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Effect of Integrated Parent Intervention for Children with ADHD*

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Abstract: The purpose of this study was to examine the effects of integrated parent intervention for children with ADHD in changing the behavior of children with ADHD and reducing parental stress. In this study, three groups comparison design was applied. For the experimental group 1, social skill integrated intervention focusing on parent - centered parent counseling was applied. In the compared group 2, social skill integrated intervention focusing on child - centered parent education was applied. The controlled group only conducted social skills training for the children. For the analysis, pre - post – after post test was applied. As a result, the experimental(parent counseling) group 1 showed a significant change of parenting behaviors compared with other groups. In particular, integrated intervention was effective to improve parental behaviors and alleviated parenting stress and children' problematic behaviors. The implication of this study on practice and policy was discussed.

Keywords: ADHD, parent intervention, reducing parental stress, parent counseling group, parent education group, social skill training

Ⅰ. Introduction

The main symptoms of children with Attention Deficit / Hyperactivity Disorder ADHD) are carelessness, hyperactivity, and impulsivity. In the U.S., 3 to 7 percent of children are diagnosed with ADHD Pastor & Reuben, 2002). Among them, learning disorder(25-50%), hostile rebellious disorder(35%), conduct disorder(26%), anxiety disorder(26%) and depressive disorder(18%) are common (APA, 2000). Children with ADHD are more likely to be distracted, overactive, or impulsive and tend not to be compliant with rules and leading to treatment with school attendance. The onset of this disorder is usually around 3 years old, but the diagnosis is not made until they enrolled ele-

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mentary school. Although they have a high level of intelligence, they have poor academic performance, problems with compliance after school, peer relationships, and social problems. The difficulties of these children often persist until adulthood(Kwon,2015).

In S. Korea, the Health Insurance Review and Assessment Service conducted an analysis of ADHD for children and adolescents under 20 years of age using data from 2007 to 2017. As a result, a number of diagnosis is increasing from 51,000 in 2007 to 57,000 in 2011 that increasement is 18.4% and an average annual growth rate of 4.4%. As compared to 2012, a number of students with ADHD in a class is double in 2017, which is a reality that appeals the difficulty in the school. Total medical expenses increased by 8.5 billion won (61.1%) over five years from 2007 to 2011, and the average annual growth rate was 12.7% (Health Insurance Review and Evaluation Press Release).

The increase of the number of children with ADHD and medical costs, human resources services for treatment have been increased. Parents visit hospitals with their children due to school rules violation, problems with friends, and failure of school study. Most often, however, they are encouraged to take medication without any detail explanation from medical experts, which increase distrust about the medication for ADHD. Despite the fact that medication are effective in the treatment, the desire for psychosocial treatment is much higher because effects of medication alone in the treatment is limited (Chronis et al., 2006).

Normally, the parents determine the type of treatment, which is not done by the children with ADHD. Parents are the person to make a decision to start or stop medications. This is because the age of children with ADHD are low and do not have enough decision making skill. Therefore, parent participation is a key in the ADHD therapy. They are not choosing the appropriate treatment but also participating in the therapy with their children (Hoffman, 2011; Van Brunt et al., 2011). Due to a lack of accurate description of the medication from the medical experts, many parents have experienced medication therapy conflicts. In the process, parents explore other treatments and services which is not focusing on only medication, and begin to understand the child and relieve anxiety in receiving parent education. Many researchers have stressed an importance of parent education and training (Carolyn 2011; Choi, 2016; De Boo & Prins, 2006; Im, 2011; Jo, 2008; Kim et

al., 1998; Kim, 2003; Larson, 2011; Lee, 2007; Min, 2008; Shin, 2010; Shin et al., 1995)

However, parent education or parent training programs that focus on the treatment of ADHD tend to require only improving parental attitudes. Parent education improve parenting attitudes, not reducing parenting stress (Min, 2008). It is important to control the mother's daily stress, provide supports and make the consensus of parenting strategy between parents (Choi, 2001; Kim, 2007). During the parent education, the strategy that takes into account the relationship between a mother, a father, and a child could help them to create positive parent-child relationship (Ko et al., 2011). As a result of many studies, interventions that focus on parent education, training, and counseling can bring more positive outcomes (e.g., low stress level, the mutual growth of children with ADHD and parents) than any other interventions. Unfortunately, due to multiple requirements (e.g., service complexity and service providers' qualification), an integrated intervention for children with ADHD and parents is limited in the field.

Therefore, the purpose of this study was to explore the effectiveness of integrated intervention for children with ADHD and their parents. In delivering the intervention, this study expected to change the behaviors of children with ADHD, reduce parental stress, and improve positive interaction between children and parents. In order to achieve the goal, this study compared the effects of social skills training, social skill integrated intervention focusing on child - centered parent education, and social skill integrated intervention focusing on parent - centered parent education.

① What is the effect of social skill integrated intervention focusing on child - centered parent education on a level of children's psychosocial adaptation and problem behavior?
② What is the effect of social skill integrated intervention focusing on child - centered parent education on parenting attitude, parenting stress, and general stress?
③ What is the effect of social skill integrated intervention focusing on parent - centered parent education on a level of children's psychosocial adaptation and problem behavior?

④ What is the effect of social skill integrated intervention focusing on parent - centered parent education on parenting attitude, parenting stress, and general stress?

Ⅱ. Literature review

1. Treatment and services for children with ADHD

Children with ADHD have psychological intimidation and anxiety because they often receive negative feedback from the external environment. In a negative environment, children with ADHD need more unconditional supports from parents, teachers, and peers(Choi & Kwon, 2013). The level of self-esteem is changed depending on amount of care from parents and respect from teachers (Choi, 2012). This is the same with their parents. Mothers who care children with ADHD are more likely to be influenced by a husband, mother-in-law, and teachers.

For their children, parents are seeking multiple treatments. In order to reduce anxiety and stress, mothers of children with ADHD are more likely to visit a medical institution. Toomey and colleagues (2012) found a link between parental attitudes and medication therapy withdrawal. The study found that the reasons for discontinuing medication therapy are inappropriate effects and side effects of medication. 71% parents reported side effect of medication during treatment. Among them, 75% respondents had discontinued medication therapy within 3 months and 21% discontinued medication within 1 year. In particular, 70.5% of parents discontinued treatment, and 29.5% of parents continue medication therapy for positive treatment outcomes. Parents who have more stress and depression, lower socioeconomic status and academic background, and severe problems of children are more likely to choose and continue medication therapy (Hoffman, 2011). Either focusing on medication or outcome based treatment, one thing is clear that parents make a decision (Choi, 2016).

The researchers found that the integrated intervention (cognitive behavior art therapy, art therapy, sand play therapy) is effective to reduce a level of problematic behavior and im-

prove attention level of children with ADHD (Jo, 2012; Lee, 2007). Also, it would be important to know types of treatments with a clear awareness of problems of the children with ADHD, and to seek appropriate treatment for the children rather than to reduce mothers' anxiety. In order for this, it is necessary for the mother to know the diseases about ADHD, characteristics and symptoms in child care, and to manage the mother's own stress.

2. Effects of intervention for parenting attitudes and daily stress

Parental child-rearing attitudes have been recognized as major contributors to a child's behavioral, emotional, and cognitive development. In the therapy, more interactions between children with ADHD and the parents were made. However, most of the interactions in the therapy are interpreted as a tendency to rely on parents due to fear and stress rather than positive interactions. Negative interaction influences the relationship between parents and children (Choi, 2012). The higher level of hyperactivity of the children, mothers are more likely to have the negative parenting attitudes, which affect the children negatively (Lee, 1998).

In order to build positive interaction between mothers and children, mothers should cope with parenting stress and improve positive parenting attitudes. As mothers have positive parenting attitudes and control their children's behavior consistency, their children are more likely to have high level of social competence (Choi, 2002; Park, 2001; Woo, 2005). The warm and encouraging parenting behaviors are the critical environmental factors to improve children' social competence level (Lee, 2008).

However, commonly mothers who care children with ADHD show a high level of child-rearing stress. There is a vicious cycle between the higher levels of symptoms of children and parenting stress, lower levels of parenting efficacy, and a higher levels of coercive parenting behaviors (Choi et al., 2002). As the parent-child coercive cycle, neither parent nor child is really control of their behavior and remember what they are doing. Psychiatrists who have been trained to identify strengths of children recognize the symptoms and characteristics of children and find a solution to reduce the problems. Unfortunately, parents are not trained to solve the problems of children and do not understand behaviors of their children and analyse situations of problems (Findling et al., 2009).

Depending on the level of awareness of the mothers with the children with ADHD, they may accept the disability more seriously than the reality (McLoughlin et al., 1987). The mother's negative perception of disability influences child-rearing attitudes negatively and increases burden (Biegel, 1994). Thus, there is a need for a parent education program that includes understanding disability and child-rearing strategy (Power et al., 2001). Parental intervention is essential because parents' self-esteem and stress are closely related to children's problematic behaviors (Eccles & Harold, 1996).

Thus, Larson (2011) recommended parents of children with ADHD multiple interventions, such as awareness of the stress of child caregivers, symptoms of ADHD, the responsibility for caring for children with ADHD, the approach of problem solving, and the belief in ADHD treatment. In the interventions, it is important to remove the tension of the caregivers but focus parents' attention and treatment expectations.

3. Effect of integrated Treatment

Despite the effectiveness of medication therapy for ADHD, the desire for psychosocial treatment is much higher because of the limitations of medication (e.g., side effect and unreliability). Treatments of children with ADHD include medication, parental education, classroom behavior management, learning skill, social skills training through intensive peer intervention, and behavioral-medication therapy (Chronis et al., 2006). However, the effectiveness of medication therapy or psychotherapy alone is not clear, attention should be paid (Uekermann, 2010).

Children with ADHD have problems in their interaction with peers, which causes them to be rejected or bullied in the group. At this time, social skills integrated intervention with cognitive therapy is helpful for improving the social functions, sharing positive social outcomes, and reducing ADHD symptoms and medication dependence. Although no studies expect positive outcomes for all study participants (De Boo & Prins, 2006), integrated interventions (e.g., emotional intervention and cognitive behavior therapy) without medication are showed positive outcomes.

Carolyn Webster-Stratton (2011) provided an integrated intervention for 90 children with ADHD and their parents. The results showed positive effects on the mothers in deal-

ing with important rules and methods of punishment. Fathers reported that there were no major changes in parenting. In addition, positive outcomes were found in praising and coaching strategy of mothers and overall deviant behaviors of the children. Parents reported reduced children'impulsivity, inability of attention, and extreme behaviors. School teachers reported effectiveness on children' externalizing behaviors, relationships with peers, and social functioning (Carolyn, 2011).

In S. Korea, the effectiveness of the integrated treatment was found in multiple studies. Studies on the 8-week parent training and medication therapy showed reduced ADHD children' problem behaviors (e.g., distraction, impulsivity and hyperactivity) at school and home and alleviated parental stress (Kim et al., 1998; Sin et al., 1995). Also, Kim (2003) emphasized positive effects of the integrated psychosocial intervention with parent education.

However, the purpose of these integrated therapies is to change parents' behaviors, which influence alleviation of the child's destructive behaviors or improvement of social relations. Therefore, parent education and training programs focusing on parenting attitudes and stress (Min, 2008). A strategy, which improves the level of motivation of parents to change their attitudes through the education and training, is also needed (Kim, 2007). Rogers and colleagues (2009) conducted a study of 101 parents (53 parents of children with ADHD and 48 parents of children without ADHD) with low self-efficacy. Researchers found that mothers have similar standards and types in child behavior interventions regardless of children'disabilities. When husbands support wives as a parent and agree on wives' opinions, the less daily and nurturing stress was reported (Choi, 2001). This suggests that the integrated interventions are required to encourage parents' behavioral changes.

It is important for mothers to ensure confidence in her attitude changes and manage her daily stress (Jo, 2008). In case of parent education and training, taking into account of mothers' object-relations would help to build more positive parent-child relationship (Ko, 2000). In conclusion, the counseling and treatment programs focusing on the parents and children with ADHD would be provided for improving a mutual growth between children with ADHD and mothers.

Ⅲ. Method

1. Research Design

In order for verifying the effectiveness of the integrated intervention, this study developed three groups. Each group was provided a social skill training for the children, parent - centered parent counseling or child - centered parent education. Each intervention program consisted of 8 sessions was provided under 2 expert consultation. The characteristics of the study participants are shown in Table 2. For the children, the social skill training program was shown Table 3. The information for the counseling group in Table 4 and the education group in Table 5 was provided.

The expanded experimental design was applied in this study, which is an extension of pre - post test and control group comparison. In order to explore the effectiveness of the integrated intervention program, the counseling group 1 received social skill integrated intervention focusing on parent - centered parent counseling. In the education group 2, social skill integrated intervention focusing on child - centered parent education was provided. The controlled group only conducted social skills training for the children with ADHD. Three groups were compared using pre-post-after post test and adopted the within and between group design (see Table 1).

Table 1

Experimental group	O1	X1	O2	O3
Comparison group	O4	X2	O5	O6
Controlled group	O7		O8	O9

X1: Social skill integrated intervention focusing on parent - centered parent counseling
X2: Social skill integrated intervention focusing on child - centered parent education
O1, O4 O7: Pre-test(Children's Emotional Adjustment Scale, Korean Child and Adolescent Rating Scale, Parenting attitude scale, Parenting stress scale)
O2, O5 O8: Post-test(Children's Emotional Adjustment Scale, Korean Child and Adolescent Rating Scale,Parenting attitude scale, Parenting stress scale)
O3, O6 O9: After post-test(Children's Emotional Adjustment Scale, Korean Child and Adolescent Rating Scale, Parenting attitude scale, Parenting stress scale)

1) Subjects

Table 2 showed characteristics of study participants in three groups.

Table 2 Brief characteristics of study participants

parent counseling group 1				parent education group 2				controlled group			
Subject #	Mother's Age	Child's age	Type of therapy receiving	Subject #	Mother's age	Child's age	Type of therapy receiving	Subject #	Mother's age	Child's age	Type of therapy receiving
A-1	38	9	-	B-1	50	12	medication psychotherapy	C-1	42	13	psychotherapy
A-2	41	10	psycho-therapy	B-2	39	8	-	C-2	44	12	psychotherapy
A-3	37	10	medication psycho-therapy	B-3	51	13	medication	C-3	42	13	medication psychotherapy
A-4	42	10	-	B-4	43	13	stop medication	C-4	42	9	medication psychotherapy
A-5	40	10	psycho-therapy	B-5	51	10	-	C-5	38	11	psychotherapy
A-6	35	9	stop medication psycho-therapy	B-6	43	9	medication	C-6	40	10	-
A-7	-	11	case attrition	B-7	39	13	psychotherapy	C-7	45	12	psychotherapy
A-8	45	11	-	B-8	40	12	-	C-8	47	10	-
A-9	-	case attrition	-	B-9	46	13	stop medication psychotherapy	C-9	45	10	psychotherapy
A-10	39	11	medication psychotherapy	B-10	43	9	psychotherapy	C-10	38	12	-

2) Social skills training for children with ADHD

The social skills training for children with ADHD was held on every Tuesday and Friday from December 2015 to February 2016. The program was carried out by 1 certified mental health social worker and 1 assistant in the counseling center. In the control group, only social skill training was provided for the children with ADHD and the integrated interventions were provided both parents and children on Thursdays.

Table 3 Social skills training for children with ADHD provided to all groups

# of session	Content	Comment
1	Orientation, Pre-test, Self introduction	
2	Concentration, raising team work (remembering the picture card and turn it over to match the card)	
3	Raising team work1 (matching puzzles)	
4	Rules (choosing your own rules that you can best keep)	
5	Knowing your feelings (speed quizzes using facial expressions, sharing your feelings with others using cards)	
6	Good friend behavior, bad friend behavior 1 (knowing good friend behavior and bad friend behavior and talk about their behaviors)	
7	Good friend behavior, bad friend behavior 2 (knowing good friend behavior and bad friend behavior and talk about their behaviors)	
8	Ceremony, Share your feelings, Post-test	

Table 4 Contents of parent-centered parent counseling group

# of session	Content	Comment
1	Orientation, Pre-test	
2	Talking about your first memory and feelings that you felt at that time	
3	Talking about your first memory and feelings that you felt at that time	
4	Talking about my relationship with my parents when I was a child, and who are closed to you and what the difference was.	
5	Talking about my relationship with my parents when I was a child, and who are closed to you and what the difference was.	
6	Talking about your parent's parental style and how your parent influence your current parenting style	
7	Talking about your parent's parental style and how your parent influence your current parenting style	
8	Share your feelings, post-inspection	

3) parent-centered parent counseling group (parent counseling group)

In the beginning of the intervention, 10 mothers and 10 children attended in the parent-centered parental counseling group. The mother group attended 8 sessions, which fo-

cused on issues related to parents (e.g., relationship between parents and neighbors, emotional management, and concerns). At the end of the intervention, 2 mothers dropped out and 8 subjects were successfully completed the intervention. Table 4 showed the program contents of this group.

4) Child-centered parent education group (parent education group)

10 mothers and 10 children with ADHD attended in the child-centered parent education group. The mother group attended 8 sessions, which focused on issues related to children with ADHD (e.g., issues in nurturing their children and tips for alleviating behaviors of children). Table 5 showed the program contents of this group.

Table 5 Contents of child-centered parent education group

# of session	Content	Comment
1	Orientation, Pre-test, Self introduction	
2	Understanding ADHD	
3	Progression of ADHD treatment	
4	ADHD medication and counseling treatment	
5	Children with ADHD and sociality at school	
6	Children with ADHD and sociality at home	
7	General description and questions	
8	Share your feelings, post-inspection	

2. Data Analysis

1) Children's Emotional Adjustment Scale

Children's emotional adjustment scale relates to strategies used to control emotion based on the definition of Calkins (1994). Lee (2001) revised the scale after conducting the validity and the reliability test. The revised scale is a 29-item Likert-type using 1 to 4 point for each item and the higher the score, the higher the emotional control ability.

2) Korean-Child Behavior Checklist

Korean-Child Behavior Checklist (K-CBCL) was translated and standardized by Oh et al. (1997) was applied in this study. The K-CBCL measures child's problem behaviors by parents. This scale consisting of social ability scale and problem behavior syndrome is a 113-item Likert-type that measures a child's behavior problem from a 0 to 3 point.

3) Parenting attitude scale

Kim (2000) constructed items to measure parenting behaviors based on the literature review, and developed the scale by conducting construct validity, content validity and factor analysis. The scale consists of 38 items with intimacy, rationality, control, overprotection, and neglect factors. Each item is scored on a Likert scale from 1 to 5 point by a father and a mother.

4) Parenting stress index

This study was used 30-item scale developed by Kim(2000) who revised the original Parenting Stress Index, Short Form (PSI / SF). The items are from 5 points from 'Not at all' to 'Really true'. The range of possible total points is from 20 to 100 points. The higher the score, the more mothers perceive parenting stress.

5) Perceived stress scale

This scale is composed of 10 items that revised by Eum (2004). It is a scale to assess the overall cognitive status of stress in an individual's daily life that threatens physical and psychological health or requires coping skills. The score ranges from 0 to 40, and the higher the score, the higher the perceived stress.

3. Data Analysis

For the statistical analysis, SPSS 20.0 was used. Levene's test was applied used to measure the homogeneity of the collected data. Multi-variate analysis was used to examine the differences among groups. In order to find the interaction between type of group (counseling group, education group, control group) and measurement period (pre, post, after post), the simple main effect analysis was conducted. The simple main effect analysis is useful tool as a post-validation method for examining the differences within groups and between groups.

Based on this, this study conducted multi-variate analysis and simple main effect analysis to investigate the differences between groups and measurement periods. At first, multi-variate analysis was performed to explore a significant differences between groups.

Ⅳ. Results

This study applied randomized control trial in order to explore the intervention effects bewteen groups. In applying randomized controlled trial, it is assumed that the normality and variance of the variables are the same. In order to verify the effectiveness of the integrated treatment, pre-post-after post test was performed between three groups and the Cohen *d* test was conducted to determine the effect size of the groups.

1. Homogeneity test between experimental and comparative groups

Table 6 Comparison of homogeneity between experimental and comparative groups

Category		Group	N	M pretest	SD	Levene	df	p
Child	Emotional regulation	Tx 1	8	3.00	.42	.503	2	.610
		Tx 2	10	2.97	.33			
		Control	10	2.85	.39			
	Paternal parenting behavior	Tx 1	7	2.87	.27	2.575	2	.099
		Tx 2	9	3.04	.29			
		Control	9	3.37	.62			
	Maternal parenting behavior	Tx 1	8	2.95	.38	.427	2	.657
		Tx 2	10	3.20	.28			
		Control	10	3.29	.56			
	Sociality	Tx 1	8	2.49	.41	.779	2	.470
		Tx 2	10	2.33	.49			
		Control	10	2.45	.70			
Parent	ADHD scale	Tx 1	8	1.31	.73	1,981	2	.159
		Tx 2	10	.96	.37			
		Control	10	1.01	.40			
	parenting stress	Tx 1	8	2.80	.35	2.977	2	.075
		Tx 2	10	2.89	.17			
		Control	10	2.84	.20			
	Perceived stress	Tx 1	8	2.48	.44	1.065	2	.360
		Tx 2	10	2.07	.34			
		Control	10	2.32	.29			
	state-trait anxiety	Tx 1	8	2.43	.16	.615	2	.549
		Tx 2	10	2.44	.14			
		Control	9	2.55	.18			

Note. Tx 1= parent counseling group 1 (social skill integrated intervention focusing on parent - centered parent counseling), Tx 2= parent education group 2 (social skill integrated intervention focusing on child - centered parent education)

Using the Levene's test, the experimental(parent counseling) and the comparison(parent education) groups were compared in the emotional regulation, parenting behavior, sociality, parents' ADHD scale, parenting stress, perceived stress, and state-trait anxiety. As a result of the Levene's test, no significant differences from the pre-test was found between the groups (p<.05). This means that the three groups are statistically homogeneous groups. Table 6 showed the demographic characteristics of each group.

2. Effectiveness of interventions on parent counseling group, parent education group, and control group

1) Behavioral changes on children with ADHD

Table 7 Results of differences between groups

Scale		df	SS	MS	F	p	Post-hoc analysis
Emotional regulation	Between group	2	.01	.01	.03	.968	
	Within group	23	3.71	.16			
	Total	25	3.72				
Paternal parenting behavior	Between group	2	2.44	1.22	2.71	.092	*treatment 1 vs. control
	Within group	19	8.56	.45			
	Total	21	10.99				
Maternal parenting behavior	Between group	2	5.87	2.93	6.87	.005	*treatment 1 vs. treatment 2 *treatment 1 vs. control
	Within group	23	9.82	.43			
	Total	25	15.69				
Sociality	Between group	2	.26	.13	.27	.768	
	Within group	22	10.70	.49			
	Total	24	10.96				

Note. *p<.05

As shown in Table 7, the parent counseling group 1 (social skill integrated intervention focusing on parent - centered parent counseling group) showed significant changes compared to the parent education group 2 (social skill integrated intervention focusing on child - centered parent education) and the control group (child therapy only). In particular, the

parent counseling group 1 showed more positive outcomes in the maternal parenting behavior (F=6.867, p<.01) compared to the parent education group 2 and the control group. There was a significant difference in the post analysis between groups. In addition, a statistically significant difference was found between the parent counseling group 1 and the controlled group (F=2.707, p>.05) in the paternal parenting behavior.

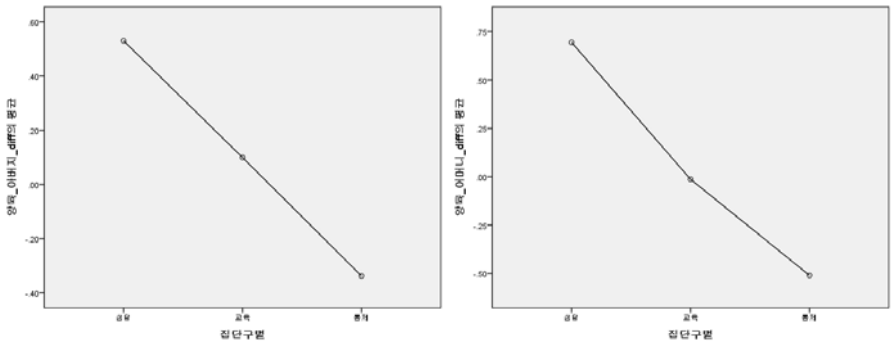

Figure 1 Average differences between father's and mother's parenting behaviors

2) Effect sizes of behavioral changes of children with ADHD

In order to compare effect sizes of children' behavioral changes between three groups, the Cohen d test was applied. As shown Table 8, medium effect sizes for paternal parenting behavior between groups were found (d=.73 and d=.70). Large effect sizes for maternal parenting behavior between groups were found (d=1.17 and d=1.66). Lastly, a medium effect sizes for sociality between groups were found (d=.78).

3) Parental behavioral change

As shown in Table 9, the parent counseling group 1 (social skill integrated intervention focusing on parent - centered parent counseling) showed significant changes compared to the parent education group 2 (social skill integrated intervention focusing on child - centered parent education) and the control group (child therapy only). In particular, the parent counseling group 1 showed a statistically significant difference in the parenting stress (F=6.503, p<.01) compared to the parent education group 2 and the control group. There was a significant difference in the post hoc analysis between groups. Also, the parent coun

Table 8 Effect sizes between three groups

	Emotional regulation					Paternal parenting behavior					Maternal parenting behavior					Sociality				
	Pre		Post		within group ES	Pre		Post		within group ES	Pre		Post		within group ES	Pre		Post		within group ES
	M	SD	M	SD		M	SD	M	SD		M	SD	M	SD		M	SD	M	SD	
Tx 1	3.00	.42	3.00	.33	.00	2.87	.27	3.60	.75	1.35	2.95	.38	3.64	.47	1.73	2.49	.41	2.68	.72	.35
Tx 2	2.97	.33	3.02	.48	.13	3.04	.29	3.14	.59	.23	3.20	.28	3.18	.37	.06	2.33	.49	2.30	.27	.08
Control	2.85	.39	2.99	.28	.43	3.37	.62	3.20	.34	.34	3.29	.56	2.91	.47	.77	2.45	.70	2.47	.86	.03
Group comparison					b/t group ES					b/t group ES					b/t group ES					b/t group ES
treatment 1 vs. treatment 2					.05					.73					1.17					.78
treatment 1 vs. control					.04					.70					1.66					.29
treatment 2 vs. treatment 2					.08					.13					.69					.31

Note. ES=effect size, <.2 (small), =.5 (medium), >.8 (large).

seling group 1 showed a statistically significant difference in the perceived stress (F=5.942, p<.01) compared to the parent education group 2 and the control group. There was a significant difference in the post hoc analysis between groups.

Table 9 Results of differences between three groups

Scale		df	SS	MS	F	p	Post hoc
ADHD scale	Between group	2	.04	.02	.06	.946	
	Within group	24	8.49	.35			
	Total	26	8.53				
Parenting stress	Between group	2	1.76	.88	6.50	.006	*treatment 1 vs. treatment 2 *treatment 1 vs. control
	Within group	24	3.25	.14			
	Total	26	5.02				
Perceived stress	Between group	2	3.52	1.76	5.94	.008	*treatment 1 vs. treatment 2 *treatment 1 vs. control
	Within group	24	7.11	.30			
	Total	26	10.62				
State-trait anxiety	Between group	2	.03	.01	.21	.815	
	Within group	24	1.44	.06			
	Total	26	1.46				

Note. *p<.05

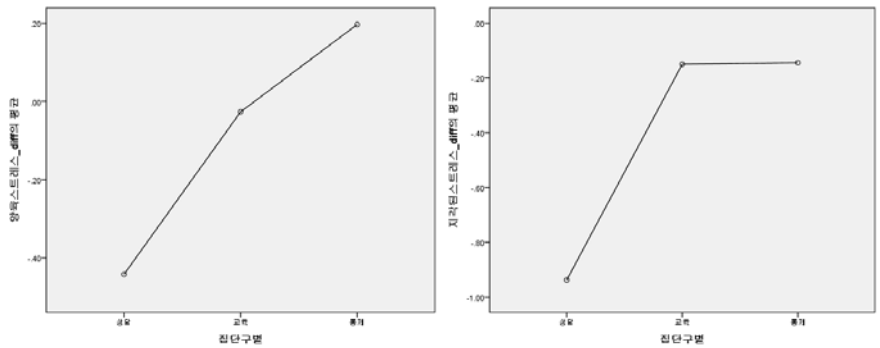

Figure 2 Average differences between parenting stress and perceived stress

Table 10 Effect sizes between the treatment group 1 and 2 and the control group

	ADHD scale					Parenting stress					Perceived stress					State-trait anxiety				
	Pre		Post		within group ES	Pre		Post		within group ES	Pre		Post		within group ES	Pre		Post		within group ES
	M	SD	M	SD		M	SD	M	SD		M	SD	M	SD		M	SD	M	SD	
Tx 1	1.31	.73	1.32	.57	.02	2.80	.35	2.36	.32	1.40	2.48	.44	1.54	.44	2.28	2.43	.16	2.32	.22	.61
Tx 2	.96	.37	.95	.35	.03	2.89	.17	2.86	.17	.19	2.07	.34	1.92	.23	.55	2.44	.14	2.38	.15	.44
Control	1.01	.40	1.01	.63	.00	2.84	.20	3.03	.32	.76	2.32	.29	2.18	.33	.49	2.55	.16	2.51	.19	.24
Group comparison					b/t group ES					b/t group ES					b/t group ES					b/t group ES
treatment 1 vs. treatment 2					.85					2.15					1.19					.35
treatment 1 vs. control					.55					2.23					1.77					.99
treatment 2 vs. treatment 2					.13					.71					.98					.81

Note. ES=effect size, <.2 (small), =.5 (medium), >.8 (large).

4) Effect size of behavioral changes of parents after completing treatment

In order to compare effect sizes of parents' behavioral changes between three groups, the Cohen d test was applied. As shown Table 10, large effect sizes for parenting stress between groups were found (d=2.15 and d=2.23). Also, large effect sizes for perceived stress between groups were found (d=1.19 and d=1.77). Lastly, large effect sizes for ADHD scale for parents (d=.85) and state-trait anxiety (d=.99) were found.

Ⅴ. Discussion

The purpose of this study was to examine the effects of integrated interventions for children with ADHD and their parents in changing the levels of behaviors of children with ADHD and parental stress. In order to explore effectiveness of the integrated intervention, three groups were compared. The social skill integrated intervention focusing on parent - centered parent counseling was provided to the experimental group 1. In the compared group 2, social skill integrated intervention focusing on child - centered parent education was applied. The controlled group only conducted social skills training for the children. For the data analysis, pre-post - after post test was applied. The results of this study are following that:

First, ANOVA and pre-post test were conducted to explore the effects of the integrated interventions on the child's behaviors. There were significant differences between the groups. In particular, the parent counseling group showed a statistically significant difference in the maternal parenting behavior (F=6.867, p<.01) compared to other groups. A significant difference was found in the post analysis between groups.

Second, the effects of social skill integrated intervention focusing on parent - centered parent counseling group on the child's behavior were found. This result seemed to have a positive effect on parental behaviors, which are closely related to the child's behaviors. In fact, during the consultation, mothers of children with ADHD often ask many questions and solve their difficulties (e.g., anger and anxiety about the behavior of the child). By talking to each other including experts in the consultation, mothers could reduce their anger

and stress from the child.

Third, in the post hoc analysis, the parent - centered parent counseling group showed significant positive changes compared to the other groups. In particular, the parent counseling group showed a statistically significant difference in the parenting stress (F=6.503, p<.01) compared to the parent education group and the control group. There was a significant difference in the post hoc analysis between groups. Also, the parent counseling group showed a statistically significant difference in the perceived stress (F=5.942, p<.01) compared to the parent education group and the control group. There was a significant difference in the post hoc analysis between groups.

Fourth, in the analysis of parents' behavioral changes between three groups, large effect sizes for parenting stress between groups were found (d=2.15 and d=2.23). Also, large effect sizes for perceived stress between groups were found (d=1.19 and d=1.77). Lastly, large effect sizes for ADHD scale for parents (d=.85) and state-trait anxiety (d=.99) were found.

Based on these results, the integrated intervention focusing on parent - centered parent counseling group is effective for reducing children' problematic behaviors and improving parental behaviors compared to other interventions. Also, the integrated intervention with parent - centered parent counseling group is more effective than the social skills intervention and child-centered parent education.

As emphasis of Larson (2011), integrated interventions would be provided to reduce caregivers' tensions, responsibilities, and reactions. Many parents of children with ADHD have high parenting stress, which affect their children as well as themselves negatively because of burn-out, frustration, and depression that they can not solve issues of their children using their own strengths (Choi & Kwon, 2013). Applying social skill integrated intervention focusing on child - centered parent education is useful to reduce parents' stress, improve energy, and alleviate children' problematic behaviors. Although other intervention focusing on the child- centered parent education tends to influence parents' stress level (Min, 2008), child-centered parent education including supports and educations are critical to alleviate their own stress and burn-out and improve supports between parents (Choi, 2001; Jo, 2008), which are same results of this study's findings.

Recently, the rapid increasement of the number of children with ADHD is a burden of

parents and family members and has become a social problem. Although many parents are seeking early intervention when ADHD symptoms would be shown, they lack information about the appropriate programs and the effectiveness of the treatments. In particular, the degree of behavioral exposure of children with ADHD is closely related to the mother's parenting attitudes and parenting stress. Due to this relationship, child- and parent-centered parent education would be provided in the practice at the same time. Although the integrated intervention is provided, mother's parenting stress and attitude may not change significantly. The reason of this tendency is that the treatment is focused on children rather than on parents' behaviors so that the treatment focusing on children' behaviors has been interrupted and resumed repeatedly. In this regard, some suggestions would be provided as following:

First, it is necessary to identify the treatments provided to parents and children with ADHD, and to analyze, review and revise interventions programs for maximize effectiveness.

Second, although early intervention for children with ADHD is important in the social welfare practice, stress management for parents should be also added in the interventions because a quality of child care and parental stress level are closely related each other. In addition, it is critical to provide information on appropriate treatment and multiple supports. Stress and anxiety management programs for parents should be developed in order for improving a quality of child care. Practitioners should provide positive reinforcement and supports to the parents rather than pointing out their mistakes. A plan for the parents to change their negative attitudes of ADHD to positive ones is required.

Third, in parenting children with ADHD, parents experience both hopes and anxiety. Parenting process involves anxiety and stress about the future of the children. Also, this process includes happiness and hopes in growing their children. In order to minimize stressful situations of parents, parent counseling should be provided commonly in any kinds of interventions. It is necessary to identify the specific needs of family members through wide studies from the government.

Fourth, parents of children with ADHD who participated in this study became friends and unconditional supporters more than anyone. When the program ended, they expressed regret each other that they could not see again. In the aspect of community social welfare,

space and opportunity would be provided for parents of children with ADHD in order to share their experiences and anxieties as peer counselors.

Fifth, asking only mothers to nurture their children without fathers can be a gender discrimination. Community efforts to become collective parents in the social welfare field will be needed.

Finally, this study focused on only elementary school students, so it is limited to apply study findings in multiple target populations, especially middle school and high school students. Based on the limitations of this study, the future study focusing on different age groups and genders would be conducted.

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