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Effect of Cognitive-Behavioral-Theory-based Skill Training on Academic Procrastination Behaviors of University Students*

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Abstract
This study examined the effectiveness of a cognitive-behavioral theory (CBT) psycho-educational group program on the academic procrastination behaviors of university students and the persistence of any training effect. This was a quasi-experimental research based on an experimental and control group pretest, posttest, and follow-up test model. Twenty-six students participated in the research, with 13 each in the experimental and control groups. The Academic Procrastination Scale (APS), Melbourne Decision-Making Questionnaire I-II, Rosenbaum's Learned Resourcefulness Scale, State-Trait Anxiety Inventory, and Beck Depression Inventory were administered for the synchronization of the two groups in the selection process. The APS was used to collect quantitative data from the participants. In the analysis of the quantitative data, analysis of covariance and t-test were used for statistical analyses. The qualitative data were collected via a general evaluation form of group processes, and thematic analysis was applied to the collected data. It was observed that CBT-based skill training decreased university students' academic procrastination behaviors and had a long-term effect on the students.

Keywords: Academic procrastination • Skill training • Psycho-educational group • University students

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We have many occasions to say "later" in our lives, such as when paying bills, making appointments, or doing homework. However, the longer we put off our tasks, the more they accumulate, the less they are likely to be completed. Sometimes, tasks left for later are entirely forgotten, but at times, they are done at the last minute. This circumstance is defined as "procrastination" in the literature. Researchers have reached no consensus on definitions or types of procrastination, but it is a behavior that has existed since the beginning of civilization (Steel, 2007) and is observed as one of the least understood human problems (Ferrari, 1994). Ferrari, Johnson, and McCown (1995) state that just as procrastination, which is a complex problem, can be observed throughout our lives in general, it can also arise specifically in academic fields.

Academic procrastination is defined as leaving academic duties until later (Lay, 1986) and is observed distinctly often in individuals who have problems in academic subjects. Academic procrastination includes consistently postponing studying for exams, submitting assignments late, and failing to register for classes in time, and such behaviors ground the authenticity of academic procrastination as a concept (Tuckman, 1991). Because of its authenticity, academic procrastination has obtained more professional interest than other procrastination behaviors, and there has been more scientific research on the subject (Milgram, Marshevsky, & Sadeh, 1995).

Research indicates that academic procrastination is very common, particularly among university students (Dewitte & Schouwenburg, 2002; Schraw, Wadkins, & Olafson, 2007). In Steel's study (2007 as cited in Potts, 1987), approximately 75% of university students view themselves as procrastinators, and a study conducted in Turkey found academic procrastination behaviors among 52% of university students (Uzun Özer, 2005). Furthermore, research reveals that the habits of procrastination can negatively affect students' academic positions, life quality, and performance (Lee, 2005), and these habits can also lead to guilt, decreased confidence, and stress, eventually resulting in numerous diseases (Tice & Baumeister, 1997). In addition, there is a correlation between high levels of procrastination and low levels of mental health (Stead, Shanahan, & Neufeld, 2010). Akbay and Gizir (2010) state that students who engage in academic procrastination behaviors experience negative consequences such as failing courses, extending periods of study, and terminating university educations. Gallagher, Golin, and Kelleher (1992) state that 52% of students need to receive help with procrastination. The negative consequences of academic procrastination on academic performance and emotional and physical well-being reveal the need for intervention studies on this topic (Glick, Millstein, & Orsillo, 2014).

Studies stress the importance of developing cognitive, emotional/affective, and behavioral skills to cope with academic procrastination behaviors (Çakıcı 2003; Knaus, 2010; Solomon & Rothblum, 1984; Uzun Özer, 2010). Çakıcı (2003) addresses the affective aspect of procrastination in the form of feeling personal distress about an individual's inability to begin, sustain, or complete a task within a prescribed time. She refers to the behavioral aspect of procrastination as the tendency to delay beginning, sustaining, or completing a task, and she defines the cognitive aspect of procrastination as a high or chronic disparity between an individual's intentions, aims, or priorities and his/her task performance. Burka and Yuen (2008) state that many people who exhibit procrastination behaviors in cognitive, emotional/affective, and behavioral dimensions repeat these behavior patterns at certain periods of their lives at different intervals and that this iteration is a procrastination loop. Knaus (2010) emphasizes that the primary trigger of procrastination loops is individuals' ways of thinking.

Cognitive-behavioral theory (CBT) states that people procrastinate because of established ways of thinking, and within this framework, CBT highlights the importance of replacing irrational beliefs with rational ones (Dryden, 2009). In this context, Beck (2005, p. 22) draws attention to core beliefs related to power, success, and performance and found that "despair" emerged as "I am inadequate, ineffective, incompetent; I can't cope; I am inferior, a failure, a loser, not good enough etc." Ferrari et al. (1995) listed five false cognitions: (*i*) overestimating the amount of time needed to complete a task, (*ii*) underestimating the required time, (*iii*) exaggerating future incentives, (*iv*) developing false confidence that a task will be initiated by providing affective conditions that are required to accomplish the task, and (*v*) relying on ineffective or inappropriate cognitions to complete the task in the absence of the necessary emotional sense.

Research has emphasized that there are solid cognitive structures underlying academic procrastination behaviors (Flett, Stainton, Hewitt, Sherry, & Lay, 2012; Knaus, 2010; Steel, 2007). For example, Flett et al. (2012) indicate that

negative automatic thoughts generally play an important role in procrastination behaviors, and Steel (2007) reports in his meta-analysis study that there is a positive correlation between academic procrastination and irrational thoughts. Balkıs (2013) and Balkıs, Duru, and Bulus (2013) state that students with high levels of rational academic beliefs demonstrate low levels of academic procrastination; thus, they proposed a correlation between academic procrastination and cognitions that highlights the importance of changing cognitions in eliminating procrastination.

Numerous experimental studies have focused on the management of academic procrastination (Binder, 2000; Kutsela, 1998; Schubert, Lilly, Donald, & Stewart, 2000), and the lack of effective intervention programs is emphasized in the international literature (Rozental & Carlbring, 2013; Rozental, Forsström, Nilsson, Rizzo, & Carlbring, 2014). Meanwhile, experimental studies on managing academic procrastination are new and quite limited in Turkey (Kağan, 2010; Uzun Özer, Demir, & Ferrari, 2013); in general, existing research focuses on organizing psycho-educational programs on the management of these behaviors, providing counseling, and highlighting the need to create and increase awareness through seminars (Balkıs & Duru, 2012; Kandemir, 2010; Özer & Altun, 2011; Uzun Özer, 2010).

This research was an experimental study that aimed to investigate how to manage and overcome the widespread academic procrastination observed among university students, which remains vital as long as it continues to have negative consequences for these students. Although this study is not the first either in Turkey or abroad, it is the distinctive psycho-educational program developed by the researcher using the cognitive-behavioral approach. Skills to manage procrastination behaviors can be acquired in CBT-based programs. In the CBT context, practices in these groups aim to improve students' basic skills at overcoming procrastination and can be easily applied in the teaching–learning environment. Therefore, whether prepared group practices for eliminating academic procrastination, a particular problem in the education field, can lead to changes in university students' procrastination behaviors can be investigated. Thus, this study aimed to assess the effectiveness of a CBT-based psycho-educational program in altering university students' academic procrastination behaviors.

Methodology

Model of the Study

This study used a pretest–posttest, quasi-experimental approach with a matched-pair design (Büyüköztürk, Kılıç-Çakmak, Akgün, Karadeniz, & Demirel, 2008). The independent variable was a procrastination psycho-educational program, and the dependent variable was academic procrastination.

In the study, before the experimental application began, students were asked to complete a personal information form (PIF), Academic Procrastination Scale (APS), Melbourne Decision-Making Questionnaire I-II (MDMQ I-II), Rosenbaum's Learned Resourcefulness Scale (RLRS), State-Trait Anxiety Inventory (STAI), and Beck Depression Inventory (BDI). The students' APS data were considered pretest scores. The APS data were used for the posttest at the end of the experiment, and the follow-up test was administered one month after the research ended. Qualitative data were obtained only from the experimental group. After eight program sessions, the general evaluation form of group processes (GEFGP) was distributed to the students for evaluating the influence of the CBT-based skills training program on their procrastination behaviors.

Study Group

The study group in this research was 26 students (13 experimental and 13 control), who were enrolled in the Faculty of Education, Faculty of Arts, Faculty of Economics and Administrative Sciences, Faculty of Engineering, and Health High School of University of Muğla Sıtkı Koçman during the academic year 2012–2013. Prior to the research, an ethics committee report was prepared, and an announcement entitled "Coping Skills Training for Academic Procrastination" was published on the university's Website. This announcement included a voluntary informed consent form and a group policy form. In total, 70 university students applied to participate in the study, but according to their PIF data, other measurement tools were administered to 63 students. On the basis of these data, students who had already received or were receiving psychiatric treatment and who had a recent traumatic experience or high depression scores were excluded from the study. In addition, 13 students were excluded because of their extreme APS scores (Tabachnick & Fidell, 2001). In a previous study, it is stated that in experimental studies, pairing participants based on

certain features allows for controlling independent variables (Cohen, Manion, & Morrison, 2007); in this study, the respondents were matched based on variables that affected the dependent variable, academic procrastination (mean APS, BDI, STAI, MDMQ I-II, and RLRS scores), age, gender, and the classes the students were enrolled in. In the next step, one respondent was randomly placed in the experimental group and one was randomly placed in the control group; this method resulted in 15 students in the experimental group and 15 in the control group. After the sessions had started, two participants could not continue and eventually left their group. Because the experimental group decreased to 13 members, the control group was reduced to 13 by randomly excluding two members; thus, the study was eventually conducted with 26 students. Both experimental and control groups consisted of 6 female and 7 male students aged 19–24 years; the mean ages of the students in the experimental and control groups were 21.23 and 21.07, respectively.

t-Tests were performed to calculate the significance of any difference in the groups' scores on the scales that were administered. According to the t-test results, there was no significant difference in the groups' mean scores on the APS, BDI, STAI, RLRS, MDMQ I-self-esteem, MDMQ-II buck passing, MDMQ-II procrastination, MDMQ-II hyper vigilance, or MDMQ-II vigilance subscales [$t_{(24)} = .04$, $p > .05$; $t_{(24)} = .04$, $p > .05$; $t_{(24)} = .16$, $p > .05$; $t_{(24)} = -.36$, $p > .05$; $t_{(24)} = .69$, $p > .05$; $t_{(24)} = 1.42$, $p > .05$; $t_{(24)} = 1.95$, $p > .05$; $t_{(24)} = 1.74$, $p > .05$; $t_{(24)} = .87$, $p > .05$, respectively]. Follow-up measurements were obtained four weeks after the posttest to assess whether the students' gains from the experimental intervention had been maintained.

Data Collection Instruments

PIF, APS, MDMQ I-II, RLRS, STAI, BDI, and GEFGP were used to collect the research data.

Personal Information Form: The PIF contained questions on demographic information as well as individual variables that could have affected the research findings (history of psychiatric treatment, history of or experience with trauma, experience with any group activities related to academic procrastination) and factors that could have affected students' ability to participate in the entire program (academic, family, economic, employment, mental and physical health, and disability status). This form was prepared by the researchers.

Academic Procrastination Scale: The APS consists of a total of 19 items, 12 positive and 7 negative, and it was developed to investigate academic procrastination behaviors (Çakıcı, 2003). Items are rated on a 5-point Likert-type scale with "1=It does not reflect me at all" and "5=It fully reflects me." A minimum of 19 points and a maximum 95 points can be earned on the scale, with higher scores indicating more or greater procrastination behaviors. The APS is a two-factor scale with the factors of procrastination and regular study habits. Because the first factor, procrastination, explained 37.350% of the variance before the rotation and 41.884% afterward, the scale can also be used one-dimensionally. The Cronbach's alpha coefficient of internal consistency for the one-dimensional scale was calculated as .92, and the Spearman-Brown prediction split-test reliability was .85; test-retest reliability was .89 (Çakıcı, 2003). The APS was used in this study as one-dimensional.

Melbourne Decision-Making Questionnaire I-II: The original MDMQ was developed by Mann, Burnett, Radford, and Ford (1997) and was adapted to Turkish by Deniz (2004). The scale consists of two parts. The MDMQ-I aims to identify self-esteem in making decisions, and the MDMQ-II aims to measure decision-making styles (vigilance, buck-passing, procrastination, and hyper vigilance). The total scale consists of 28 items, 6 on MDMQ-I and 22 on MDMQ-II. Participants mark each statement on the scale as "not true," "sometimes true," or "true" using, respectively, ratings of 0, 1, or 2 points. High MDMQ-I scores indicate high self-esteem in decision making, and the MDMQ-II subscale scores reflect respondents' decision-making styles. Deniz (2004) examined the relationship between scores on the Decision Strategies Scale and scores on the MDMQ-I and II for criterion validity and reported positive significant correlations that ranged from .15 to .71. In addition, test-retest reliability was between .67 and .87, and Cronbach's alpha ranged between .65 and .87 (Deniz, 2004).

Rosenbaum Learned Resourcefulness Scale: This original scale was designed by Rosenbaum (1980) and adapted to Turkish by Dağ (1991). It evaluates how self-control skills and cognitive strategies are used in stress situations. The scale has 12 subscales and 36 items that are rated on a 5-point Likert-type scale; the total possible score ranges from 36 to 180 points, and higher scores reflect a respondent's greater self-control skills. The scale's test-retest reliability was found to be .80, and its coefficient of internal consistency is .78. Item

total correlations were calculated, with significant positive correlations between .11 and .51. Criterion validity was calculated with the Rotter Internal-External Control Scale, and a significant negative correlation of -.29 was found.

State-Trait Anxiety Inventory: The STAI aims to measure levels of state and trait anxiety in individuals over 14 years of age. The scale was designed by Spielberger, Gorsuch, and Lushene (1970) and adapted to Turkish by Öner and Le Compte (1985). It consists of two different scales (state and trait anxiety), and each scale has 20 items; only the trait anxiety subscale was used in this study. The trait anxiety subscale items are scored between 1 (almost never) and 4 (almost always) for a minimum possible score of 20 points and a maximum of 80; higher scores indicate high trait anxiety. On the Turkish form of the scale, the Kuder-Richardson (alpha) reliability coefficient ranged from .83 to .87. Total item reliability of the scale was determined to be between .34 and .85. Criterion validity and construct validity of the scale were demonstrated at the expected levels.

Beck Depression Inventory: The 21-item BDI self-assessment scale aims to measure symptoms of depression (Beck, Ward, Mendelson, Mock, & Erbaugh 1961). Items are ranked from 0 to 3 according to the severity of each item. The scores range between 0 and 63, and higher scores indicate greater severity of depression. The Turkish version of the BDI was adapted by Hisli (1989) in a study that used university students, and the scale was identified as a reliable and valid instrument. The split-test reliability coefficient of the scale was found to be .74. The validity of the scale was determined by criterion related validity methods and the correlation coefficient for the relationship between the BDI and the Minnesota Multiphasic Personality Inventory-Depression was found to be .50. Cut-off points for BDI depression scores were examined in a study by Hisli (1988) that used policlinic patients, and the author determined that scores of 17 or above indicated higher than normal depression.

General Evaluation Form of Group Processes: This form gathers feedback on group processes and benefits. It was designed by De Lucia-Waack (2006) and adapted to Turkish by Çolakkadıoğlu and Güçray (2012). Six scale items are rated on a 3-point Likert-type scale where 1=Yes, 2=No, and 3=I do not know, and a maximum of 18 points is possible; higher scores indicate less utility derived from the group process. There are two open-ended questions on which participants could discuss their experiences with the group process: questions 3 and 5. In addition, questions 6, 7, and 8 were written down by the researcher.

Experimental Praxis

The program that was used in this study was designed to improve the experimental group's ability to manage their academic procrastination and was based on CBT. Descriptive and experimental studies and suggestions from the academic procrastination literature were reviewed during the process of developing the group session contents (Burka & Yuen, 2008; Knaus, 2010; Steel, 2007). Following this review, an appropriate framework was developed to ensure changes in core and intermediate beliefs and automatic thoughts at the cognitive level. Finally, group types, applications, objectives, and practices were all examined (Brown, 2013; Delucia-Waack, 2006) and selected as appropriate. Beck (2001) outlined ten fundamental principles of cognitive therapy, and these principles guided the development of eight 90-minute group education sessions; a general plan for the whole process was prepared as well as specific plans for each session. The experimental program content focused on automatic thoughts, intermediate thoughts related to academic procrastination behavior, and core beliefs that are formed during childhood. In addition, based on the cognitive, affective, and behavioral dimensions of academic procrastination, problem-solving, cognitive, and behavioral techniques were used together. The contents of the sessions were supported by purposive activities, visual materials (cartoons, illustrations, diagrams, and so on), artistic objects (pictures, music, poetry, acrostics, and so on), metaphors, annotations, and homework and constructed with Socratic dialogue and other techniques. Each session began with a summary of the previous session (except for the first session) followed by discussing the homework, explaining the current session's agenda, and warm-up activities. The sessions ended with summarizing, giving feedback and homework (except for the eighth session), and a closing activity.

In addition, a pilot study was carried out before the experimental program. The pilot study was conducted with 16 first-year students who wanted to participate in the experimental program and who were enrolled in evening classes in the Muğla Sıtkı Koçman University Education Faculty Department of Educational Science Psychological Counseling and Guidance Degree during the fall semester of the 2012–2013 academic year. The pilot study was conducted with a leader, the first author of this paper, and a deputy leader who was a leading expert in the field and who was pursuing

PhD; the pilot study was recorded as well as supervised and finalized by the second author of this paper. Based on the pilot study, the sixth program session studied the core feeling of despair and the closing exercises of the last session were modified; new activities were included to improve member interactions.

The general outlines of the sessions and brief information are provided below:

- To help students become familiar with the basic logic of the CBT-based psycho-educational program and determine their personal goals.
- To ensure that students were informed about the cognitive-behavioral approach.
- To assist students in recognizing their academic procrastination behaviors and procrastination loops as well as to help them to begin academic tasks by understanding the relationship between the action desire and continuity.
- To help students to increase their cognitive awareness related to time and to gain the skills to follow through with academic tasks they have already begun.
- To help students gain awareness in terms of false attributions of failure ("I failed"), academic self-esteem beliefs and outcomes, and process-oriented and motivational perspectives.
- To help students develop self-confidence and motivation for study behavior.
- To help students realize patterns of "ought to" related to their study behavior and to help them develop skills to change these patterns.
- To help students realize their habits that were preventing permanent learning and to help them understand reasons for success rather than failure.
- To help students realize the strong possible long-term influence on the self-esteem of permanently avoiding unpleasant academic tasks.
- To help students realize their habits related to only putting forth the effort to pass courses and to help them gain skills for permanent learning.
- To help students realize possible false automatic thoughts that can occur during examinations or other activities and to develop and implement alternative thoughts.
- To help students develop skills for breathing, relaxation, and safe place techniques in cases of extreme stress.
- To help students realize the extent to which they have attained their initial personal goals and to help them share gains derived from their group experiences.

Data Analysis

Pretest, posttest, and permanency APS data were collected from both the experimental and control groups to test the research hypotheses and were analyzed using the analysis of covariance (ANCOVA) feature in SPSS 17; specifically, the *t*-test was used for repeated measures and for independent groups, and the normality of the data was investigated. Normality assumptions were examined using the Shapiro–Wilk test, and the groups' pretest, posttest, and permanency scores were determined to be normally distributed ($p > .05$). Homogeneity of variances was examined using Levene's test for both the experimental and control data. Furthermore, the *t*-test was used to investigate whether there were significant differences between both groups with respect to the control variables. Qualitative data for the research were obtained from the experimental group using the GEFGP, and the data were analyzed by the thematic approach (Yıldırım & Şimşek, 2011).

Findings

Academic Procrastination Scale Findings

It was identified that variances were homogeneous for the experimental and control groups ($p > .05$). In addition, the existence of a linear relationship between the control and dependent variables was examined with the Pearson product-moment correlation coefficient, and a linear relationship was determined. Analysis of variance was used to test regression trend lines for the APS posttest scores of both groups, and the results indicated no significant effect of group × pretest [$F_{(1-22)} = 17.739$; $p > .05$]; thus, equal regression trend lines were determined. The *t*-test results for the retest measurements and independent groups were used for the data that did not satisfy the ANCOVA assumptions. APS mean scores, standard deviations, and adjusted posttest scores are presented in Table 1.

Means and standard divisions of the experimental and control groups for the APS pretest, posttest, and follow-up scores are given in Table 1. For the experimental group, the pretest mean was 62.69 (*Ss* = 11.99), posttest adjusted mean was 47.23, and follow-up mean was 44.09 (*Ss* = 9.12). On the

Table 1
Descriptive Findings for the APS Pretest, Posttest, and Follow-up Scores

Measurement	N	Groups	Means		Posttest Adjusted Mean Scores
			$\bar{x}$	Ss	$\bar{x}d$
Pretest	13	Experimental	62.69	11.99	
	13	Control	62.46	12.47	
Posttest	13	Experimental	47.31	12.79	47.23
	13	Control	59.92	13.46	60.00
Follow-up test	13	Control	44.08	9.12	
	13	Experimental	58.92	12.61	

other hand, for the control group, the pretest mean was 62.46 (*Ss* = 12.47), posttest adjusted mean was 60.00, and follow-up test mean was 58.92 (*Ss* = 12.61). The table shows that the posttest adjusted mean and follow-up mean for the experimental group were lower than those for the control group. First, ANCOVA was used to determine whether these differences were significant, and the findings are given in Table 2.

Table 2
ANCOVA Results for Academic Procrastination Scale for Posttest Adjusted Mean Scores by Group

The Source of the Variance	Sum of Squares	Sd	Squares Means	F
Pretest	1750.702	1	1750.702	16.869*
Group	1060.950	1	1060.950	10.223*
Error	2386.991	23	103.782	
Total	5172.154	25		

*$p < .01$.

According to the results presented in Table 2, a statistically significant difference was found between the posttest adjusted means in favor of the control group [$F_{(1-23)} = 10.223$; $p < .01$]. That is, the experimental group's adjusted academic procrastination mean declined as a result of the group's participation in the psycho-educational program. There was no significant difference between the posttest and follow-up test means [$t_{(12)} = 1.26$, $p > .05$], but there was a significant difference between the follow-up test means for the experimental group vs. control group [$t_{(24)} = 3.439$, $p < .01$]. Specifically, the experimental group's follow-up test mean was lower when compared with the control group, and thus, it can be said that the effectiveness of the experimental program was lasting.

Findings of the General Evaluation Form of Group Processes

The responses to the GEFGP's close-ended questions 3 and 5 are shown in Table 3.

Table 3
Experimental Group Responses to GEFGP Questions 3 and 5

Questions	Yes	No	I do not know
3. This training guided me in my ability to gain skills to manage academic procrastination behavior.	13		
5. I will suggest my friends to participate in an academic procrastination psycho-educational group.	13		

As shown in Table 3, all participants reported benefiting from the psycho-educational group experience by gaining skills to better manage their academic procrastination behaviors. In addition, all members of the experimental group would suggest their friends to participate in similar psycho-educational groups or programs. In the overall framework, all experimental group members felt positive about the group practices, were satisfied with the group processes, and would recommend their friends to participate in similar programs.

The experimental group's responses to GEFGP open-ended questions 6 and 7 are shown in Table 4.

Table 4
Experimental Group Responses to GEFGP Questions 6 and 7

Questions	Percentages (%)	f
6. At the beginning of this group experience, I had achieved …….% of my personal objectives.	I have attained 70% of my goals.	5
	I have attained 80% of my goals.	6
	I have attained 90% of my goals.	2
7. I own …. % of my ideas to attain my goals in the required time.	I own 80% of my ideas.	1
	I own 85% of my ideas.	2
	I own 90% of my ideas.	7
	I own 95% of my ideas.	1
	I own 100% of my ideas.	2

As shown in the table, five members of the experimental group had attained 70% of their goals; six had attained 80%; and two had attained 90%. In addition, one member stated that he/she

Table 5
Experimental Group Responses to GEFGP Question 8

What changes did you make in the thought, sense, and behavior dimensions as a result of this group experience? (Mostly: 70% and over; sometimes: 40%–69%, occasionally: 39% and below)
Before group experience ……
After group experience……

Answers	f			Answers	F		
Before group experience	Mostly	Sometimes	Occasionally	After group experience	Mostly	Sometimes	Occasionally
Postponing beginning academic tasks	12	1		Postponing beginning academic tasks		3	10
Not being able to sustain study behavior (not being able to focus)	11	2		Not being able to sustain study behavior (not being able to focus)		3	10
Not being able to study with intrinsic motivation for learning	8	4	1	Not being able to study with intrinsic motivation for learning		4	9
Not being able to tolerate difficulties	7	6		Not being able to tolerate difficulties		4	9
False automatic thoughts	7	5	1	False automatic thoughts		5	8
Not being able to manage anxiety and panic feelings	6	2	5	Not being able to manage anxiety and panic feelings		2	11
Difficulties in time perception and managing long- and short-term goals	5	1	7	Difficulties in time perception and managing long- and short-term goals		5	8
Insufficient trust and confidence in achieving success	4	3	6	Insufficient trust and confidence in achieving success		3	10

understood that 80% of his/her ideas to attain his/her personal goals would require time; two members reported 85%; seven members reported 90%; one member reported 95%; and two members reported 100%. In sum, the experimental group members had mostly attained the personal goals they had set at the beginning of the CBT-based psycho-educational program; they understood that attaining their goals would require time (career planning). Nearly all had an idea about how to achieve their goals.

The experimental group's responses to GEFGP question 8 were investigated using thematic analysis, and their responses are given in Table 5.

As shown in Table 5, the experimental group had often postponed beginning academic tasks, had difficulty focusing on studying for long periods, and had various other challenges related to the dimensions of academic procrastination behaviors. Moreover, the experimental group tended to lack confidence in achieving its goals. After the group experience, the students reported either occasionally or only sometimes having made cognitive, affective, and behavioral changes. However, overall, it can be said that they demonstrated these changes in terms of procrastinating on academic tasks, correcting cognitive distortions, and improving their ability to focus on studying and to manage challenges in general.

Discussion and Conclusion

The quantitative findings of the study indicate that university students' procrastination scores decreased and that the decline was still observed on a retention test after the students participated in a program based on CBT, which aimed to reduce their academic procrastination behaviors. There was no significant change in the control group's scores, which indicates that the applied program was effective and that the decline in the experimental group's academic procrastination scores occurred as a result of the program. These results are consistent with those of previous studies (Binder, 2000; Kağan, 2010; Kutsela, 1998; Ossebaard, Oost, van den Heuvel, & Ossebaard, 2014; Schubert et al., 2000; Uzun Özer et al., 2013).

Academic procrastination behaviors require intervention on affective, behavioral, and cognitive dimensions (Burka & Yuen, 2008; Knaus, 2010; Steel, 2007). This research aimed to provide procrastinating students with practical solutions from the literature, and the qualitative findings demonstrate that the experimental group students experienced cognitive, affective, and behavioral changes. Results obtained from procrastination therapy group practices based on Kutsela's therapeutic change model (1998), which were configured on these dimensions, support the qualitative findings of this study.

In the experimental research, it is observed that researchers have focused on the rational

emotive behavioral approach to address academic procrastination behaviors (Kağan, 2010; Uzun Özer et al., 2013) or cognitive-behavioral approach (Binder, 2000; Ossebaard et al., 2014; Pychyl & Binder, 2004; Van Horebeck, Michielsen, Neyskens, & Depreeuw, 2004). Kağan (2010) and Uzun Özer et al. (2013) demonstrated that students' academic procrastination behaviors decreased following a rational emotive behavioral program for preventing academic procrastination. Ossebaard et al. (2014) found that academic procrastination scores of university students who participated in a cognitive-behavioral approach intervention program also decreased. Binder (2000) identified that his intervention program, which had an identical aim, was effective with academic procrastination behaviors. Knaus (2010) found that an intervention based on the ABCDE model of the rational emotive behavior therapy to manage procrastination behaviors on the cognitive dimension was effective at creating emotional and behavioral changes. Similarly, Balkıs and Duru (2007) found a correlation of academic procrastination behaviors with cognitive attributions and beliefs. From the research findings on the topic, it can be said that interventions based on these approaches are effective for managing academic procrastination.

The program in this study was developed based on CBT, which discusses cognitions in three dimensions, as false automatic thoughts, intermediate beliefs, and core beliefs. Therefore, the effectiveness of this program was tied to replacing all three levels of cognitions related to academic procrastination. With activities, homework, and information notes, the experimental group was taught to realize their false automatic thoughts and intermediate and core beliefs related to the group's feelings about its academic tasks; to evaluate these beliefs by questioning them; to alter the group's emotions; and to manage the group's academic procrastination behaviors by replacing them with functional behaviors. It can be considered that the experimental group's false thoughts and dysfunctional beliefs decreased in a manner that was consistent with Knaus' (2010) explanations and the cognitive-behavioral approach.

This research also studied the automatic thoughts and core beliefs formed during childhood with regard to their effects on academic procrastination behaviors. Cognitive interventions of the experimental group for their core feelings of despair, and their attribution styles related to successful or unsuccessful performance are included on the intermediate dimension. In the literature, the learned helplessness/attributional model of Abrahamson, Seligman, and Teasdale (1978) clarifies individuals' particular behavior patterns. In the relationship between university students' academic attribution styles and their academic procrastination behaviors, internal attributions led to more procrastination behaviors compared with external attributions (LaForge, 2005); individuals with high procrastination tendencies attributed their success to external and unstable factors, whereas individuals with low procrastination tendencies attributed their success to internal and stable factors (Balkıs & Duru, 2007). In this context, some questions used by the group leader in the program helped students realize their attributions for their performance; the questions are as follows:

- "How would you explain a performance in which you were successful?"
- "How would you describe a performance in which you failed?"
- "Was the reason for your unsuccessful performance either your lack of effort or your lack of skills?"
- "How much do you value your work and the progress you have made?"
- "How much effort will you make?"
- "What are your expectations regarding the results? Will you give up?"

The questions on academic performance attributions helped the students to focus on their own roles in their performance and how they could change their future thoughts and behaviors by noting how they had changed their past thoughts and behaviors following the intervention. It can be considered that the changes in the experimental group students' false explanations for their successful and unsuccessful performance and in their intermediate beliefs, emotions, and procrastination behaviors made this program effective.

The entire experimental group in the study indicated that it experienced changes in beginning academic tasks. The most useful strategy in the procrastination cycle was found to be replacing the group's unrealistic "think later" styles with a "start now and do" style that can be implemented regardless of willingness (Knaus, 2010). This study aimed to promote the idea that "any place and time is convenient for beginning" rather than focusing on "start even if you do not want to" or "begin even if you are not motivated" or on the idea that there

is only one appropriate time and place to begin a task. It can be considered that these cognitive configurations were effective for helping the experimental group to begin academic tasks even when they did not feel like working and to avoid focusing on perfectionism.

The experimental group in this study reported experiencing changes in their senses of not being able to manage anxiety or other challenges or to sustain study behavior. Studies demonstrate that disliking studying, avoiding the inconvenience of studying, and fear of failure are all associated with academic procrastination behaviors (Dryden, 2000; McCown & Johnson, 1991; Schraw et al., 2007; Solomon & Rothblum, 1984). It has been suggested that resisting fears, concerns, and challenges can contribute to individual goal orientation by strengthening emotional resilience and that academic procrastination can be reduced in this manner (Knaus, 2010). It is considered that this study's experimental group students had begun to perform goal-oriented behaviors by increasing their emotional resilience. In the framing of these changes, members appeared to be satisfied with the processes of sustaining study behavior and completing tasks by recognizing potentially distracting emotions, thoughts, and internal and external stimuli and not addressing them until tasks were completed.

"Individuals' perception of future time is being subjective and not being able to foresee when a task can be completed in time;" this phenomenon is observed as a source of procrastination (Burka & Yuen, 2008, p. 73). In addition, individuals sabotage themselves by spending time on only activities they enjoy rather than performing any unpleasant tasks (McCown & Johnson, 1991; Steel, 2007), although it is possible to manage these circumstances by postponing immediate gratification in favor of achieving future academic goals (Bembenutty & Karabenick, 1998). In this study, the experimental group stated they experienced changes in their perceptions of the lack of time and in managing their short- and long-term goals. These changes were shaped by the fact that these students could experience the differences between their objective and subjective time perceptions by doing their homework and valuing their work in the present and postponing their impulses and desires.

In this research, the experimental group students reported experiencing changes in their false automatic thoughts and beliefs and in their confidence to achieve success. On the basis of their statements, it can be said that the experimental group experienced changes in the cognitive dimension of academic procrastination. Studies highlight the inconsistency between individual intentions and behaviors in this cognitive dimension (Burka & Yuen, 2008; Çakıcı, 2003; Steel, 2007). In this psycho-educational program, it can be said that interventions on the intermediate and core beliefs dimension for ensuring consistency between intention and behavior were effective.

The study's qualitative findings are as follows:

- The experimental group members reported positive thoughts about the group practices and were satisfied with the group processes.
- Group members attained the personal goals set at the beginning of the group sessions, and nearly all had an idea of how to achieve their personal goals and understood that it would require time.
- Experimental group students reported that following the program, they had begun to initiate studying sessions; sustain study behavior; better tolerate challenges and difficulties; believe and trust in achieving success; study with the intrinsic motivation for learning; develop time perception and management skills; and better manage short- and long-term goals.
- These students also learned to replace false cognitions with realistic ones, and thus, it can be said that their intentions are consistent with their academic actions.

This research was performed with students from Muğla Sıtkı Koçman University; however, the same group practices can be conducted with students from different universities in future. The research was conducted with students who had no psychiatric diagnoses or treatment; thus, it could be tested whether the program was similarly effective in students with mild or moderate depression. In addition, the APS was used to obtain the quantitative data for this research, but to test the effectiveness of the program implemented in this study, different scales could be applied.

In this research, the group practices were developed and prepared following a cognitive-behavioral approach. Future studies can focus on developing a protocol for managing academic procrastination behaviors using eye movement desensitization and reprocessing therapy without the homework that is required in other therapies because this therapeutic process leads to rapid changes (Shapiro, 2012).

The qualitative findings of this research were tested using the GEFGP. The data collected from

the students' homework assignments and by members and group leaders can be evaluated and used in future research. Academic procrastination education programs can be integrated into university students' basic education curricula as electives or courses for credit. The effectiveness of the programs can then be investigated for different age groups and with different student samples. In this research, all false automatic thoughts were listed for the members; future studies can list only automatic thoughts that are associated with academic procrastination behaviors. More research is needed on academic procrastination and the correlation with automatic thoughts. Furthermore, the interventions (Socratic method and guided discovery, the use of metaphors, therapeutic card activities, and so on) that were considered to be effective in this research are of paramount importance for further research on managing academic procrastination behaviors. In summary, rather than simply telling students who want to address their academic procrastination behaviors what to do, techniques that allow them to explore themselves with activities are more useful.

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