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RESEARCH ARTICLE / ARAŞTIRMA MAKALESİ

THE MEDIATING ROLE OF EMOTION LABILITY AND EMOTION REGULATION IN THE RELATIONSHIP BETWEEN SOCIAL-EMOTIONAL ADAPTATION WITH BEHAVIOR REGULATION AND SOCIAL SKILLS AMONG PRESCHOOL CHILDREN

Esin SEZGIN[1], Yildiz BILGE[2], Burcin CELIK[3], Esma Nur SEVUK[4]

ABSTRACT

Self-regulation is defined as an individual's ability to control and regulate their own behavior; this skill, forming the foundation of social adjustment, influences one's ability to interact with their environment and manage relationships. Emotion regulation, on the other hand, involves the ability to manage emotional responses and is believed to establish a critical connection between social adjustment and self-regulation. In this study, the aim is to determine the mediating role of emotion regulation in the relationship between behavioral regulation, social skills, and social-emotional adjustment skills using two different models.The study included a total of 216 children aged 5 and 6. Data were collected using the Socio-Demographic Information Form, Emotion Regulation Scale (ERS), Child Behavior Rating Scale (CBRS), and Marmara Social-Emotional Adaptation Scale (MSEAS). When socio-demographic variables were evaluated in terms of social competence and social-emotional adjustment scores according to gender, significant differences were found in favor of girls. Significant differences were also found in favor of children with working mothers when evaluated based on the mother's employment status. There were moderate significant correlations found between emotion regulation, child behavior assessment, and social-emotional adjustment. According to the mediation analyses, there was a partial mediating effect of emotion variability/negativity and emotion regulation in the relationship between behavior regulation and social-emotional adjustment. Similarly, there was a partial mediating effect of emotion variability/negativity and emotion regulation in the relationship between social competence and social-emotional adjustment. It is thought that the finding that children's emotion regulation and emotion variability/negativity mediate the relationship between social-emotional adjustment, social competence, and behavior regulation will contribute to the literature.

Key Words

Behavior Regulation, Social-Emotional Adjustment, Emotion Regulation, Self-Regulation

OKUL ÖNCESİ ÇOCUKLARDA SOSYAL-DUYGUSAL UYUMUN DAVRANIŞ DÜZENLEME VE SOSYAL BECERİLERLE İLİŞKİSİNDE DUYGUSAL KARARSIZLIK VE DUYGU DÜZENLEMENİN ARACI ROLÜ

ÖZ

Öz-düzenleme, bireyin kendi davranışlarını kontrol etme ve düzenleme becerisi olarak tanımlanır; bu yetenek, sosyal-duygusal uyumun temelini oluşturarak kişinin çevresiyle etkileşimde bulunma ve ilişkilerini yönetme yeteneğini etkilemektedir. Duygu düzenleme ise, duygusal tepkileri yönetme yeteneğini içermekte ve sosyal uyum ile öz düzenleme arasında kritik bir bağlantı kurduğu düşünülmektedir. Bu çalışmada, iki farklı model kullanarak, duygu düzenlemenin davranışsal düzenleme, sosyal beceri ve sosyal-duygusal uyum becerileri arasındaki ilişkide duygu düzenlemenin aracılık rolünü belirlemek amaçlanmıştır. Araştırmaya 5 ve 6 yaşında olan toplam 216 çocuk katılmıştır. Veriler Sosyo-Demografik Bilgi Formu, Duygu Ayarlama Ölçeği (DAÖ), Çocuk Davranışlarını Derecelendirme Ölçeği (ÇODDÖ) ve Marmara Sosyal-Duygusal Uyum Ölçeği (MASDÜ) kullanılarak toplanmıştır. Sosyo-demografik değişkenler cinsiyete göre sosyal yeterlilik ve sosyal-duygusal uyum puanları açısından değerlendirildiğinde kızların lehine anlamlı farklılıklar bulunmuştur. Annenin çalışma durumuna göre değerlendirildiğinde ise annesi çalışan çocuklar lehine anlamlı farklılıklar bulunmuştur. Duygu düzenleme, çocuk davranış değerlendirme ve sosyal-duygusal uyum arasında orta düzeyde anlamlı ilişkiler bulunmuştur. Aracılık analizlerine göre ise davranış düzenleme ile sosyal-duygusal uyum arasındaki ilişkide duygu değişkenliği/olumsuzluğu ve duygu düzenlemenin kısmi aracılık etkisi bulunmuştur. Benzer şekilde sosyal yeterlilik ile sosyal-duygusal uyum arasındaki ilişkide duygu değişkenliği/olumsuzluğu ve duygu düzenlemenin kısmi aracılık etkisi bulunmuştur. Çocukların duygu düzenlemesi ve duygu değişkenliği/olumsuzluğunun sosyal-duygusal uyum, sosyal yeterlilik ve davranış düzenleme arasındaki ilişkiye aracılık ettiği bulgusunun literatüre katkı sağlayacağı düşünülmektedir.

Anahtar Kelimeler

Davranış Ayarlama, Sosyal-Duygusal Uyum, Duygu Düzenleme, Öz Düzenleme

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Introduction

Social adaptation is a concept that generally refers to the interaction between individuals and their social environment (Lukash, 2005). Successful social adaptation, defined as the ability to effectively participate in social behavior and adapt to a given social situation, is associated with social skills and problem-solving (Crick & Dodge, 1994; Nakamichi et al., 2021). Numerous studies indicate that early experiences with parents, teachers, and peers shape children's social skills and that these early social experiences impact their socio-emotional capacities, thus influencing their subsequent social adaptation (Eisenberg & Morris, 2002; Mortensen & Barnett, 2015; Leerkes & Bailes, 2019;Nilfyr et. al., 2022). When reviewing the literature, it can be observed that social adaptation is particularly considered as a component of social competence during the preschool period, often assessed in conjunction with social performance and social skills (Bierman & Furman, 1984; Cavell, 1990; Durualp, 2009; Kabasakal & Çelik, 2010; Kandır & Orçan, 2011). However, considering that there can be numerous concepts that directly and indirectly influence social adaptation, this study aims to examine socio-emotional adaptation within the framework of self-regulation and emotion regulation, which are concepts that have the potential to affect social adaptation.

During early childhood, the (1) ability to inhibit a behavior despite the impulse to act and (2) ability to engage in an action despite the desire to refrain from doing so can be explained in connection with self-regulation (Bodrova & Leong, 2008). However, when reviewing the literature, comprehensive theoretical and conceptual definitions of self-regulation are found to date back to earlier periods. According to Freud, self-regulation is carried out by the ego, which balances the id and superego, while Piaget describes self-regulation within the scope of cognitive processes beyond the concepts of reward or punishment. Bandura, on the other hand, explains self-regulation as individuals observing their own behavior, making decisions about how to behave, and responding accordingly (Bronson, 2019). Zimmerman (1989) defines self-regulation as the ability of individuals to actively guide and utilize their own learning in relation to their higher cognitive processes, motivations, and behaviors. Initially thought to only encompass social processes, self-regulation has been found to encompass cognitive and behavioral processes as well through studies conducted by researchers with different orientations. Self-regulation is generally considered a multidimensional concept involving emotion, cognition, and behavior (Blair, 2002; McClelland et al., 2010). On a behavioral aspect, socio-emotional competence is evident through the development of certain acquired behaviors (for instance, sharing) that enable a child to start and maintain favorable social interactions, often referred to as social abilities (Cao, Liang & Zhou, 2020). Self-regulation skills vary based on certain characteristics that the child possesses or is supported by the environment. In this context, when reviewing the literature and the research conducted, it can be observed that self-regulation is associated with various factors such as age (Becker et al., 2014), gender (Lenes et al., 2020), family socio-demographic characteristics (Cadima et al., 2015; Sektnan et al., 2010; Lenes et al., 2020), school achievement (Fantuzzo et al., 2007; Sektnan et al., 2010; McClelland et al., 2019), academic adjustment (Eisenberg et al., 2010; Sektnan et al., 2010), parental role (Bozkurt Yükçü, 2017),

emotion regulation skills (Vardi & Demiriz, 2021), literacy (Becker et al., 2014), mathematical skills (Cadima et al., 2015), language skills (Aro et al., 2012), geometric skills (İvrendi & Atan, 2022), phonological awareness and visual matching (Sezgin et al., 2019), aggression (Malti, 2020), and temperament (Yiğit et al., 2020).

It is known that self-regulation includes social skills as well as the behavioral dimension. Social tasks include behaviors such as being included in the peer group, communicating, making friends or playing games with peers (Gresham, 2016). Research indicates that children possessing social abilities tend to exhibit not just favorable social results but also grow into adults with notable academic success (Bierman et al., 2008; Liu, 2011). Conversely, those lacking in social capabilities might face multiple challenges, such as internal and external behavioral issues, might not be favored by their contemporaries, and often display underachievement in both their academic and social spheres (Warnes et al., 2005; Goodman et al., 2015).

Emotion regulation, which is another concept associated with social-emotional adjustment, can be considered as a crucial skill for maintaining daily life. This is because the ability to recognize, understand, and respond appropriately to one's own and others' emotions is directly related to emotion regulation. Emotion regulation, or adjustment, is generally defined as the management of changes in the intensity, quality, and duration of emotional experiences that occur during the process of achieving a goal (Thompson, 1994). Emotion regulation includes awareness of the emotional state of the individual in the face of any stimulus, controlling and changing the reactions that occur as a result of the emotional state, or initiating a new emotional reaction (Vardi & Demiriz, 2021). According to Gross (1999), this regulation involves conscious or automatic processes used to increase, maintain, or decrease the components of an emotional response. Emotion regulation is another skill that is expected to develop in early childhood. The capacity of children to manage their feelings appropriately is a crucial developmental competence required for fruitful interactions with family and peers, educational success, and psychological health (Morris et al., 2017). Emotion regulation is typically a dyadic process that involves both internal and external components emerging within the parent-child relationship context (Feldman, 2015; Morris et al., 2017). Internal factors refer to temperament, social, emotional and cognitive competencies, neurobiological processes such as distraction, cognitive reframing and arousal that children use to manage their emotions, and cognitive processes such as attention and inhibitory control. However, while children may have the cognitive capacities necessary to regulate their emotions, the development of emotion regulation also requires complex interactions among external factors such as parenting style, parental capacities, sibling and peer relationships, and cultural expectations (Morris et al., 2017; Fox & Calkins, 2003; Baughman et al., 2020). When reviewing the literature, it is evident that emotion regulation skills are associated with various variables such as gender (Chaplin & Aldao, 2013), parenting attitudes (Erkan & Sop, 2018), parental personality traits and attachment style (Bilge & Sezgin, 2020), peer relationships (Garner et al., 2000), executive functions (Blair & Diamond, 2008), socially appropriate behaviors

(Eisenberg et al., 1996), shyness (Hipson et al., 2019), and social adjustment (Amédée et al., 2019).

The Current Study

Although previous studies have addressed self-regulation, social adjustment, and emotion regulation separately, no specific study has been found that examines these three concepts together, which are believed to be interrelated. In this context, the present research focuses on the relationships between self-regulation, social adjustment, and emotion regulation skills. Additionally, it tests whether these skills differ based on gender, parental education level, parental age, and income level. These three concepts allow us to understand the intricate relationships among the child's emotional regulation abilities, self-regulation skills, and social-emotional adjustment. In this context, it is possible to comprehend how the child's skills in regulating emotional experiences interact with overall self-regulation capacity and social adjustment processes. This comprehensive perspective is believed to provide valuable insights into the child's individual development and social skills, as well as shaping education and intervention strategies. The concurrent examination of these concepts offers a holistic framework supporting the child's overall psychological well-being and welfare.

In the proposed conceptual model, based on the relevant literature, the mediating role of emotion regulation is examined in the relationship between self-regulation's sub-dimensions (behavioral regulation and social skills) and social adjustment within the framework of emotion regulation, self-regulation, and social adjustment of 5-6-year-old children. The purpose of this study is to pinpoint the intermediary function of emotion regulation within two distinct models. It's hoped that this research will lay the groundwork for upcoming studies in this field. The proposed theory of this investigation is that emotion regulation mediates the link between children's social competencies, their behavior management abilities, and their social adaptation.

Method

Participants

The study group consisted of a total of 216 children attending preschool education institutions, with 148 (68.5%) being 5 years old and 68 (31.5%) being 6 years old. Among them, 106 (49.1%) were girls and 110 (50.9%) were boys. The forms prepared for the evaluation of the children were filled out by 160 (74.1%) parents, 18 (8.3%) grandparents, and 38 (17.6%) teachers. Table 1 shows demographic data concerning the children.

Table 1. Demographic informations about the participants

		n	%
Child	**Gender**		
	Girls	106	49.1
	Boys	110	50.9
	Age		
	5 Age	148	68.5
	6 Age	68	31.5
	Number of Siblings		
	One Child	55	25.5
	Two Child	119	55.1
	Three Child	35	16.2
	Four and Above Child	7	3.3
	Caregiver		
	Mother/Father	157	72.7
	Grandmother	34	15.7
	Child Carer	25	11.6
Mother	**Age**		
	21-35	118	54.6
	36-50	98	45.4
	Education		
	Primary School	26	12.0
	Secondary School	29	13.4
	High School	58	26.8
	University and Above	103	47.7
	Profession		
	Housewife	110	50.9
	Worker	106	49.1
Father	**Age**		
	24-35	72	33.3
	36-54	144	66.7
	Education		
	Primary School	19	8.8
	Secondary School	27	12.5
	High School	73	33.8
	University and Above	97	44.9
	Marital Status		
	Married	267	95.4
	Divorced/Single	11	3.9

	Economic Status		
Family	3500-5500 TL	20	9.3
	5500-8000 TL	44	20.4
	8000-10500 TL	47	21.8
	10500-14000 TL	28	13.0
	14000 TL and Above	77	35.7

Data Collection Tools

Sociodemographic Information Form: The questionnaire crafted by the study team seeks information on the child's age and gender, as well as the ages, marital status, educational background, and professional details of the parents. Additionally, it inquires about the family's financial situation and identifies who looked after the child in their preschool years.

Emotion Regulation Checklist (ERC): The Emotion Regulation Checklist (ERC), a 4-point Likert-style questionnaire with 24 questions, was formulated by Shields and Cicchetti in 1997 to gauge a child's emotion management. Any adult acquainted with the child, be it parents or teachers, can complete it. Kapçı et al. (2009) undertook the task of adapting the scale for Turkish children. The scale has a two-factor structure. The first factor, "lability/negativity," assesses fluctuations in mood, intensity of emotions, inability to regulate positive emotions, as well as anger and reactive behaviors. The second factor, named "emotion regulation," reflects adaptive emotional regulation such as understanding emotions, empathy, and self-control. The internal consistency of the scale was determined with Cronbach's alpha coefficients of 0.80 for lability/negativity and 0.81 for emotion regulation. In this study, Cronbach's alpha coefficients were found to be 0.67 and 0.40, respectively.

Child Behavior Rating Scale (CBRS): The Child Behavior Rating Scale (CBRS), formulated by Bronson and colleagues in 1990, evaluates the self-regulation capacities of 3-6-year-old children. This 17-item scale employs a 5-point Likert-type format. Sezgin and Demiriz (2016) undertook the Turkish adaptation, establishing its validity and reliability. The CBRS is divided into two main sections: behavioral regulation and social skills. For children aged 36-48 months, the Cronbach's alpha value for the behavioral regulation component was 0.96. This value was 0.93 for the 49-60 month age group and 0.95 for those between 61 and 72 months. In terms of the social skills sub-section, the Cronbach's alpha was determined as 0.89, 0.86, and 0.84 for the 36-48 months, 49-60 months, and 61-72 months age brackets, respectively. Overall, the complete scale boasts a Cronbach's alpha of 0.93. Within the context of this particular study, the Cronbach's alpha values achieved were 0.93 for behavioral regulation and 0.83 for social skills.

Marmara Social-Emotional Adaptation Scale (MSEAS): Developed by Güven and Işık in 2006, this 3-point Likert-style instrument with 19 items gauges the social and emotional adjustment of children aged 5-6. It is divided into four subscales, which include: alignment with societal norms, proper reaction to social scenarios, peer interaction, and a favorable view towards the social setting. The reliability coefficients, represented by Cronbach's alpha values for these subscales, are .86,

.75, .78, and .71, in order, with the overall scale's reliability coefficient being .90. In the present research, the derived Cronbach's alpha values for the subscales and the total score were .87, .72, .76, .62, and .91, respectively.

Procedure

The study obtained the necessary permission from the University of Health Sciences, Hamidiye Scientific Research Ethics Committee with decision number 20/6 on September 2, 2022. Participants were reached through snowball sampling, and the data were collected mostly in person and some through an online survey created using Google Forms. While collecting data, snowball sampling method was used to ensure that mothers of 5-6 year old children and preschool teachers could reach other mothers. In snowball sampling, which is a non-random sampling method, first, a person who meets the researcher's criteria is reached and other people are reached based on this person, and thus, the number of samples grows like a snowball (Karagöz, 2021). The study utilized causal-comparative and mediation model designs. In mediation analysis, which examines whether another variable(s) plays a role in the relationship between two variables, a decrease in the initial effect of the independent variable is expected with the inclusion of the mediator variable in the process (Preacher and Hayes 2008). Causal comparison research is also called criterion group comparison. With this research method, a comparison is made between groups affected by the dependent variable at different levels (Büyüköztürk et al., 2010). It collected data between October and December 2022. Before participation in the approximately 15-minute application, informed consent was obtained from all participants.

Data Analysis

First, skewness and kurtosis values were calculated to determine whether the data set showed a normal distribution. The parametric analyses were used in statistical procedures, based that the skewness and kurtosis values of all scales were in the range of +2 to -2 (George and Mallery, 2010). Since there was no statistically significant difference in scale scores in terms of the way the scale was filled out (online or face-to-face), the analyses were carried out with the entire data set. To examine whether the continuous variables of the study differ according to sociodemographic information, t-test and one-way ANOVA analyses were performed. These analyses are used to determine whether there is a statistically significant difference between groups. In addition, the Pearson Product Moment Coefficient was used to examine the relationships between continuous variables. Parallel mediation analyzes using Model 4 were performed with Hayes's (2013) Process Macro v4.2 application. These analyses are used to investigate the effect of one variable on another variable and to determine whether this effect is mediated by a third variable. In mediator variable analysis, which gained importance with the studies of Baron and Kenny (1986), there is a third variable (M) added to the relationship between an independent variable X and a dependent variable Y, and the X variable affects the mediator variable M, and the M variable affects the Y variable. Therefore, the relationship between X and Y decreases/increases or becomes statistically insignificant due to the M variable. SPSS 25 program was used for analysis.

Results

ER, CBR, and SEA scores did not differ according to the variables of caregiver, income level, and number of children. When compared according to the gender variable, no difference was found in ER, while girls' social skills (t = 3.42, df = 214, p <.001, η2 = .052) and SEA (t = 3.03, df = 214, p <.003, η2 = .041) scores were significantly higher than boys. When the scale scores were compared according to the working and housewife status of the mother, it was found that behaviour regulation (t = 3.74, df = 214, p <.001, η2 = .061), social skills (t = 2.27, df = 214, p <.024, η2 = .024) and SEA (t = 3.30, df = 214, p <.001, η2 = .048) scores of the children whose mothers were working were significantly higher than those of the children whose mothers were housewives. When comparing based on the educational level of the mothers, children of mothers with a university degree had notably higher ER and SEA scores than those of mothers with secondary school degree (F = 5.33, df = 212, p <.001, η2 = .070, and F = 11.35, df = 212, p <.001, η2 = .104, respectively). The behavior regulation scores of children whose mothers had university degrees surpassed those of children whose mothers had primary, secondary, or high school degree (F = 4.75, df = 212, p <.003, η2 = .138). Additionally, the social skills scores for children of university-educated mothers were significantly greater than those of children whose mothers completed primary or secondary education (F = 8.19, df = 212, p <.001, η2 = .063). In the comparison made according to the level of father's education, the emotion lability/negativity scores of the children of fathers with primary school education were significantly higher than those of high school and university graduates (F = 7.99, df 0 212, p <.001, η2 = .102), behaviour regulation and SEA scores of the children of fathers who graduated from university were significantly higher than those who graduated from primary school and high school (F = 9.14, df 0 212, p <.001, η2 = .115, and F = 7.23, df = 212, p <.001, η2 = .093, respectively), and social skills scores of the children of fathers who graduated from high school were significantly higher than those whose fathers graduated from primary and secondary school (F = 5.45, df = 212, p<.001, η2 = .072).

Based on the correlation analysis findings, there was no relationship between emotion lability/negativity and emotion regulation. However, other variables displayed a moderate and significant negative relationship with emotion lability/negativity. Emotion regulation showed a moderate and significant positive correlation with all other variables, excluding emotion lability/negativity, as illustrated in Table 2.

Table 2. Relationships between emotion regulation, child behavior rating, and social-emotional adaptation

	M±SD	ERC-L/N	ERC-ER	CBRS-BR	CBRS-SS	MSSEA-Total
ERC-L/N	30.11±5.13	1	-.07	-.44**	-.50**	-.42**
ERC-ER	23.46±3.14		1	.48**	.49**	.46**
CBRS-BR	38.16±7.82			1	.72**	.73**
CBRS-SS	26.93±5.28				1	.68**
MSSEA-Total	49.94±6.70					1

*p<0.05, **p<0.01

1. ERC-L/N: Emotion Regulation Checklist-Lability/Negativity, 2.ERC-ER: Emotion Regulation Checklist-Emotion Regulation, 3.CBRS-BR: Child Assesment Rating Scale-Behavior Regulation. 4. CBRS-BR: Child Assesment Rating Scale-Social Skill, 5.MSSEA-Total: Marmara Scale of Social and Emotional Adaptation-Total Scoreı.

Mediation analyses were conducted with model 4 using the Process macro application in parallel mediation analysis, which is a simple mediation model in which two or more mediators that are not causally related to each other are considered and which allows different mediating effects to be examined simultaneously in one model (Hayes, 2013). The effect of behaviour regulation, which is the independent variable of the first model, on the first mediator variable, emotion lability/negativity (a_1) (B =-.29, SE = .04, t = -7.15, p < .001 and 95% CI [-.37--.21]), the effect of behaviour regulation on the second mediator variable, emotion regulation (a_2) (B =.19, SE = .02, t =7.91, p < . 001 and 95% CI [.14-.24]) and the effect of emotion lability/negativity on the model's dependent variable, social-emotional adaptation (b_1) (*B* = -.19, *SE* = .07, *t* = -2.66, *p*< .003 ve %95 GA [-.34--.05]) and the effect of emotion regulation on social-emotional adaptation (b_2) (B =.36, SE =.11, t =3.34, p < .001 and 95% CI [.15-.57]) is as calculated. The total effect (*c*) (B =.60, SE =.04, t =15.54, p < .001 and 95% CI [.53-.68]) and the direct effect (*c'*) (B =.48, SE =.05, t =9.94, p < .001 and 95% CI [.38-.57]) of the independent variable behaviour regulation on social-emotional adaptation were significant. Bootstrap method was used to test whether the effect of the mediating variables was significant or not, and since the confidence intervals of the total indirect effect did not contain zero, it was found that the total indirect effect of .13 (B =.13, SE =.03 and 95% CI [.07-.19]) on social-emotional adaptation was significant (B =.13, SE =.03 and 95% CI [.07-.19]), whereas the emotion lability/negativity was .06 and emotion regulation was .07 (Figure 1). In addition, the whole model explaining 53% of the variance was found to be significant ($F_{(1,214)}$ = 241.56, p <.001).

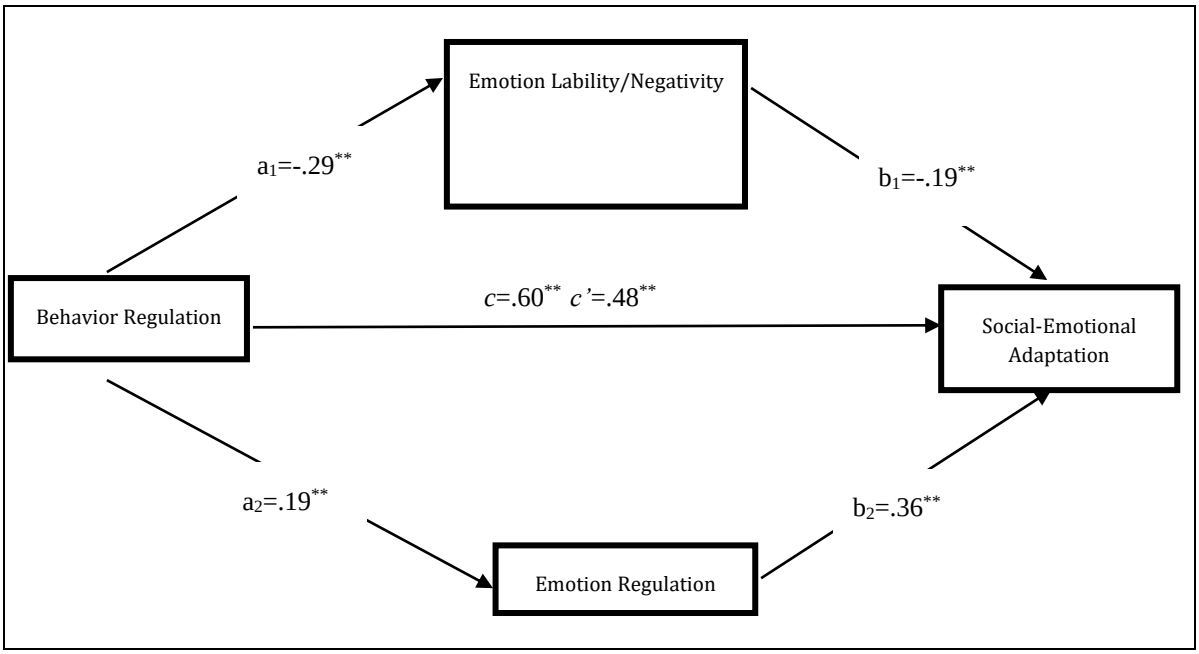

Figure 1. Parallel mediation effect of emotion lability/negativity and emotion regulation in the relationship between behavior regulation and social-emotional adaptation.

The effect of social skills, which is the independent variable of the second model, on the first mediator variable, emotion lability/negativity (a_1) (B =-.49, SE = .06, t = -8.46, p < .001 and 95% CI [-.60--.37]), the effect of social skills on the second mediator variable, emotion regulation (a_2) (B =.29, SE = .04, t =8.22, p < .001 and 95% CI [.22-.36]) and the effect of emotion lability/negativity on the model's dependent variable, social-emotional adaptation (b_1) (*B* = -.19, *SE* = .07, *t* = -2.66, *p* < .003 ve %95 GA [-.34--.05]) and the effect of emotion regulation on social-emotional adaptation (b_2) (*B* = .42, *SE* = .12, *t* = 3.54, *p* < .001 ve %95 GA [.19-.65]) is as calculated. The total effect (*c*) (B = .83, SE = .06, t = 13.55, p < .001 and 95% CI [.71-.95]) and direct effect (*c'*) (B = .62, SE = .08, t = 7.62, p < .001 and 95% CI [.46-.78]) of the independent variable social skills on social-emotional adaptation were found to be significant. Bootstrap method was used to test whether the effect of mediating variables was significant or not, and since the confidence intervals of the total indirect effect did not contain zero, it was found that the total indirect effect of .21 (B = .21, SE = .07 and 95% CI [.09-.35]) on social-emotional adaptation was significant (B = .21, SE = .07 and 95% CI [.09-.35]), whereas the emotion lability/negativity was .09 and emotion regulation was .12 (Figure 2). In addition, the whole model explaining 46% of the variance was found to be significant ($F_{(1,214)}$ = 183.71, p <.001).

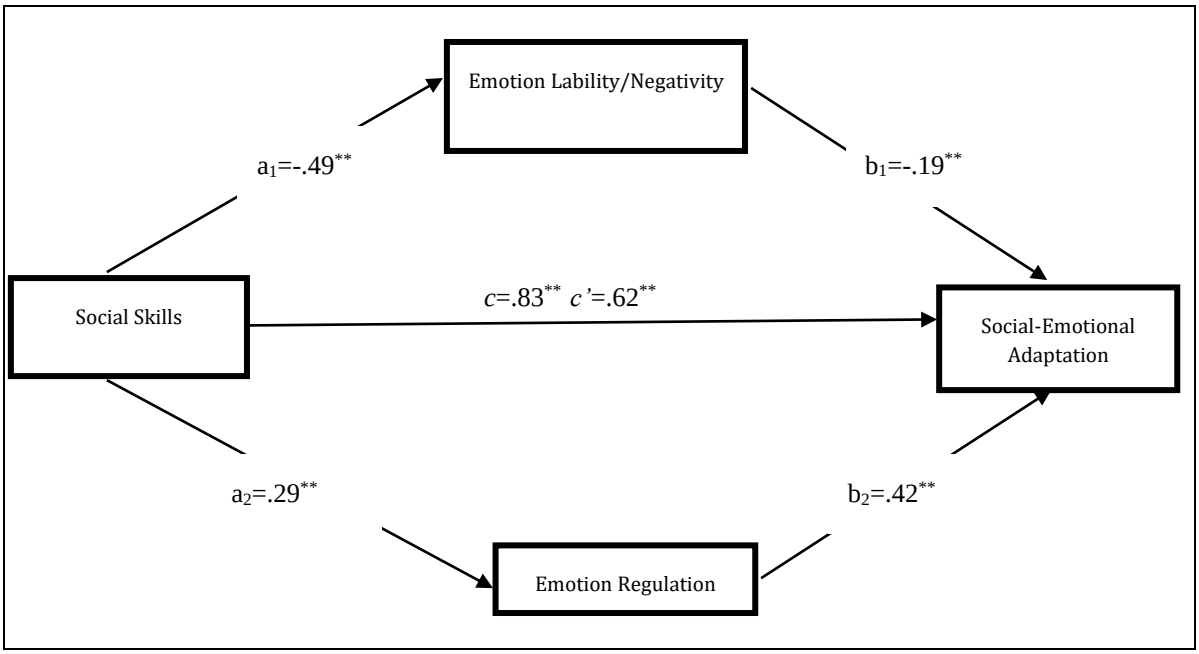

Figure 2. Parallel mediation effect of emotion lability/negativity and emotion regulation in the relationship between social skills and social-emotional adaptation.

Discussion

The objective of this research is to explore the connections among emotion regulation, self-regulation, and social-emotional adaptation in 5-6-year-old children. Additionally, the study seeks to identify the intermediary role of emotion regulation in the link between self-regulation and social-emotional adaptation, based on the model structured around these associations.

In the study, groups formed according to various demographic data were compared in terms of emotion regulation, self-regulation and social-emotional adaptation scores. Accordingly, it was found that girls had higher self-regulation and social-emotional adaptation than boys, but there was no gender difference in emotion regulation. Researches have shown that there are gender differences in self-regulation in early school years (Ponitz et al., 2008; Matthews et al., 2009; Sezgin et al., 2019; Alwaely et al., 2021; Tuzcuoğlu et al., 2019). In addition, in some studies are found that women typically exhibit higher levels of self-regulation than men throughout life (Kochanska et al., 1997; Kochanska et al., 2000). The high level of self-regulation skills of women is explained in two ways. Some theorists have argued that women should exhibit higher levels of self-regulation skills than men because women are exposed to higher levels of parental control than men (Coyne et al., 2015). Another view is that evidence for possible gender differences in the development of self-regulation is provided by neuroimaging studies. Neuroimaging studies have shown that the development of the frontal lobe, which is the brain region related to self-regulation, develops earlier in women than in men and therefore there are gender differences (Coyne et al., 2015). In general, these results confirm that girls perform better than boys in self-regulation in the early stages of development. Similarly, it was determined that girls differed social-emotionally compared to boys, girls had higher social-emotional adaptation and engaged in more positive social behaviours (Ramazan &

Unsal, 2012; Flook et al., 2019). Furthermore, our results align with the discovery of Eisenberg et al. (2010), which indicates that strong self-regulation skills have a positive impact on children's social functioning and inversely correlate with behavioral issues in a school setting. There are also studies in the literature that support the finding that emotion regulation skills, which is another result obtained in our study, do not differ according to gender (Are & Shaffer, 2016; Yükçü & Demircioğlu, 2017; Ogelman et al., 2022). However, differently, in Bilge and Sezgin's (2020) study, it was concluded that boys' emotion regulation difficulties were higher than girls and therefore girls were at a better level in emotion regulation.

In the analysis of sociodemographic data, it was found that emotion regulation, self-regulation, and social-emotional adaptation scores did not differ according to the variables of caregiver, income level and number of children. Similar to the result we reached in our study, a study found that there was no significant difference in emotion regulation according to income and marital status (Are & Shaffer, 2016). When the scale scores were compared according to the working and housewife status of the mother, it was observed that the behaviour regulation, social skills and social-emotional adaptation scores of children whose mothers were working were significantly higher than those of children whose mothers were housewives. When compared based on the educational attainment of the mother, it emerged that children of mothers with a university degree had notably higher scores in emotion regulation, social-emotional adaptation, behaviour regulation, and social skills compared to those of children whose mothers completed primary, secondary, or high school. When assessing scores based on the father's educational background, it was observed that children of fathers with a primary school education had notably elevated emotion variability/negativity scores compared to those whose fathers had high school and university education. Conversely, children of fathers with university qualifications displayed substantially higher behaviour regulation and social-emotional adaptation scores than those whose fathers completed primary or high school. Interestingly, children with fathers who finished high school exhibited significantly improved social skills scores in contrast to those whose fathers had primary or secondary school education. Limited research exists that scrutinizes children's behaviour, emotion regulation, and social capabilities in relation to the sibling count, parents' employment status, and educational achievements (Çomak, 2022; Tuzcuoğlu et al., 2019).

According to the results of the correlation analysis, moderately significant negative correlations were found between emotion lability/negativity and emotion regulation, behaviour regulation, social skills and social-emotional adaptation. Therefore, as the emotion lability/negativity increases, children's emotion regulation, behaviour regulation, social skills and social-emotional adaptation decrease. Negative emotionality was associated with poor emotion regulation (Papachristou et al., 2018), while effective emotion regulation was associated with preventive control involving attention (Eisenberg et al., 2014). In research by Ersan (2019), it was determined that emotion regulation served as a complete mediator between the levels of anger expression and both physical and relational

aggression in children. Moreover, these emotional and social competencies correlate with the capacity to aptly convey feelings like happiness, sorrow, frustration, and rage. They also guide children in deciding the appropriate behavior in response to such emotions (Alzahrani et al., 2019). Consequently, one might contend that the outcome, which characterizes negative emotionality as an individual's inclination to respond to stressors with intense negative emotions like anger, fear, or sadness (Rothbart 2011), is negatively related to positive behaviour patterns such as emotion regulation, self-regulation and social-emotional adaptation is consistent with the literature.

Correlation analyses revealed positive and moderately significant associations among emotion regulation, behaviour regulation, social skills, and social-emotional adaptation. This finding suggests that the enhancement of emotion regulation abilities aids children in better managing their emotions and behaviours, and in adapting to social environments (Macklem, 2008). Moreover, these findings align with past research indicating that as emotion regulation skills improve, scores for social behavior also rise (Kayhan Aktürk, 2015); a positive correlation exists between emotion regulation and behaviors deemed socially acceptable (Eisenberg et al, 1996); a noteworthy negative correlation is present between children's abilities to regulate emotions and behavioral issues (Şahin, 2019), and a positive linkage is observed between behavioral self-regulation and emotion regulation (Vardi & Demiriz, 2021).

According to the mediation analyses made, it is seen that emotion lability/negativity and emotion regulation have a partial mediator effect on the relationship between behavior regulation and social-emotional adaptation. It was determined that the relationship between behavior regulation and social-emotional adaptation increased with the mediating effect of low emotion lability/negativity variables and high emotional regulation. The effect of behavior regulation alone on social-emotional adaptation is enhanced by low emotion lability/negativity and high emotion regulation. Although it is encountered no other study in the literature examines the model created in our study, it has been observed that there are perspectives compatible with the results we obtained. Child who possess superior self-regulation abilities can identify and handle their emotions efficiently, relate to others' feelings, decide on their actions and social interactions, and create and sustain positive connections with diverse individuals (Snezhana Djambazova-Popordanoska, 2016).and can get away from that by using the coping strategies they have developed in stressful situations (Eisenberg et al., 1997). However, children with low self-regulation skills have difficulty effectively managing their emotions in potentially stressful situations, which may result in the negative behavioral expression of emotional arousal (Snezhana Djambazova-Popordanoska, 2016) and lead to behavioral problems or poor social competencies in children happens (Denhan et al., 2003; Gilliom et al. 2002).

Another mediation analysis result of the study is that emotion lability/negativity and emotion regulation have a partial mediator effect on the relationship between social skills and social-emotional adaptation. It was determined that low emotion lability/negativity variables and high emotion regulation mediated the relationship between social skills and social-emotional adaptation. Therefore, it was observed

that the effect of social skill alone on social-emotional adaptation increased through low emotion lability/negativity and high emotion regulation. For children to adapt socially and emotionally, they need to internalize social rules and expectations (Okorn et al., 2022). In the studies of Eisenberg et al. (2000), it was determined that negative emotionality has a regulatory role in the relationship between behavior regulation and prosocial behavior. It is seen that preschool children who develop emotion regulation skills are better at prosocial behaviors (Song, Colasante, & Malti, 2018). In another study, it was determined that children's knowledge of their emotions affects their social adaptation positively (Alwaely et al, 2020). For children in preschool, mastering techniques to minimize the display of adverse emotions plays a pivotal role in their social engagements and connections with fellow peers (Blair et al., 2015), and preschool children's effective strategies for emotion regulation affect functional relationships and social adaptation positively (Dennis et al. Kelemen, 2009). In addition, it is observed that increased emotional reactivity interrupts emotion-regulating processes among aggressive children (Helmsen et al., 2012), and on the contrary, children who regulate their emotional and behavioral responses well and efficiently are perceived as socially compatible by adults and their peers, furthermore, it has been observed that they maintain these positive social behaviors and experience less problematic relationships with their peers (Dennis & Kelemen, 2009). In another study, it was suggested that emotional knowledge in children should be developed from an early age, as it is linked to later social adaptation (Alwaely et al., 2021).

Although there are many studies in the literature examining self-regulation, social-emotional adaptation, and emotion regulation, no other study examining these three variables together has been encountered (Adamis, & Olatunji, 2023; Alwaely et al, 2020; Berti, & Cigala, 2022; Dennis & Kelemen, 2009; Eisenberg et al, 1996; Helmsen et al., 2012; Morris et al., 2017). With this aspect, the findings obtained in our study will contribute to the attention that relationships between behavior regulation with social skills, and social-emotional adaptation are affected by emotion lability/negativity, and emotion regulation.

Some of the limitations of the study are that the scales are based on self-report, that some of the evaluations about the child are made by the mother and some are made by the teachers, and that the study sample is limited. In addition, the selection of the study participants by snowball sampling method makes the generalizability of the findings difficult. Another factor affecting the generalizability of the results is that the internal consistency coefficient of emotion regulation, which is the sub-dimension of ERC, is below the required Cronbach's Alpha value of .70. Therefore, it should be careful also to this topic when interpreting the results obtained from this subscale. Stronger results can be obtained by conducting similar studies with a larger sample.

Recommendations for future studies; research examining the effects of digital environments on children's emotion regulation and social adaptation skills can assist in understanding the impact of modern technology on these crucial developmental areas. Studies evaluating the effects of educational interventions aimed at enhancing emotion regulation skills can help identify effective strategies for supporting the development of these skills. Additionally, it is essential for

upcoming research to explore the connections among self-regulation, social adaptation, and emotional regulation in children across various developmental stages, encompassing those from ethnic minorities and low-income families. Advancing the literature in this direction can enhance our understanding of the evolution of social adaptation and self-regulation skills.

Conclusion

In conclusion modeling the mediating effect of emotion regulation and emotion lability/negativity in the relationship between social-emotional adaptation, social skills, and behavior regulation is one of the strengths of our study. While numerous studies have explored the link between self-regulation and social-emotional adaptation, as well as the connection between emotion regulation and self-regulation, the combined relationship encompassing emotion regulation, self-regulation, and social-emotional adaptation remains unexplored. It is thought that in the tested model, the result that emotion regulation and emotion lability/negativity mediate the relationship between social-emotional adaptation, social skills, and behavior regulation will contribute to the literature, and may inspire for search other variables that mediate.

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