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Research Article

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Investigation of Quality of Life and Self-Regulation Skills of 4-6 Years Old Children

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Abstract

In this study, the relationship between quality of life and the self-regulation skills of preschool children between the ages of 4 and 6 was examined. In this context, data was collected from 855 mothers living in seven different geographical regions of Türkiye. Children's quality of life was assessed by their mothers using the "Kindl Quality of Life Scale," and their self-regulation skills were assessed using the "Self-Regulation Skills Scale." Pearson correlation coefficients and multiple linear regression analyses were used to analyze the data. According to the results of the study, there were positive and significant relationships between children's quality of life and self-regulation skills sub-dimensions. In addition, it was concluded that children's quality of life was significantly positively predicted by the self-regulation sub-dimensions of attention, working memory, inhibitory control emotion, and inhibitory control behavior. The results obtained were discussed within the scope of the relevant literature, and some suggestions were provided, taking into account the study's limitations.

Key Words

Preschool children • Quality of life • Self-regulation skills

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Introduction

Self-regulation can be defined as the ability to initiate activities according to the appropriate situation, comply with people's demands, terminate ongoing activities as needed, and adjust the frequency, intensity, and duration of one's behavior in various environments (Kopp, 1982). According to another definition, self-regulation involves a set of behaviors that monitor, direct, and manage one's performance (Hofmann, Schmeichel, & Baddeley, 2012). Recent findings reveal a significant relationship between self-regulation skills developed in early childhood and subsequent academic success (Birgisdottir Gestsdottir & Thorsdottir, 2015; McClelland, Acock, & Morrison, 2006). Children who develop strong self-regulation skills in early childhood are more likely to achieve academic success in the future and experience lower rates of substance abuse and delinquency. On the other hand, low self-regulation skills are associated with problems such as peer rejection, obesity, a tendency to commit crimes, and difficulty following rules (Vink et al., 2020; Savina, 2021). It is seen that preschool education has a facilitating effect on the acquisition of self-regulation skills; it also helps to develop vocabulary, math skills, and positive attitudes toward reading (Macdonald, Beauchamp, Crigan, & Anderson, 2014; Ponitz, McClelland, Matthews, & Morrison, 2009). In this context, the early development of self-regulation skills has a facilitating and functional role in both social and academic terms throughout life (McClelland et al, 2014; Özbey, Mercan, & Alisinanoğlu, 2018).

The phenomenon of self-regulation, which plays crucial roles in both preschool and later stages of human development, is not solely addressed from one perspective. When examining the literature, it becomes evident that the approaches to the sub-dimensions of self-regulation vary. One approach categorizes self-regulation into two distinct dimensions: top-down and bottom-up. The bottom-up dimension is related to stress physiology, attentional focus, and emotional arousal, while the top-down dimension consists of working memory, inhibitory control, and attention (Blair & Raver, 2012). According to another approach, self-regulation consists of behavior, emotion, and attention regulation sub-dimensions (Fındık Tanrıbuyurdu, 2012). According to another approach, self-regulation has three dimensions: metacognitive knowledge, metacognitive regulation, and emotional motivational regulation (Whitebread et al., 2004). These different approaches indicate that multiple factors influence self-regulation. In the literature, it is seen that there are many studies to determine the factors related to self-regulation. For example, the relationship between cognitive tempo and self-regulation in children was found to be positively significant (Yıldız, 2021). In another study found that self-regulation skills were also related to academic achievement, literacy performance, vocabulary, internalizing problems, externalizing problems, social competition, and intelligence (Smithers et al., 2018). Another study reveals that individuals with high levels of self-regulation skills have healthier eating habits, are controlled in terms of weight gain or loss, and are also successful in interpersonal functioning, well-being, and harmony. On the other hand, individuals with low levels of self-regulation skills were found to be prone to risky behaviors involving addiction, and these individuals were also more likely to engage in abnormal behaviors (de Ridder et al., 2012; John, et al., 2023). In another similar study, individuals with high self-regulation skills were found to have high sleep quality and physical health, low substance use, a low likelihood of obesity, low anxiety, and suicidal thoughts, low depressive symptoms, low peer bullying victimization, and high levels of school responsibility (Robson, Allen, & Howard, 2020).

As seen from recent studies, self-regulation is one of the important skills that shape an individual's life. However, basic life skills need to be developed to develop, implement, and evaluate appropriate behavior. At this point, while self-regulation is an important concept, the concept of quality of life, which encompasses factors such as an individual's actions and the results of their actions, the solutions they bring to the problems they face, and their social ties, is also very effective (Risemberg & Zimmerman, 1992; as cited in Çiltaş, 2011). It is believed that an individual's physical health has a positive impact on both their quality of life and self-regulation. Additionally, factors such as emotional support from family and school, high self-esteem, and the establishment of healthy friendships play a crucial role in enhancing an individual's overall well-being (Bilaç, Bilaç, & Öztürkcan, 2014).

Quality of life is the perception that individuals have about their situation within the context of their culture and personal values. Quality of life encompasses various aspects, including physical functions, psychological well-being, social relationships both within and outside the family, environmental factors, and personal beliefs. Quality of life is defined as a multidimensional concept, as it takes into account various factors that influence an individual's overall well-being. As a concept that is intensely related to the expectations and experiences of individuals, it may change over time. Therefore, it is thought to be quite difficult to measure objectively (Carr, Gibson, & Robinson, 2011).

There have been different definitions of quality of life throughout history. In the early ages, quality of life was defined as absolute success, while in ancient and medieval times, quality of life was often defined in terms of possessing a high level of virtue and beauty. Looking at the definition in modern times, it is stated that happiness is not a sufficient variable for quality of life (Koltarla, 2008). Thorndike, for the first time in the historical process, defines the concept of quality of life as the individual's response to his/her social environment. Weinstein and Frankel explained the quality of life as determining one's limits and achieving life satisfaction (Müezzinoğlu, 2005). Quality of life is not limited to a single aspect of an individual's well-being. It is widely accepted that it encompasses the individual's overall state of well-being across multiple dimensions, including the physical, psychological, and social aspects, and plays an integral role in terms of health and productivity (Koltarla, 2008; Küpeli, 2009; Demirci, 2011; Demiriz & Ulutaş, 2016). The 'quality' aspect of quality of life pertains to the individual's level of well-being, which can be assessed using various criteria such as emotional state, preferences, and attitudes, as well as more tangible measures like time, quantity, and test results (Perim, 2007; Koltarla, 2008; Aşut, 2014). From this point of view, Bilaç and Öztürkcan (2014) considered the quality of life as having three sub-dimensions, namely the spiritual, physical, and social dimensions of the factors affecting the life satisfaction of a person within a period. In the literature, it is stated that the factors affecting quality of life begin to develop in early childhood. For example, according to a study conducted by Sawyer et al. (2004), individuals with a low quality of life in adulthood had problems with their quality of life in childhood. From this point of view, it becomes clear that addressing quality of life from an early age is of critical importance.

Because adults and children have different developmental structures, their emotional reactions, perceptions, and social expectations toward their experiences are also different from each other. Various experiences, such as peer relations, school adaptation, and playing games, constitute an important point in children's self-perceptions (Sarı & Cenkseven, 2008). Thus, it is important to understand and interpret the child's cognitive, social, affective, and

physical frameworks in a good way (Akyalçın, 2012). One of the characteristics that emerges here is the family factor. It is said that the attention received from the family in early childhood, parental attitudes, interest, approval, and acceptance from siblings and close relatives play an important role in the child's quality of life (Gander & Gardiner, 2007; Dermott, 2014). Similarly, when a child steps outside the family circle, the concept of friendship plays an important role in his or her life. The child socializes in the environment of friends and begins to actively communicate with his or her environment (Erten, 2012). Therefore, quality of life, which has an important place in a child's life, has been examined in terms of its different dimensions and relationships with different variables. For example, Özbey, Mercan, and Alisinanoğlu (2018) examined the relationship between quality of life and the self-regulation skills of preschool children. According to the results of the study, while children's quality of life differed significantly according to the type of school attended, family type, and parental education level, no differentiation was found in terms of gender. It was concluded that there was a moderately positive relationship between children's self-regulation skills and quality of life. Terry and Heuber (1994) conducted a study examining the relationship between quality of life and self-concept in children. This study found a highly positive relationship between children's self-concept perceptions and their quality of life. Berman et al. (2016) focused on the relationship between parental quality of life and child quality of life (physical well-being, psychological well-being, parental relationships, social relationships, autonomy, and school). According to the study, it was concluded that the relationship between family and children's perceptions of quality of life is low, the quality of life of children living with a single parent is lower than that of those living with two parents, and the quality of life does not differ in terms of gender.

Based on the theoretical explanations and research findings mentioned above, there is a belief that quality of life and self-regulation are interconnected. Accordingly, this study seeks to answer the following questions:

1. Is quality of life predicted by self-regulation and attention skills?
2. Is quality of life predicted by self-regulation and working memory skills?
3. Is quality of life predicted by self-regulation, inhibitory control, and emotional skills?
4. Is quality of life predicted by self-regulation inhibitory control-behavior skills?

Method

Study group

In line with the aim of the research, the study was conducted by the relational survey model. The study employed a snowball sampling method. A total of 855 mothers with children aged 4-6 years from different geographical regions of Türkiye participated in the study. Data were obtained from the research group through an online questionnaire. Mothers assessed their children's behavior using the provided scales. The demographic characteristics of the sample group are shown in Table 1. According to the information given in Table 1, 462 (54%) of the children participating in the study were girls, and 393 (46%) were boys. Of the children participating in the study, 285 (33.3%) were 4 years old, 258 (30.2%) were 5 years old, and 312 (36.5%) were 6 years old. Participants came from seven different regions of Türkiye in varying proportions. Of the children who participated in the study, 429 (50.2%) were from the Aegean Region, 150 (17.5%) from the Marmara Region, 66 (7.7%) from the Central Anatolia Region,

153 (17.9%) from the Mediterranean Region, 12 (1.4%) from the Black Sea Region, 33 (3.9%) from the Eastern Anatolia Region, and 12 (1.4%) from the Southeastern Anatolia Region. Regarding the educational status of the mothers of the children, 270 (31.6%) of the mothers were primary school graduates, 309 (36.1%) were high school graduates, and 276 (32.3%) were university graduates. Regarding the employment status of the mothers of the children, 550 (64.3%) of the mothers were not working. 147 (17.2%) were public sector employees; 158 (18.5%) were private sector employees.

Table 1

Descriptive information on participants

Demographic characteristics	**f**	**%**
Gender of Children		
Girls	462	54
Boys	393	46
Age of Children		
4 years old	285	33.3
5 years old	258	30.2
6 years old	312	36.5
Geographical Regions		
Agean Region	429	50.2
Marmara Region	150	17.5
Central Anatolian Region	66	7.7
Mediterranean Region	153	17.9
Black Sea Region	12	1.4
Eastern Anatolia Region	33	3.9
Southeastern Anatolia Region	12	1.4
Education Status of Mothers		
Primary education	270	31.6
High School	309	36.1
University	276	32.3
Employment Status of Mothers		
Not working	550	64.3
Public Employee	147	17.2
Private Sector Employee	158	18.5

Research Instruments and Processes

Kindl Quality of Life Scale (Family Form for Young Children Aged 3-6 Years)

It was developed by Sieberer and Bullinger (1998) and adapted into Turkish by Eser et al. (2008) to assess the health-related quality of life of children and adolescents over the age of three. The scale offers five distinct sub-forms, categorized based on self-administration or parental administration and age groups. Based on self-administration, there are versions for young children (aged 4-6 years), children (aged 7–13 years), and adolescents (aged 14–17 years). There are also forms for families of young children (3-6 years) and for families of children or adolescents (7–17 years). This study used the form answered by the families of young children (3-6 years). This form is a five-point Likert-type scale (1=never, 2=rarely, 3=sometimes, 4=very often, 5=always). The scale has seven dimensions: physical well-being, emotional well-being, self-esteem, family, friends, school, and illness. Scores for

the dimensions can be calculated independently, or the scale form can be used as a total score. Higher scores on the scale indicate a higher quality of life. In the original form of the scale, Cronbach's alpha reliability coefficient of the 3-6-year-old family form was found to be 95. In this study, Cronbach's alpha reliability coefficient of the 3-6-year-old family form was found to be 85.

Self-Regulation Skills Scale for 4-6 Year Old Children (Mother Form)

The Self-Regulation Skills Scale, developed by Erol and İvrendi (2018), is designed for mothers of 4-6-year-old children. The scale has 20 items and is a five-point Likert-type scale (1=never, 2=rarely, 3=sometimes, 4=very often, 5=always). The highest score that can be obtained from the scale is 100, and the lowest score is 20. The scale has four sub-dimensions: "attention," "working memory," "inhibitory control-emotion," and "inhibitory control-behavior." The scale's assessment can be based on both the total score and its sub-dimensions. Exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) conducted for the scale demonstrated that the validity of the scale met established criteria. It is seen that Cronbach's alpha internal consistency coefficient of the self-regulation skills scale is 90, and the internal consistency coefficient of the sub-dimensions varies.75 and.89 (Erol & İvrendi, 2018). For this study, Cronbach's alpha internal consistency coefficient for the total score of the scale was 90, and the internal consistency coefficient of the individual sub-dimensions varies between .75 and 89.

Data Analysis

Initially, the suitability of the data for parametric statistics was assessed. Since the data showed a normal distribution, it was determined that it was suitable for the use of parametric statistics. Pearson correlation coefficients were computed to explore the relationships among variables during data analysis. In addition, multiple regression analysis was used to determine the predictive power of self-regulation skills on quality of life. The analyses were conducted using the SPSS 26 software in a computer environment.

Results

In this part of the study, correlation values between self-regulation skills and quality of life were given first, followed by regression analyses.

Table 2

Correlation values and descriptive statistics between variables

Variables	1	2	3	4	5
1. Quality of Life	-				
2. Self-Regulation Attention	.39***	-			
3. Self-Regulation Working Memory	.43***	.60***	-		
4. Self-Regulation Inhibitory Control-Emotion	.35***	.57***	.60***	-	
5. Self-Regulation Inhibitory Control-Behavior	.16***	.49***	.36***	.47***	-
Mean	73.73	21.70	20.92	18.95	11.85
Standard Deviation	10.45	4.19	3.09	3.47	3.31
Skewness Coefficient	-.13	-.36	-.84	-.56	.04
Kurtosis Coefficient	-.51	.22	.85	.73	-.23

***p<.001

Considering the analysis results in Table 2, it is seen that there is a positive significant relationship between quality of life and self-regulation attention (r=.39, p<.01); self-regulation working memory (r=.43, p<.01); self-regulation inhibitory control-emotion (r=.35, p<.01) and self-regulation and inhibitory control-behavior (r=.16, p<.01).

Table 3

Multiple linear regression analysis results regarding the prediction of quality of life by self-regulation skills

Predictor Variables	B	*β*	t	p	Regression result
Self-Regulation Attention	.56	.22	5.35**	.000	
Self-Regulation Working Memory	.89	.27	6.45**	.000	R=.47 R^2 = .22 F= 60.95
Self-Regulation Inhibitory Control-Emotion	.32	.11	2.61**	.009	Durbin-Watson=2.08
Self-Regulation Inhibitory Control-Behavior	-.31	-.10	-2.72**	.007	

Multiple linear regression analyses were performed to examine the role of self-regulation skills in predicting quality of life in children (ages 4-6). Based on the analysis results presented in Table 3, every sub-dimension of self-regulation skills significantly predicted quality of life (F_{Reg} = 60.95, p<.01). When standardized beta (***β***) values are examined, it is seen that the strongest predictors of quality of life are self-regulation working memory (β = .27) and self-regulation attention (β = .22). Accordingly, self-regulation inhibitory control-emotion (β = .11) and self-regulation inhibitory control-behavior (β = -.10) predict quality of life at a lower level. According to the related R^2 value, self-regulation skills explained 22% of the total variance observed in quality of life.

Discussion, Conclusion & Suggestions

The study aimed to analyze the relationship between quality of life scores and self-regulation skills among children aged 4-6 years. As a result of the analysis, it was seen that all sub-dimensions of self-regulation skills were related to quality of life. The analysis results were contextualized and discussed in the context of relevant literature. Previous literature has predominantly focused on quality of life within the realm of health. Therefore, the results obtained were discussed through studies dealing with similar scales and variables.

Upon reviewing the research findings in the literature, it is seen that there is a relationship between early childhood quality of life and self-regulation skills (Özbey, Mercan, & Alisinanoğlu, 2018). One of the most important resources a child has in early childhood is play, and play is very important for both quality of life and self-regulation skills. Children socialize and establish relationships through play (Erten, 2012). Behaviors such as exhibiting success-oriented behaviors during play, motivating oneself, waiting for one's turn during play, stopping talking, and listening when one needs to listen to a person are seen to be related to the concept of self-regulation. In addition, if the child can define the game he or she plays, choose the right items to use, and fulfill the homework given at school, it shows that his or her coping skills have developed and that he or she has self-regulation skills (Keleş & Alisinanoğlu, 2014).

As a result of the analyses conducted in the current study, it is seen that self-regulation explains 22% of the quality of life in early childhood. At this point, self-regulation emerges as an important variable, as do different variables such as physical health, mental health, family climate, and living standards. Children with low self-regulation skills in early childhood experience various problems such as problems related to the pleasure zone (Macdonald, Beachamp, Crigan, & Anderson, 2014), low academic skills (Clark, Pritchard, & Woodward, 2010), school adaptation problems (Blair, 2002), problems in mental and motor skills (Chrysochoou, Bablekou, Masoura, & Tsigilis, 2013), absent-mindedness, and an inability to focus. These problems are thought to indirectly affect and reduce the child's quality of life.

When the relevant literature is examined, it is not only sufficient for children to use their cognitive capacities to acquire new information, but they also need to be able to regulate and control their emotions, behaviors, and attention (Raver, Smith-Carter, McCoy, Roy, Ursache, & Friedman, 2012). Regulation of attention is one of the important skills that develop in early childhood (Davis, Harris, & Burns, 2010). From an early age, it is considered very important for children to gain focusing skills by developing attention to learn or solve a problem by putting aside distracting objects or thoughts (Bodrova & Leong, 2007). Based on this, when attention, the first sub-dimension of self-regulation skills, is considered, it is seen that children with low attention levels are absent-minded and have problems focusing on a situation (Bodroca & Leong, 2007). Children with low levels of attention have problems completing the tasks they want to do, and accordingly, there is a possibility of distancing themselves from the satisfaction they will get from these tasks. At this point, attention is a variable that increases or decreases the child's quality of life.

There is a positive relationship between working memory, the second sub-dimension of self-regulation skills, and quality of life. Working memory is related to the short-term storage and processing of information (Prebler, Krajewski, & Hasselhorn, 2013). In general, working memory is associated with many important areas, such as language skills (Chrysochou, Bablekou, Masoura, & Tsigilis, 2013), math skills (Alloway & Alloway, 2010), and mental and motor skills (Lehmann Quaiser-Pohl & Jansen, 2014). The child's planning, organizing, and monitoring of cognitive processes is carried out through working memory. When reduced to a little more detail, Baddeley (1986) reported that working memory has functions such as temporarily keeping verbal and auditory information in memory, storing visual and spatial information, planning, organizing, and monitoring cognitive processes, and controlling attention (cited in Preßler, Krajewski, & Hasselhorn, 2013). In this context, working memory affects many aspects of life, such as social and academic life (Vandenbroucke et al., 2018). Considering this relationship, it is observed that individuals' quality of life increases as a result of healthy working memory (Üneri & Çakın Memik, 2007).

As a result of the analyses, inhibitory control behaviors and emotions, the third and fourth sub-dimensions, were found to be related to quality of life. These dimensions are related to the child's ability to be aware of and observe his or her thoughts and to control them (Posner & Rothbart, 2000). With the inhibitory control mechanism, the child can control different emotions such as anger, joy, sadness, and impulses that want to emerge (Whitebread & Basilio, 2012). Studies have shown that lack of control can lead to attention deficits and behavioral disorders (Meltzer &

Krishnan, 2007), and children with low control skills are also at risk in terms of social development (Watson & Bell, 2013). It is seen that a problem in the child's inhibitory control mechanism will be reflected in many areas of life in general and will affect the quality of life.

In the current study, it is seen that self-regulation skills and quality of life are among the important issues affecting the future life of the child. In this direction, in parallel with the finding of a positive relationship between children's self-regulation skills and quality of life, it can be suggested that parents and preschool teachers should cooperate to carry out activities and studies that support children's self-regulation skills in the preschool process (Özbey, Mercan, & Alisinanoğlu, 2018). At the same time, teachers can plan attention-enhancing activities for children to gain attention-impulse control. In addition, activities with parent participation can be planned for parents about what self-regulation is, why it is needed, and what can be done to improve self-regulation (Ural, Gütekin Akduman, & Şepitçi Sarıbaş, 2020).

Since the study was conducted with children in early childhood, it has some limitations. Since the scales applied were scored based on the observation skills of family members, what the child feels and what the family observes may differ. This constitutes a limitation of the study. In addition, quality of life is affected not only by the self-regulation variable but also by many situations in life. At this point, the study ignores the environmental factor while examining quality of life. As another point, since the study is family-based, it is thought that re-conducting this study by controlling points such as family functionality in future studies will contribute to the literature.

Ethic

We declare that the research was conducted in accordance with the ethical standards of the institutional and national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all individual participants included in the study.

Author Contributions

This article was written with the joint contributions of five authors.

Conflict of Interest

No potential conflict of interest was reported by the authors.

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