

## **Relationship between Self-Regulation Ability, Self-Esteem and on School Adjustment of Children with ADHD Symptoms: Mediating Effect of Social Support**

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### **ABSTRACT**

This study tried to find a way to improve the school adjustment level of children with ADHD symptoms by examining the mediating effect of social support in the relationship between self-regulation ability, self-esteem and school adjustment of children with ADHD symptoms. The subjects were 300 children in grades 4, 5, and 6 located in P & Ch city, Gyeonggi-do. The teacher conducted the Korean version of the ADHD Rating Scale for Teachers (K-ARS). Frequency analysis, descriptive statistical analysis, Pearson correlation, and multiple regression analysis were performed using SPSS 25.0 and AMOS 25.0. First, as a result of examining whether there was a mediating effect of social support in the relationship between self-regulation ability and school adaptation of children with ADHD symptoms, social support showed a partial mediating effect in the relationship between self-regulation ability and school adaptation. Second, as a result of verifying the mediating effect of social support in a relationship between self-esteem and school adaptation, it was found that social support was completely mediated in the relationship between self-esteem and school adaptation. Therefore, it is expected that this study will be used as an important basic data for preparing practical intervention and counseling programs for children with ADHD symptoms.

**Keywords:** ADHD Symptoms, School Adaptation, Social Support, Self-Regulation Ability, Self-Esteem

### **1. INTRODUCTION**

ADHD is one of the neurobehavioral disorders with inattention, impulsivity, and hyperactivity as main symptoms (APA, 2013), social maladjustment including problems with parents, peers, and teachers, and emotional problems such as low self-esteem or depression. It is one of the childhood developmental disorders accompanied by cognitive, emotional, and behavioral defects that represent secondary symptoms (Barkley, 2006).

To be diagnosed with ADHD, six or more of the symptoms of inattention, hyperactivity, and impulsivity must appear continuously in two or more scenes for more than six months (APA, 2013). Regarding this, previous studies raise the question of whether it is possible to judge

that children with 4 or 5 symptoms are less functionally impaired than children with 6 or more symptoms. In other words, children with four symptoms also show behavioral patterns similar to those of ADHD (Cho et al., 2009). In other words, previous studies have shown that maladaptive problems such as depression, school maladjustment, and Internet addiction occur at the same level as those diagnosed with ADHD, such as depression, school maladjustment, and Internet addiction, even though they are not diagnosed because they do not meet the diagnostic criteria. It has already been confirmed (Kim, 2012; Choi, 2012; Lewinsohn et al., 2004). Domestic studies on this also show a relatively high figure: 7.6% in the study of Jo & Shin (1994), 6.1% in the study of Pyo et al., (2001), 9.6% in the study of Lee (2009), and Cho et al., (2009). In the study, it was about 9.0%, and in the study of Song (2014), it was 22.32%. The difference in these results seems to be due to the research subject and research method, but it means that about 1 to 7 children in the class show high ADHD symptom (Choi, 2018).

Children with ADHD symptoms, that is, children with high levels of inattention, hyperactivity, and impulsiveness, repeatedly receive negative feedback from teachers, worsening the relationship between teachers and students (Choi, 2011), and failing to properly control their own behavior. Because of this, they impulsively and repeatedly play pranks on their friends and feel difficulties in peer relationship (Song, 2014). These experiences lower children's self-esteem, and because of the low self-esteem, they experience a vicious cycle that leads to school maladjustment.

Self-regulation ability is the ability to control and adjust oneself to carry out necessary actions to the end to achieve what one wants, and is essential for individual growth, development and adaptation (Yun, 2007). It is reported that children with low self-regulation ability show psychological problems due to high depressive tendencies, and have low social adaptation ability due to social anxiety or withdrawal (Yun, 2007).

Self-esteem, which is formed based on the attention and respect received from people around you through interactions with others as an important factor in school adjustment, is formed based on one's own successful experience, and self-esteem continues to grow. and enterprising (Lee et al., 2013).

Low self-esteem causes problems of maladjustment to school, makes it difficult to adapt to school life, and becomes a factor that hinders proper growth and development (Hong & Cho, 2012). As such, it is reported that there is a close relationship between self-esteem and school adjustment, and that the root cause of school maladjustment is a lack of self-esteem (Lee & Ahn, 2013).

On the other hand, social support provided to children is often cited as a protective factor in relation to children's adaptation (Park, 2013). Many studies report that social support is significantly related to students' school adjustment (Kwak, 2022; Koo, 2000).

School adjustment is influenced by a combination of external and internal factors, such as children's personal characteristics and experiences at home and at school (Lakhani et al., 2017). Therefore, in this study, based on the viewpoint that various aspects of individual

internal characteristics and environmental characteristics should be comprehensively considered as factors affecting school adjustment (Song & Sung, 2015), individual internal and psychological factors include: Self-regulation ability and self-esteem were selected, and social support was selected as a mediating variable for external factors to reveal their relationship.

Therefore, this study aims to verify the mediating effect of social support on the relationship between self-regulation ability, self-esteem and school adjustment in children with ADHD symptoms.

## **2. LITERATURE REVIEW**

### **2.1. ADHD Children and School Adaptation**

ADHD is the most common psychiatric disorder among school-age children, and is a disorder that greatly interferes with children's normal school life and family life. Children with ADHD have low motivation in school, have difficulty continuing their efforts in school, and show problems in task performance. Children with ADHD show poor self-regulation, lack of patience, emotional problems such as a hyporesponsive arousal system, and school performance problems such as poor academic performance. Even in the classroom, compared to normal children, they have more problem behaviors that disturb their peers and teachers, such as interrupting their peers or chatting during class (Lee, 2015). As such, the problematic behavior of children with ADHD negatively affects not only the homeroom teacher who leads the class, but also their peers, and the entire class is experiencing difficulties.

### **2.2. The Mediating Effect of Social Support on the Relationship between Self-Regulation Ability, Self-Esteem and School Adjustment**

Students with ADHD symptoms suffer from negative attitudes from parents, teachers, and friends, such as aggravated family environment and lack of knowledge about treatment at home, teachers' ignorance and prejudice about ADHD, and impersonal attitudes at school, which hinder their adjustment to school. It is presented as a factor that makes it difficult (Kim, 2009). In other words, it is difficult to form a smooth relationship with teachers and friends at school, which can act as an obstacle to school adaptation soon. Choi & Lee (1996) said that social support from family, friends, and teachers is an important factor in school adaptation because elementary school students are greatly influenced by people around them in the process of growing up. Son(2016) said that children adapt to school better when they feel that they receive appropriate attention and support from their parents.

Looking at previous studies that confirmed the indirect effect of social support as a mediating variable, in a study that verified the mediating effect of social support in the relationship between students' emotional regulation ability and school adjustment (Oh & Ha, 2019), when emotional regulation ability increased, It was found that there was a significant correlation between higher social support and school adjustment. In a study verifying the mediating effect of self-esteem and social support in the effect of parents' directive parenting attitudes and children's identity confusion on school life adaptation

in multicultural families (Lee, 2018), individual self-identity was directly related to school adaptation through social support. It has been shown to have an indirect effect (Kim, 2019).

Regarding the effect of self-esteem and similar concepts on school adaptation, as a mediating factor of social support, direct and indirect effects were found that the higher the self-esteem, the higher the perception of social support, and this was found to have a significant effect on the adaptation to college life (Kim, 2012). In the relationship between middle school students' feelings of inferiority and school adjustment, social support was found to play a partial mediating role in the relationship between feelings of inferiority and school adjustment (Song, 2013).

### **3. METHOD**

#### **3.1. Subject of Research**

The subjects of this study were 330 students in the 4th, 5th, and 6th grades of 7 elementary schools located in P-si, Gyeonggi-do. The questionnaire was distributed and collected by mail after explaining in detail the purpose of the study, the contents of the measurement tool, and how to fill out the questionnaire to the homeroom teacher for two months from June to August 2022.

Out of a total of 300 students, there were 205 male students (68.3%) and 95 female students (31.7%), indicating that the ratio of male students was high.

#### **3.2. Scale**

##### **3.2.1. Assessment Tool for Children with ADHD Symptoms**

In this study, the Korean version of the ADHD Rating Scale for Teachers (K-ARS), adapted by DuPaul (1991) and standardized by Kim (2003), was used to screen children with ADHD symptoms.

K-ARS consists of 2 subscales of attention deficit, hyperactivity and impulsive behavior based on the DSM-4, and consists of 9 items each, totaling 18 items. It is rated on a Likert 4-point scale.

##### **3.2.2. School Adaptation Scale**

In this study, the School Adaptability Scale (Questionnaire to Measure Adaptability in School), which was constructed by Kim (1993) and re-examined its reliability and validity in 2000 to measure children's school adaptation, was used.

The components of this scale consisted of a total of 41 questions in 5 areas: school environment adaptation, school teacher adaptation, school class adaptation, school friend adaptation, and school life adaptation. It is composed of a 5-point Likert scale, and the higher the total score, the higher the school adaptability. Overall reliability Cronbach's  $\alpha$  was .94.

##### **3.2.3. Social Support Scale**

In this study, the Social Support Appraisal Scale of Dubow & Ullman (1989)

supplemented and modified by Han Mi-hyun (1996) was used to evaluate children's perceived social support. The composition of the scale consists of a total of 24 items with 8 items each of the three components of friend support, family support, and teacher support. It is a Likert 5-point scale, and the higher the score, the higher the level of social support perceived by the child. Overall reliability Cronbach's  $\alpha$  is .91.

### 3.2.4. Self-Regulation Ability Scale

In this study, Heo(2004)'s self-regulation ability scale for school-aged children was used to measure children's self-regulation ability. 3 of cognitive factors (encoding and interpretation of information, memory, knowledge), motivational factors (trust in ability, connection with past experiences, goal adjustment), and behavioral factors (peer pressure, impulsiveness, emotion, stress) It consists of four sub-factors. It was a 5-point Likert scale, and the overall reliability Cronbach's  $\alpha$  was .81.

### 3.2.5. Self-Esteem Scale

To measure self-esteem, Rosenberg(1965)'s self-esteem scale was used. The total number of questions consists of 10 questions, including 5 questions for positive self-esteem and 5 questions for negative self-esteem. It is a 5-point Likert scale, with higher scores indicating higher self-esteem. Overall reliability Cronbach's  $\alpha$  was .94.

## 3.4. Data Analysis

This study used SPSS 25.0 and AMOS 25.0 statistical programs to verify frequency analysis, descriptive statistics, Pearson-moment-correlation analysis, and the mediating effect of social support in the relationship between self-regulation ability, self-esteem, and school life adjustment in children with ADHD symptoms. To do this, a structural equation model was performed.

## 4. RESULTS

### 4.1. Confirmatory Factor Analysis

Table 1. shows the results of verifying the confirmatory factor analysis through the measurement model.

### 4.2. Model Fit

As a result of the model fit analysis of the mediating model, NFI .910, CFI .921, and RMSEA .096 were found, so this model can be interpreted as acceptable.

**Table 1:** Confirmatory factor analysis

Theoretical variable	Measurement variable	B	SE	$\beta$	CR
self control ability	cognitive factor	.97	.05	.78	18.78***
	motivating factor	1.00	-	.76	-
	behavioral factors	.43	.04	.46	11.41***
social support	friend support	1.00	-	.67	-
	family support	.80	.07	.56	12.02***
	teacher support	.74	.05	.67	13.78***

school adaptation	school environment	.98	.04	.83	24.13***
	school teacher	.95	.04	.78	22.07***
	school classes	1.00	-	.80	-
	school friend	.76	.04	.73	20.45***
	school life	.85	.04	.83	24.14***
*** $p < .001$ .					

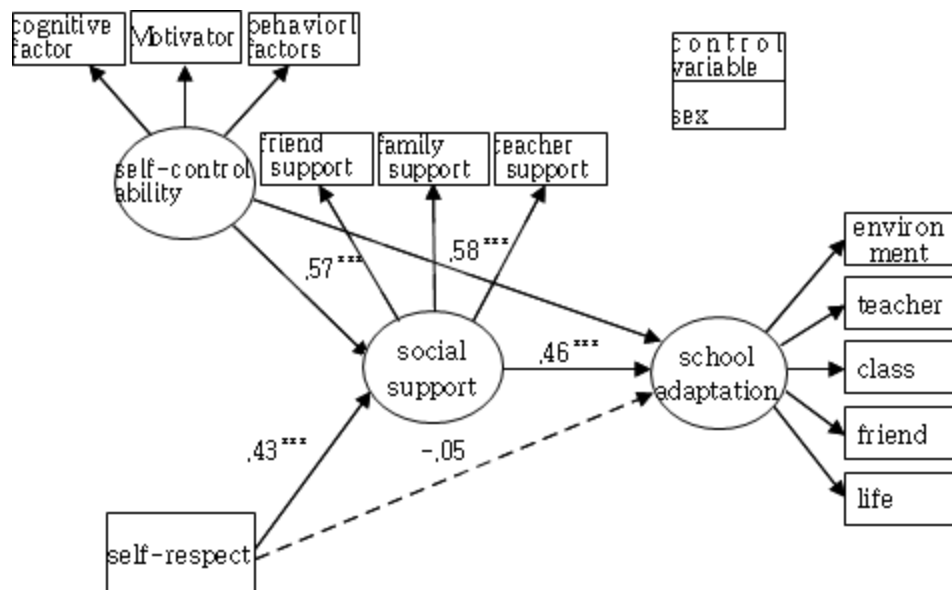
#### 4.3. Mediating Effect Analysis

Table 2. is the result of analyzing the mediating effect of social support on the effect of the mediating model's self-regulation ability and self-esteem on school life adjustment, and [Figure 1] presents these results as a model.

**Table 2:** Path coefficient of the mediating model

Route	B	SE	$\beta$	CR
Self-regulation ability → social support	.47	.05	.57	10.01***
Self-esteem → social support	.34	.04	.43	9.62***
Social support → School life adjustment	.62	.09	.46	6.59***
Self-regulation ability → Adaptation to school life	.65	.06	.58	10.37***
Self-esteem → Adaptation to school life	-.05	.04	-.05	-1.22
*** $p < .001$ .				

As a result of the analysis, first of all, self-regulation ability was shown to have a positive (+) effect of .568 on social support, and self-esteem was found to have a positive (+) effect of .430 on social support, both of which were statistically significant. was significant at the  $p < .001$  level. Next, the influence of social support on school adjustment was .455, which was positively significant at the  $p < .001$  level. And the influence of self-regulation ability on school adaptation was positively (+) significant at the  $p < .001$  level at .580, and the influence of self-esteem on school adaptation was negatively (-.045). I was not statistically significant. This means that the higher the self-regulation ability, the higher the level of social support, and the higher the level of social support, the better the school adaptation. In addition, the higher the self-esteem, the higher the level of social support, and the higher the level of social support, the better the school adaptation. As a result, the mediation path through social support was established for self-regulation ability and self-esteem.



[Figure 1] Mediating effect of social support on school adjustment

#### 4.4. Effect Decomposition of the Mediating Model

Table 3: Confirmatory factor analysis

Route	Direct effect	Indirect effect	Total effect
Self-regulation ability → social support → school adaptation	.58***	.26***	.84***
Self-esteem → social support → school adjustment	-.05	.20***	.15***
Social Support → School Adaptation	.46***		
*** $p < .001$ .			

A bootstrapping test was conducted to find the significance probability of indirect and direct effects on the mediating effect of social support in the relationship between self-regulation ability, self-esteem and school adjustment.

Table 3. shows the results of analyzing the direct, indirect, and total effects of the mediating model.

As a result of the analysis, the total effect of self-regulation ability on school life adjustment through social support was .838, the direct effect was .580, and the indirect effect was .258. And the total effect of self-esteem on school life adjustment through social support was .151, the direct effect was -.045, and the indirect effect was .196. The direct effect of social support on school life adjustment was .455.

## 5. CONCLUSION

First, as a result of examining whether there was a mediating effect of social support in the relationship between self-regulation ability and school adjustment of children with ADHD symptoms, social support showed a partial mediating effect in the relationship between self-regulation ability and school adjustment. Self-regulation ability not only directly affects school adaptation, but also indirectly through social support. This revealed that self-regulation ability is related to social support in school adaptation. In other words, it can be interpreted that the higher the self-regulation ability, the higher the perception of social support, and the better the teacher, peer relationship, adaptation to school classes, compliance with school rules, and adaptation to school life.

Next, as a result of verifying the mediating effect of social support in the relationship between self-esteem and school adjustment, it was found that social support completely mediated the relationship between self-esteem and school adjustment. This means that self-esteem does not directly affect school adjustment, but it does affect school adjustment through social support, and it is revealed that social support is a very important factor in the relationship between self-esteem and school adjustment.

So far, most of the preceding studies on children with ADHD have focused on behavioral problems, symptoms, and maladaptive factors, and have provided therapeutic interventions to improve problem behaviors. It can be said that it is significant to examine the mediating effect of social support in the relationship between adaptation. Therefore, it is believed that it can be helpful to understand the individual characteristics and psychological coping mechanisms of children with ADHD symptoms, and to help them adapt well to various situations at school through positive support and support from parents, teachers, and educational institutions. In addition, through this study, it is believed that sufficient evidence can be provided practically in preparing various educational activities to increase the school adaptability of children with ADHD symptoms.

Next, the limitations of this study and the suggestions for follow-up studies suggest that children with ADHD symptoms have attention problems.

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