

The Effect of Attention and Coping Skills Training on Attention Deficit and Hyperactivity Disorder Students' Attention and Coping Skills

Şerife Şenay İlikⁱ

Necmettin Erbakan University

Abstract

This study aims to examine the effect of attention and coping skills training on the improvement of attention and coping skills of inclusive students with Attention Deficit and Hyperactivity Disorder. It was conducted through the mixed method by using the quantitative and qualitative methods together. This study was conducted with the permission of Konya Provincial Directorate of National Education in the 2018-2019 education year. The participants were students with Attention Deficit and Hyperactivity Disorder and their parents. The current study lasted 10 weeks in the spring of 2018-2019 education year. The data were collected through the Stroop TBAG test, Cancellation Test, KidCOPE Scale, and Parent Interview Form. A statistically significant difference is found between the pretest and posttest scores of positive coping, anger accusation and avoidance points ($p < 0,05$). Consequently, it is found that the training has a positive effect on the coping skills of children. The results of the Turkish version of the cancellation test show a significant difference between the experimental group's pretest-posttest results in all sub-tests except regular letters total scanning, irregular letter number of wrong targets and regular letters number of canceled targets sub-test. The pretest and posttest Stroop test results of the experimental group shows that there is a significant difference in many subtests. However, section 3 error and time, section 4 error and section 5 correction subtests are found insignificant. A significant difference is found in all the others. In the interviews with the families, it was determined that the education process had positive contributions to the coping skills of the children.

Keywords: Attention Deficit and Hyperactivity Disorder, Attention Education, Coping Skill

DOI: 10.29329/ijpe.2021.329.17

ⁱ Şerife Şenay İlik, Assist. Prof. Dr., Special Education, Necmettin Erbakan University, ORCID: 0000-0001-7092-379X

Email: senayilik@gmail.com

INTRODUCTION

Attention Deficit and Hyperactivity Disorder (ADHD) which is characterized by attention, hyperactivity and impulse control disorders is one of the most common problems of childhood. ADHD, known commonly as a childhood disorder, is a developmental disorder. Attention and activity problems which are not suitable for the developmental period arise clearly in the childhood period (Polderman et al. 2010). Rarely, the first symptoms do not arise until the age of 5-6. Impulsive behaviors increase in the puberty. When the entire school-age considered, studies comparing the students with ADHD and typical students show that students with ADHD have more psychological problems and that their academic achievement is lower (Hudziak et al. 2007). Besides, these students have more problems with other individuals and experience social exclusion because of the reasons like having difficulty in answering social clues. Moreover, it is thought that students with ADHD bear this problem to their adulthood, that these individuals show a lack of attention, impulsive behaviors and hyperactivity, and that the course of some of the behaviors change (Lubke et al. 2009).

The neuropsychological studies indicate that ADHD stems from the frontal lobe, the center for executive functions. Executive functions system contains functions related to working memory such as setting goals, making plans to reach that goal, applying the plan, making changes in the plan by considering the feedbacks, being able to control desires, passing from topic to topic, organizing his attention, coping with distractors (Barkley, 2006; Klein et al., 2000). Any damage to this area results in deterioration in many skills. The indicators of dysfunction of executive functions can be listed as follows; difficulty in arranging processing speed, unable to concentrate, not maintaining the attention, reading problems, not setting the priorities which helps someone to do their work according to the order of importance, not organizing which helps to produce quality work in a shorter time, difficulty in controlling emotions, intolerance to be restrained and difficulty in dealing with stress (Barkley, 2006).

Coping skill, one of the executive function skills, is the cognitive, emotional and behavioral responses that someone performs to get rid of the situation making him stressed (Folkman et al., 1986). Children whose coping skills are not developed fully do not control their emotions, so they anger easily, do not control their level of anger and react exaggeratedly. This causes frequent anger crisis in various environments such as home and school (Ylvisaker and DeBonis, 2000; Barkley, 2006).

Several factors affect coping skills in children. Coping skills depend on many factors such as age, gender, culture, and illness and they bear personal qualifications. Other factors that contribute to the development of coping skills are social support, parents' characteristics, peer relations, and family functions (Skinner and Zimmer, 2007). When the lack of social skills of students with ADHD and their conflicts with their parents, peers, and parents are considered, it can be said that there are certain differences in their coping skills (Edwardss et al., 2001). Furthermore, students with ADHD have problems in arranging their attention and it affects their coping skills.

When the studies conducted in the field are examined, a lot of studies have been found regarding improving coping skills (Babb ve ark., 2010; Büyükaslan, 2015; Gonzalez & Sellers, 2002). These studies were conducted on students with ADHD as well as typical students. It was found that the diversity of coping attitudes and coping strategies of students with ADHD are lower. It is thought that psychoeducational programs improving coping attitudes and flexibility are needed (Babb et al., 2010; Büyükaslan, 2015). Moreover, there are studies aiming to improve the attention skills of children with ADHD (Özdoğan, 2001; Döpfner, 2000; Döpfner ve Lehmkuhl, 2002; Döpfner ve Lehmkuhl, 2005; Lauth ve Fellner, 2004; Özmen, 2011; Karaduman, 2004; Özmen, 2011; İlik, 2017; Minder, Zuberer, Brandeis & Drechsler, 2019; Orylska, Hadwin, Kroemeke and Sonuga-Barke, 2019). However, no study is found on the improvement of both attention and coping skills which are caused by executive functioning problems. In light of the studies in the literature, it is thought that handling these two skills together may positively affect the academic and social life of students with ADHD. Therefore, this study aims to improve the attention and coping skills of children with ADHD

by providing them attention and coping skills training. In accordance with this purpose, the following questions were asked;

1. Do attention and coping skills training positively affect coping skills?
2. Do attention and coping skills training positively affect attention skills?
3. What are the views of families regarding the effect of attention and coping skills training on attention and coping skills?

METHOD

Model of the Study

This study aims to examine the effect of attention and coping skills training on the improvement of attention and coping skills of inclusive students with ADHD. It was conducted through the mixed method by using the quantitative and qualitative methods together. Using two or more data collection methods together is called the mixed method (Greene, Krayder and Mayer, 2005).

In the present study pretest-posttest quasi-experimental design, one of the quantitative research methods, was used on students with ADHD. Experimental models make it possible to study on homogeneous groups and they contribute to the determination of the real effect of the experimental process (Büyüköztürk, 2012). The quantitative method was used to identify the effect of coping and attention skills training applied to students with ADHD.

The descriptive method, one of the qualitative research methods, was used to identify the views of families regarding the effect of attention and coping skills training. Data is collected through a semi-structured interview technique. The qualitative method was used to identify the reflection of the training provided to students with ADHD in the home environment according to the views of parents.

Study Group

This study was conducted with the permission of Konya Provincial Directorate of National Education in the 2018-2019 education year (permission No: 83688308-605.99-E.1030635). The participants were students with ADHD and their parents.

Participant students were chosen in two stages. In the first stage, students who know reading and writing, study in third grade and have ADHD were determined. In the second stage, students bearing these qualifications were chosen through the random sampling method. Accordingly, 22 students were chosen for the experimental group. Necessary permissions were received from students' parents.

The qualitative dimension of the study was composed of the parents of students who participated in the experimental stage. 18 mothers and 4 fathers participated in the study. Parents willingly participated in the study.

Data collection tools

The current study lasted 10 weeks in the spring of 2018-2019 education year. The data were collected through the Stroop TBAG test, Cancellation Test, KidCOPE Scale, and Parent Interview Form.

Stroop Test TBAG Form

Stroop Test is a scale which provides information about several cognitive processes such as selective attention, focused attention, response inhibition, interference control, and data processing speed and it is accepted that it could reflect activities which are closely related to the frontal lobe and many other parts of the brain (Karakaş et. al., 1999; Yalçın vd., 2012).

Stroop Test is a neurologic test which was developed by Stroop in 1935 (Karakaş, Dinçer, 2009). Stroop Test TBAG form (TBAG is composed of the first letters of “TUBİTAK Temel Bilimler Araştırma Grubu” which means Scientific and Technological Research Council of Turkey Basic Sciences Research Group) is a test which is developed by combining the original Stroop Test with Victoria form and it is included in the BİLNOT battery. The reliability and validity studies of the Turkish version were conducted by Karakaş et al. (1999)

Cancellation Test

The Cancellation Test was developed by Mesulam in 1985 (Lezak, 1995). It was adapted to Turkish by the Scientific and Technological Research Council of Turkey within the scope of the “Standardization of Neuro-psychological Test” project. Cancellation Test is a sustained attention test and it also measures behaviors such as visual scanning, response speed, inhibiting quick responses. With the test, the number of canceled targets, the number of skipped targets, the number of wrongly canceled targets and scanning time are calculated. 101 subjects participated in the reliability and validity studies of the Test. The test-retest method was used to calculate reliability and it was found that reliability coefficient changes between .45 and .83 (Kılıç, Irak, Koçkar, Şener, Karakaş, 2002). The results of the study revealed that age is a significant variable while gender displays an irregular design.

KidCOPE

KidCOPE is a 15-item scale which is developed by Spirito et al. to measure the coping skills of children (Spirito et al., 1988). The validity and reliability study of the Turkish version of the scale was conducted by Gökler in 2001(cited in., Gökler, 2001). 8 items were grouped under “positive coping” subscale and inner reliability was found as 0.72, 4 items were grouped under “anger and accusation” subscale and inner reliability was found as 0.60 and lastly, 2 items were grouped under “avoidance” subscale and inner reliability was found as 0.47. Item 13 was excluded because of the low factor load (Ercan, 2003).

Parent Interview Form: Parent interview form was developed to interview with parents. In the first step of the development process, a draft was prepared by examining the studies regarding the literature. In the second step, 9 questions suitable for the study were written in light of the relevant literature. In the third step, the form was examined by three specialists who are experienced in qualitative studies. In line with their feedbacks questions were corrected and 5 of them were excluded. The edited form was re-sent to the specialist. In the fourth step, in accordance with the suggestions of specialists, the form was made ready for the pilot study with four questions. In the fifth step, the pilot study was conducted on two parents and in line with the views of teachers some corrections were done on the form and one question was excluded. The final version of the semi-structured interview form composed of three questions. In the interviews parents’ views about coping and attention skills of their children were collected. The interviews were recorded with the permission of the participants. The recordings were transcribed and analyzed through descriptive analysis.

In the data collection process, first of all, the parents were asked whether they want to be interviewed or not. The qualitative data of the study were collected from the parents of the students participated in the experiment at the beginning and end of the experimental process. The semi-

structured interviews lasted 15-30 minutes. The aim of the study explained clearly to the parents before the interviews.

Process

At the beginning of the training Stroop Test TBAG Form, Cancellation Test, and KidsCOPE were applied to both control and experimental groups. Interviews were done with the parents of children in the experimental group. The study was conducted in groups in the support education rooms of three different schools.

The content and the objectives of attention and coping skills training program was listed from simple to complex by the researcher after a literature search. Then the process of developing a ten-week training program started. In the process of preparing the content of training, books about strengthening attention such as “Training mit aufmerksamkeits-gestörten Kindern” by Lauth and Schlottke (2002), “Dikkati Güçlendirme and Hafızayı Geliştirme (Strengthening Attention and Improving Memory)” by Başaran (2010) were benefitted. After getting the opinions of three specialists regarding the content, the activities were prepared by the researcher. An activity book for the training was prepared.

The developed training program was implemented by the researcher in the spring term of the 2018-2019 education year. The ten-week training program was implemented in 20 sessions, two sessions for each week. After the training, Stroop Test TBAG Form, Cancellation Test, and KidsCOPE were implemented to the experimental group. The interview form was re-implemented on the parents of the students in the experimental group. Qualitative and quantitative analysis techniques were conducted to determine whether the training program improves the attention and coping skills of students. The brief contents of Attention and Coping Enhancement Training Sessions are given below.

Table 1. Attention and Coping Enhancement Training Sessions

Sessions	Activities for Coping Skills Enhancement	Activities of Attention Enhancement
1 st Session	Implementation of KidCOPE, A brief information about the objectives of the training	Implementation of Stroop test TBAG form and Cancellation Test, A brief information about the objectives of the training
2 nd Session	They are made aware of their needs regarding coping skills by talking about the difficulties they experienced in coping.	They are made aware of their needs regarding attention skills by talking about the difficulties they experienced in attention. Attention activities
3 rd Session	Coping Activities	Attention activities Reading a short text.
4 th Session	Coping Activities	Attention activities Reading a short text.
5 th Session	Coping Activities	Attention activities Reading a short text.
6 th Session	Activities regarding coping strategies are done through sample cases	Attention activities Reading a short text. Analyzing a text they read through the story mapping technique.
7 th Session	Activities regarding coping strategies are done through sample cases	Attention activities Reading a short text. Analyzing a text they read through the story mapping technique.
8 th Session	Activities regarding coping strategies are done through sample cases	Attention activities Reading a short text. Analyzing a text they read through the story mapping technique.
9 th Session	They are asked to list situations they encounter at home and school and suitable coping strategies are mentioned.	Attention activities Writing a text by using the story mapping technique.
10 th Session	They are asked to list situations they encounter at	Attention activities

	home and school and suitable coping strategies are mentioned.	Writing a text by using the story mapping technique.
11 th Session	They are asked to list situations they encounter at home and school and suitable coping strategies are mentioned.	Attention activities Writing a text by using the story mapping technique.
12 th Session	Implementation of KidCOPE, A brief information about the objectives of the training	Implementation of Stroop test TBAG form and Cancellation Test

Data Analysis

For the analysis of the quantitative data of the study, SPSS 18.0 for Windows program was used. Since the Kolmogrov-Smirnov tests of normality are found as $p > 0,05$, parametric statistics were used in the analysis. To find out the relation between the pre-test and post-test of each group, paired sample t-test, one of the parametric statistic technique was used.

Table 2. Kolmogrov Simirnov Tests of Normality

	Test Value	P
Positive Coping Pre-Test	0,168	0,110
Anger and Accusation Pre-Test	0,151	0,200
Avoidance Pre-Test	0,232	0,052
Positive Coping Post-Test	0,176	0,080
Anger and Accusation Post-Test	0,196	0,053
Avoidance Post-Test	0,181	0,060
STH Ö	0,195	0,053
STS Ö	0,084	0,200
STD Ö	0,241	0,062
STH S	0,19	0,060
STS S	0,143	0,200
STD S	0,164	0,130
DH Ö	0,174	0,080
DS Ö	0,15	0,200
DZH Ö	0,143	0,200
DZS Ö	0,111	0,200
DH S	0,196	0,053
DS S	0,136	0,200
DZH S	0,137	0,200
DZS S	0,12	0,200

After the interviews had completed, the researcher transcribed the voice records without making any changes. The transcribed interviews were evaluated one by one. The obtained data were analyzed through descriptive analysis, one of the qualitative analysis methods.

FINDINGS

Table 3. Experimental Group KidCOPE Pretest – Posttest Results

KidCOPE		Mean	Sd	t	P
Positive Coping	Pretest	14.9091	2.1136	-3.419	0.003
	Posttest	16.8636	2.1667		
Anger and Accusation	Pretest	8.7727	1.5409	4.375	0.000
	Posttest	7.0000	1.5430		
Avoidance	Pretest	2.9245	1.1329	-5.936	0.000
	Posttest	4.4545	1.0107		

P paired sample t-test

A statistically significant difference is found between the pretest and posttest scores of positive coping, anger accusation and avoidance points ($p < 0,05$). Consequently, it is found that the training has a positive effect on the coping skills of children.

Table 4. Descriptive Statistics of the Points Students Get from the Turkish Version of Cancellation Test

Turkish Version of Cancellation Test		Pretest				Posttest				P
		Mean	Sd	Min.	Max.	Mean	Sd	Min.	Max.	
Regular letters Subscale	Number of marked targets	50,3636	8,1448	34	60	53,6818	5,1491	44	60	0.001
	Number of cancelled targets	8,0000	6,8591	0	26	5,8636	4,8628	0	16	0.002
	Number of wrongly marked targets	1,1818	1,7358	0	6	0,4545	0,5958	0	2	0.012
	Number of total errors	9,1818	7,5001	0	26	6,7727	6,3466	0	26	0.001
	Scanning span (second)	248,5909	11,7772	180	360	235,3636	10,947	170	328	0,097*
Regular Figures Subscale	Number of marked targets	54,3182	5,7849	39	60	56,0455	4,1802	45	60	0.015
	Number of cancelled targets	4,1818	3,9477	0	15	2,4545	2,4442	0	10	0.000
	Number of wrongly marked targets	1,8182	2,1300	0	8	1,0455	1,2141	0	5	0.006
	Number of total errors	6,0000	5,7735	0	21	3,5455	3,3626	0	12	0.000
	Scanning span (second)	232,4545	12,0937	138	321	218,9091	10,413	138	307	0,004
Irregular letters Subscale	Number of marked targets	52,8182	5,8361	41	60	56,0000	3,1923	48	60	0.001
	Number of cancelled targets	6,1364	5,0455	0	19	3,9091	3,0847	0	12	0.000
	Number of wrongly marked targets	0,1364	0,3513	0	1	0,0909	0,2942	0	1	0.329*
	Number of total errors	6,2727	5,0914	0	19	4,0000	3,1923	0	12	0.000
	Scanning span (second)	268,2727	7,7994	205	323	245,6818	10,106	155	323	0,029
Irregular Figures Subscale	Number of marked targets	55,3636	3,5260	49	60	56,1818	2,3019	52	60	0.122*
	Number of cancelled targets	4,2273	2,4482	0	8	3,0455	1,7314	0	5	0.000
	Number of wrongly marked targets	1,3636	1,3988	0	4	0,7727	0,9223	0	3	0.001
	Number of total errors	5,5000	3,5153	0	11	3,8182	2,3019	0	8	0.000
	Scanning span (second)	232,7273	12,6778	122	352	219,8636	11,374	105	300	0,003

P paired sample t-test: No difference

The results of the Turkish version of the cancellation test show a significant difference between the experimental group's pretest-posttest results in all sub-tests except regular letters total scanning, irregular letter number of wrong targets and regular letters number of canceled targets sub-test.

Table 5. Pretest Stroop Test TBAG Form Regarding the Groups

Stroop Test TBAG Form		Pretest		Posttest		p value
		Mean:sd	Median Min-max	Mean:sd	Median Min-max	
Section 1	Error	0.2273	0.000	0.0909	0.000	0.004
		0.4289	0.000 1.000	0.2942	0.000 1.000	
	Time	24.7809 3.2984	25.2650 19.000 30.000	21.9545 2.4587	22.500 18.000 27.000	0.000
Section 2	Error	0.1364	0.000	0.0455	0.000	0.008
		0.3512	0.000 1.000	0.2132	0.000 1.000	
	Time	22.6100 7.7705	21.500 11.970 32.000	20.4545 6.9263	17.500 10.000 30.000	0.000

	Correction	0.5455 0.5096	1.000 0.000 1.000	0.2273 0.4289	0.000 0.000 1.000	0.019
Section 3	Error	0.3182 0.4767	0.000 0.000 1.000	0.1364 0.3512	0.000 0.000 1.000	0.374*
		Time	29.5205 5.4668	30.000 20.000 38.400	27.1364 5.6442	26.500 18.000 36.000
	Correction	0.5445 0.5958	0.500 0.000 2.000	0.2727 0.4558	0.000 0.000 1.000	0.024
Section 4	Error	0.4091 0.5032	0.000 0.000 1.000	0.2727 0.4558	0.000 0.000 1.000	0.145*
		Time	38.7982 9.4806	42.500 22.000 52.000	35.3636 9.4845	40.000 21.000 51.000
	Correction	0.9091 0.6837	1.000 0.000 2.000	0.9091 0.6837	1.000 0.000 2.000	-.**
Section 5	Error	3.9091 4.8394	2.000 0.000 18.000	1.7727 2.0220	1.000 0.000 6.000	0.000
		Time	42.5268 12.5396	44.000 23.000 60.000	31.500 11.6812	29.500 14.000 55.000
	Correction	3.1364 2.3763	2.000 1.000 8.000	1.3636 0.9534	1.500 0.000 3.000	0.084*

The pretest and posttest Stroop test results of the experimental group shows that there is a significant difference in many subtests. However, section 3 error and time, section 4 error and section 5 correction subtests are found insignificant. A significant difference is found in all the others.

Qualitative Findings

This section presents the thoughts of parents regarding the coping and attention skills of children before and after the training.

Views of parents before the coping and attention skills training

Views of parents regarding the question: “what does your child do when he encounters an unpleasant situation?”

Most of the parents answering this question (18) stated that their child harms himself and damages their environment. Some of the parents (4) expressed that their child harms another person or the person he gets angry with.

“He keeps quiet, gets offended or cries”

“He screams, hits somebody or swears”

“He explains his thoughts and says I don’t want it”

“he has a nervous breakdown, throws himself to the floor or damages the furniture”

“He has a nervous breakdown until he gets what he wants”

**Views of parents regarding the questions: “Is your child treated badly by his friends?
And does he share it with you?”**

Most of the parents (15) stated that their child is being alienated and often mocked by others. Some of the parents (5) expressed that his teacher intervened when something unpleasant happens and do not let the incident lasts any longer. A few parents (2) said that they didn’t have any problems.

“mostly he is mocked by his friends, he always tells when he comes home”

“always tells but if he understands that he isn’t being listened carefully, he doesn’t tell”

“never tells, I hear bad incidents from others and his teacher”

“We never have this kind of problem”

“his classmates accepted his problems, so he isn’t treated badly”

“He had a few problems with his friends, but he doesn’t tell, I read it from his face. When I ask, he accepts”

“He remains passive beside others. He is disturbed by the actions of others. He abstains and scares.”

Views of parents regarding the question: “Does your child blame himself for a bad event he experiences?”

While more than half the parents (16) expressed that their child blames himself no matter what happens, others (6) stated that he never blames himself and this is worrying.”

“I didn’t notice anything special but when something happens he doesn’t dwell on it”

“usually blames others”

“feels sorry, that is, he fears to be ashamed and other things than blames himself.”

“When he is guilty accepts it, besides he never blames himself”

Views of parents regarding the question: “what are the reflections of the bad treatment your child experiences on his behaviors at home?”

Parents stated that their child withdraws into himself (7), behaves aggressively (9), and never cares about. However, it is observed that the parents whose children do not reflect the bad treatment he experiences at home were worried. These parents stated that they expect their children to be sorry a little but his being not sorry make them worry.

“he doesn’t show immediately. We understand from his behaviors”

“he tries to do the same to his siblings at home.”

“when he fights, he feels sorry and always talks about it at home.”

“We don’t feel anything different. We don’t know is it because he doesn’t show or he doesn’t dwell on it.”

“Becomes aggressive”

Views of parents after coping skills training

Views of parents regarding the question: “what does your child do when he encounters an unpleasant situation?”

Most of the parents answering this question reported that when compared to before training their child’s nervous breakdowns get rarer. Some of the parents stated that their child’s aggressive behaviors continue and that he continues to damage the furniture but harms himself less than before.

“my son usually gets angry very quickly, so he behaves recklessly. However, for a while, he gets angry but does not respond hastily.”

“The biggest effect of the training is that my child learned to listen to people. Although he doesn’t always behave properly, I think this is an important improvement.”

Views of parents regarding the questions: “Is your child treated badly by his friends? And does he share it with you?”

It is found out that the answers to these questions changed when compared to before training. Parents thought that their child may still be treated badly but their child’s response to this treatment changed.

“This situation was the most worrying one. When compared to before training, now he tells every single thing to us.”

“My son shared nothing with me. I learned these things from his teacher. But now, he tells me the situation and we think about a solution together.”

Views of parents regarding the question: “Does your child blame himself for a bad event he experiences?”

“After the training parents expressed that their child’s behavior of blaming himself comes at a reasonable level. That is, he doesn’t blame himself for every situation.”

“not to create a problem, he always blamed himself and behaved timidly. But now, he becomes far better.”

“After the training, I realized that he observes events better than before. His not blaming himself for anything was worrying. He behaved as if he didn’t experience anything. But now it isn’t so.”

Views of parents regarding the question: “what are the reflections of the bad treatment your child experiences on his behaviors at home?”

All the parents stated that there is a certain change of behavior when compared to before training. Parents reported that formerly, their child gives meaningless responses, now like a typically developing child he feels sorry when he must feel sorry. In short, it is found out that they are more skillful in coping with a problem.

“he starts to tell the event he experienced either to his teacher or person he has the problem with. His teacher mentions this very often. Therefore, the crying spells whose reason we didn’t know are over.”

“Now, he doesn’t reflect negatively at home. Sometimes he reflects negatively but when I ask what happened, he tells easily.”

DISCUSSION AND RESULT

This study investigated the effects of attention and coping skills training on the attention and coping skills of children. Moreover, to determine the reflection of this training to home, interviews were conducted with parents.

Coping skills can be defined as the adaptation of the individual to the situations which include cognitive, emotional and behavioral efforts to reduce stress and manage negative emotions (Folkman S Lazarus RS Gruen RJ DeLongis,1986). Levine, Arseneault, (2010) examined the coping skills of children and found out that children with ADHD have more problems in coping and that these problems negatively affect other social characteristics of children. Hampel, Monhal, Roos and Desman, (2018) revealed that children with ADHD have problems in coping. In another study, it was found out that the coping problems of children with ADHD are an important factor in the stress level of families (Buathang, Pityaratstion and Unhalekhaka, 2019). In the previous studies, it was discovered that children with ADHD have more problems in coping than their peers. It was revealed that coping problems of children negatively affect both the lives of children and other family members.

In their study examining the coping skills of children with ADHD Bastian et. al. (2005) found out a significant difference between the coping skills and academic success, attention, life satisfaction and problem-solving skills (Bastian et. Al., 2005; Büyükaslan, 2015). Gonzalez and Sellers (2002) revealed that coping skills training has a positive effect on coping skills, academic success and social functions of children with ADHD. In the present study, the KidCOPE test was used to evaluate the coping skills training and a significant difference between the pretest and posttest scores. It is found that the training has a positive effect on the coping skills of children with ADHD.

That the attention activities activate more than one mental area results from the relationship between the attention process and working memory (Duncan et. al., 2007). Furthermore, careless signs may prevent the students from improving the skills which are frequently needed in learning higher-order skills (Breslau et. al., 2009). Studies show that attention problems of children with ADHD have a direct negative effect on their academic success. This becomes very important in the development of other social problems (Zeeuw, Beijsterveldt, Ehli, Geus & Boomsma, 2017; Graham, 2017). The attention problem of the student results in academic failure. Academic failure causes the student to lose his motivation and many factors that affect each other like this one create new behavioral and psychological problems. Therefore, it is thought that the attention problem, the beginning of the cycle, is the basic problem which must be dwelled upon carefully. Studies show that attention problems can be solved with various training (Breslau et. al., 2009; Zeeuw, Beijsterveldt, Ehli, Geus & Boomsma, 2017).

In this study, we conducted a training to improve attention skills in the light of the literature. At the end of the study, it was found out through Stroop and cancellation tests that the attention skills of children attending attention training improved significantly. Significant results were found for most

of the subtests. This result has similarities with experimental studies which emphasize school-based intervention methods applied in ADHD and which reveals the importance and efficiency of operant conditioning and cognitive methods (Döpfner, 2000; Döpfner and Lehmkuhl, 2002; Döpfner and Lehmkuhl, 2005; Frölich, Döpfner and Lehmkuhl, 2002c; Lauth et. al., 2005). Özmen (2011) examined the effects of multiple training applications on students with ADHD and found similar results. Stated that attention improvement training they conducted produce efficient results on groups.

Another finding of the present study is the views of parents regarding the improvement of coping skills of their children. According to the views of parents, before the coping skills training, most of the parents were worried about the fact that their children didn't respond correctly to the difficulties they encounter. This makes parents feel helpless and hopeless about the future. However, it was found out that after the training, most of the parents thought that their children's behaviors improved and that they have positive views regarding the development of their children. When the literature reviewed, no study has been found on views of parents regarding the coping skills training their children got. With this aspect, the present study is thought to shed light on further studies. The fact that the reflections of an application were noticed by the parents indicates that the generalization of the study grows stronger. On the other hand, the expectation of the parents may positively affect the results and this is one of the limitations of the study.

This study is of great importance since it deals with both coping and attention skills and it is thought that it will contribute to the literature. In this regard, attention and academic problems are not the only problems of a child with ADHD, so it is thought that it is important for further studies to deal with other executive functions of children with ADHD.

REFERENCES

- Babb, K. A., Levine, L. J., Arseneault, J. M., (2010). Shifting Gears: Coping Flexibility in Children with and Without ADHD. *International Journal of Behavioral Development*, 34 (1), 10–23, DOI: 10.1177/0165025409345070
- Barkley, R.A. (2006). Attention-Deficit/Hyperactivity Disorder. Eds.: Wolfe DA, Mash EJ. Behavioral and Emotional Disorders in Adolescents: Nature, Assessment, and Treatment. *The Guilford Press, Newyork London*, 91-153.
- Bastian, V. A., et al. (2005). "Emotional Intelligence Predicts Life Skills, But Not as well as Personality and Cognitive Abilities." *Personality and individual differences* 39(6), 1135-1145.
- Başaran, H. A. (2010). Dikkati Güçlendirme ve Hafızayı Geliştirme İlköğretim. *İstanbul: Başaran Yayınları*.
- Blackman, G. L., Ostrander, R., & Herman, K. C. (2005). Children with ADHD and Depression: A Multisource, Multimethod Assessment of Clinical, Social, and Academic Functioning. *Journal of Attention Disorder*, 8 (4), 195-207.
- Breslau J, Miller E, Breslau N, Bohnert K, Lucia V, Schweitzer J.(2009). The Impact of Early Behavior Disturbances on Academic Achievement in High School. *Pediatrics*,123(6):1472–1476.
- Büyükaslan, A.(2015). Dikkat Eksikliği Hiperaktivite Bozukluğu Olan İlköğretim Çocuklarında Duyusal Zeka İle Sosyal Beceri Bileşenlerinin Değerlendirilmesi(tese), *İstanbul: Marmara Üniversitesi Tıp Fakültesi*.
- Büyükoztürk, Ş. (2012). Bilimsel Araştırma Yöntemleri. *Ankara: Pegem Yayıncılık*.

- Döpfner, M. & Lehmkuhl, G. (2002). Evidenzbasierte Therapie von Kindern und Jugendlichen mit Aufmerksamkeitsdefizit-/hyperaktivitätsstörung(ADHS). *Praxis Kinderpsychologie und Kinderpsychiatrie*, 51, 419-440.
- Döpfner, M. & Lehmkuhl, G. (2005). Störungen der aufmerksamkeit und hyperaktivitaet. In. P.
- Döpfner, M. (2000). Hyperkinetische Störungen und Störungen des Sozialverhaltens. *Verhaltenstherapie*, 10, 89-100.
- Duncan S. 2007. Teratogenesis of Sodium Valproate. *Curr Opin Neurol*, 20: 175– 180.
- Edwards J., Pattison P.E., Jackson H.J. ve ark. (2001) Facial Affect and Affective Prosody Recognition in First-Episode Schizophrenia. *Schizophr Res*, 48: 235-253.
- Ercan. S. (2003). *Relationship Between Psychological Preparation, Preoperative and Postoperative Anxiety and Coping Strategies in Children and Adolescents Undergoing Surgery [tese]*. Ankara: Middle East Technical University
- Farias, A.C., Cordeiro, M.L., Felden, E.P.G., Bara, T.S., Benko, C.R., Coutinho, D., Martins, L. F., Ferreira, R. T.C., and McCracken, J.T. (2017) Neuropsychiatr Dis Treat.; Attention–Memory Training Yields Behavioral and Academic Improvements in Children Diagnosed with Attention-Deficit Hyperactivity Disorder Comorbid with A Learning Disorder. *Neuropsychiatric Disease and Treatment*, 13: 1761–1769, doi: 10.2147/NDT.S136663
- Folkman, S., Lazarus, R. S., Gruen, R., DeLongis, A. (1986). Appraisal Coping Health Status, and Psychological Symptoms. *J. Pers. Soc. Psychol.* 50:572-79
- Gonzalez, L. O.; Sellers, E. W.(2002). The Effects of a Stress-Management Program on Self-Concept, Locus of Control, and The Acquisition of Coping Skills in School-Age Children Diagnosed with Attention Deficit Hyperactivity Disorder. *Journal of Child and Adolescent Psychiatric Nursing*, 15(1), 5-15.
- Gökler, I. (2001). *The Predictor Variables of Post-Traumatic Stress Symptoms in Children and Adolescents Following 1999 Marmara Earthquake: Exposure to Traumatic Experiences and Coping*. Unpublished Master Thesis. Ankara: Middle East Technical University.
- Graham, S. (2017). Attention-deficit/Hyperactivity Disorder (ADHD), Learning Disabilities (LD), and Executive Functioning: Recommendations for Future Research. *Contemporary Educational Psychology*, 50, 97-101
- Green, J. C., Krayder, H., & Mayer, E. (2005). Combining Qualitative and Quantitative Methods in Social Inquiry. In B. Somekh & C. Lewin (Eds.). *Research Methods in The Social Sciences*, 275-282.
- Hampel, P., Manhal S., Roos T., Desman C., (2008)Interpersonal Coping Among Boys With ADHD. *Journal of Attention Disorders*, 11 (4) 427-436, Doi:10.1177/1087054707299337
- Holahan, C.J., & Moos, R.H. (1987). Personal and Contextual Determinants of Coping Strategies. *Journal of Personality and Social Psychology*, 52, 946±955
- Hudziak, J.J., Achenbach, T.M., Althoff, R.R., Pine, D.S., (2007). A Dimensional Approach to Developmental Psychopathology. *Int J Methods Psychiatr Res* 16(S1):S16–S23

- İlik, Ş. (2017). The Effect of Individual Attention Training Implemented on Students Without Attention Deficit Hyperactivity on The Skills of Focusing Attention and In-Class Activities. *Sakarya University Journal of Education*, 7 (2), 324-335. DOI: 10.19126/suje.275315
- Judge, S.L., (1998). Parental Coping Strategies and Strengths in Families of Young Children with Disabilities. *Fam Relat.*; 47:263–8.
- Karaduman, D. (2004). “Dikkat Toplama Eğitimi Programının İlköğretim 4. ve 5. Sınıf Öğrencilerinin Dikkat Toplama Düzeyi, Benlik Algısı ve Başarı Düzeylerine Etkisi. “Yayımlanmamış doktora tezi, *Ankara Üniversitesi Eğitim Bilimleri Enstitüsü, Ankara.*
- Karakaş, S, Erdoğan, E., Sak, L. ve ark. (1999a) Stroop Testi TBAG Formu: Türk Kültürüne Standardizasyon Çalışmaları, Güvenirlik Ve Geçerlik. *Klinik Psikiyatri* 2:75- 88.
- Karakaş, S., Doğutepe-Dinçer, E. (2009). Nöropsikoloji Bilim Alanı ve Kurumsallaşması. Karakaş, S., Doğutepe-Dinçer, E. (Ed.) *BİLNOT Bataryası El Kitabı: Nöropsikolojik Testlerin Çocuklar İçin Araştırma ve Geliştirme Çalışmaları: BİLNOT- çocuk (Cilt I) içinde (s. 215-269).* İstanbul: Nobel Tıp Kitabevleri.
- Kılıç, B., G., Koçkar, A., İ., Irak, M., Şener, Ş., & Karakaş, S. (2002). Görsel İşitsel Sayı Dizileri Testi B Formu Kullanılarak Ölçülen Bellek Uzamının 6-11 Yaş Grubu Öğrencilerde Gelişimi. *3P Dergisi*, 10(3), 243-254.
- Klein, C. H., Raschke, A., Brandenbusch ,A. (2003), Development of pro- and Antisaccades in Children with Attention Deficit Hyperactivity Disorder (ADHD) and Healthy Controls, *Psychophysiology*, 40(1), 17-28, <https://doi.org/10.1111/1469-8986.00003>
- Lauth, G. W. & Fellner, C. (2004). Therapieverlauf und Langzeiteffekt Eines Multimodalen Trainingsprogramm Bei Aufmerksamkeitsdefizit-/Hyperaktivitätsstörungen, *Kindheit und Entwicklung*,13(3), 167-17.
- Lezak, M.D. (1995). *Neuropsychological Assessment* (3rd ed.). New York: Oxford Press.
- Lubke, G.H., Hudziak, J.J., Derks, E.M., van Beijsterveldt T.C., Boomsma, D.I. (2009) Maternal Ratings of Attention Problems in ADHD: Evidence for The Existence of a Continuum. *J Am Acad Child Adolesc Psychiatry* 48(11):1085–1093
- Minder, F., Zuberer, A., Brandeis D. & Drechsler R. (2019) Specific Effects of Individualized Cognitive Training in Children with Attention- Deficit/Hyperactivity Disorder (ADHD): The Role of Pre-Training Cognitive Impairment and Individual Training Performance. *Developmental Neurorehabilitation*, 22:6, 400-414, DOI: 10.1080/17518423.2019.1600064
- Orylska, A, Hadwin, J.A., Kroemeke, A. & Sonuga-Barke E., (2019). A Growth Mixture Modeling Study of Learning Trajectories in an Extended Computerized Working Memory Training Programme Developed for Young Children Diagnosed With Attention-Deficit/Hyperactivity Disorder. *Front. Educ.* 4:12. doi: 10.3389/educ.2019.00012
- Özdoğan, B. (2001). Altı On iki Yaşlarındaki Çocukların Eğitimi ve Okul Başarıları. *Eğitim ve Bilim Dergisi*. 26, 3 - 7.
- Özmen, S.K.(2011). Dikkat Eksikliği Hiperaktivite Bozukluğunda Çok Yönlü Eğitim Uygulamalarının Etkisi. *Eğitim ve Bilim Dergisi*.

- Polderman, T.J.C., Boomsma, D.I., Bartels, M., Verhulst, F.C., Huizink, A.C., (2010). A Systematic Review of Prospective Studies on Attention Problems and Academic Achievement. *Acta Psychiatr Scand* 122(4):271–284
- Skinner, E. A. and Zimmer-Gembeck, M. J. (2007). The Development of Coping. *Annual Review of Psychology*, 58: 119–144
- Ylvisaker, M. & DeBonis, D. (2000). Executive Function Impairment in Adolescence: TBI and ADHD. *Topics in Language Disorders*, 20, 29– 57.
- Zeeuw, E. L., Beijsterveldt C. E. M., Ehli, E. A., Geus, E. J. C., Boomsma., D. I. (2017) Attention Deficit Hyperactivity Disorder Symptoms and Low Educational Achievement: Evidence Supporting A Causal Hypothesis. *Behav Genet* 47(3):278–289