated more effectively. In addition, the data in this study were obtained by only parents of 60-72-month-old children filling out the measurement tools. Obtaining child assessments only from the mother or father can be considered as a limitation. For further research, the data might be collected from the mother, father, and teachers of a child in order to evaluate his temperament and prosocial behaviors in a more consistent and reliable way together. The fact that this research is a cross-sectional study can also be considered as a limitation because it is important to evaluate the child in the process and to reveal the effect. Therefore, a longitudinal study might examine how prosocial behaviors, temperament, and parent-child relationship develop and differ between mother and father as of the infancy. All the children in the study group received preschool education for one or more years. Further studies might include children who did not receive preschool education or did not start taking this education and examine how their prosocial behaviors are affected accordingly. What is dominant in the child's temperament (e.g., persistence, approach/withdrawal) and the parent-child relationship (e.g., negative relationship) are related to the child's social behavior. Psychological counselors working with this age group in schools or psychological counseling centers should primarily evaluate the child's temperament in order to improve the child's prosocial behavior. For example, guidance activities that will support the child's positive temperament and harmonize the negative temperament with the social environment can be developed in preschool education institutions. In the content of the intervention programs to be created for the development of prosocial behaviors, interventions suitable for each child's temperament can be conducted. In addition, mother-child and father-child relationship significantly predict children's prosocial behaviors. Psychological counsellors might invite parents into intervention programs they prepare and offer intervention services to inform them about how conflicting parent-child relationship affects children's prosocial behaviors such as helping, sharing and comforting as well as the ways to increase quality of parent-child relationship. Especially in the prosocial behaviors of the child, the temperament of the child, how it can affect the child, and parental communication should be explained and guided to the parents also teachers.

Ethics and Conflict of Interest

This research is derived from the first author's master's thesis which is titled as "Temperament and Parent-child Relationship as Predictors of Prosocial Behavior of 60-72-month-old children" and the second author is a supervisor. The ethical approval was obtained from Yıldız Technical University Institute of Social Sciences with the decision numbered 2021.11 dated November 26, 2021. In addition, National Education approval was obtained from the Aydın Provincial Directorate of National Education with the decision numbered 2112070218 dated January 21, 2022. The authors of the study acted in accordance with ethical rules in all processes of the research and there is no conflict of interest between the authors.

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