

The Quasi-experimental in Mixed Method: Mindfulness-Based Acceptance Therapy and Cognitive Behavioral Therapy in Test Anxiety

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Abstract

The aim of our study is to compare the effectiveness of Cognitive Behavioral Therapy (CBT) and Mindfulness-Based Acceptance Intervention (MBA) in decreasing the anxiety of students, which negatively impacts academic achievement. A mixed-methods design was employed in the study. The experimental part is a quasi-experimental one including the pre-test, post-test, and control group. Data were collected by through a semi-structured interview to reveal the effectiveness of the experimental part. According to the results of the study, it was concluded that the experimental group scores decreased significantly compared to the control group. However, no significant difference was found between the experimental groups. In the qualitative part of the study, a case study was employed to reveal the outcomes achieved by the participants in the group sessions. The data was analyzed using descriptive statistics. The results indicated that MBA was effective in recuing test anxiety along with CBT.

Keywords: Test anxiety, mindfulness-based acceptance, cognitive behavioral therapy, qualitative analysis.

About the Article

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Introduction

For students in Japan, South Korea, Greece, and Turkey, high-stakes tests set standards in academic fields and create career paths for students. Aside from the students themselves, other individuals involved in their social lives, such as family members, teachers, and school officials, are also aware of their importance, which increases the pressure on students to succeed (Cassady, 2010; Cassady & Finch, 2020). Considering the power of such exams in directing the lives of students, adverse effects can arise. High-stakes tests concern a large number of individuals, and their results have positive or negative impacts on their lives. Researchers refer to this type of worry as test anxiety (von der Embse et al., 2018). In fact, the results of previous research have shown that students who take these high-stakes tests have high rates of test anxiety (Song et al., 2015). Test anxiety is highly common, and while the general incidence among high school students has been reported to be about 20% (Naveh-Benjamin et al., 1997; Putwain & Daly, 2014), this rate has been shown to have increased to up to 40% among children (Bannon, 2017). In the study by Genç et al. (1999), 17.2% of the students who had studied for a high-stakes test were found to have high-test anxiety. Test anxiety is defined as a significant degree of deep fear and anxiety about one's lack of performance before, during, and/or after an examination, especially in academic environments (Brown et al., 2011; Herzer et al., 2014; Bozkurt et al., 2016).

Test anxiety can be considered a wider and more specific type of "evaluation anxiety" (Cassady & Johnson, 2002; Harris et al., 2019). As a scientific term, test anxiety is related to the possible negative results or outright failure on the exam or a similar evaluation process with phenomenological, physiological, and behavioral responses (Ergene, 2003). The evaluation process can result in success or failure, and these results are often significantly relevant to an individual's aims and values in life. The process of test anxiety starts when an individual is exposed to an exam or other evaluation. It is assumed that cognitive evaluations mediate between people and situations. Thus, the meaning or interpretation that an individual assigns to a state of examination becomes a decisive factor affecting his/her emotions and behaviors. This situation can be perceived by most people as a matter of concern when taking exams of high importance (Skinner & Saxton, 2019).

Although the term test anxiety is generally associated with negative results, anxiety actually includes some positive features in many evaluative situations. Research indicates that the level of test anxiety is related to these negative outputs rather than to test anxiety itself. For instance, von der Embse et al. (2013) have stated that children and teenagers with higher test anxiety exhibit decreased performance on exams compared to students with lower test anxiety. In the study that Yıldırım (2000) conducted among tenth-grade high school students, there was a significant negative relationship between academic success and test anxiety, and test anxiety significantly predicted academic success. It is important to remember that having some motivational anxiety is necessary for the academic success of students; however, after a certain level, it has been observed that

the higher the rate of anxiety, the lower the academic success of students (Núñez-Peña et al., 2016).

Although research has associated test anxiety with academic success, test anxiety is also related to the psychological symptoms observed among students. For example, it was determined that depression in eighth and eleventh grade students could be predicted by test anxiety (Yıldırım, 2004). It has also been observed that students with higher test anxiety cannot employ their skills capably (Ergene, 1994), and higher test anxiety has negative effects on the psychological health of students (Zeidner, 2007). Von der Embse et al. (2018) analysed the data of 238 studies performed on test anxiety in a meta-analysis, and one of the significant results of this study was that test anxiety was negatively correlated with academic performance.

In an earlier work, von der Embse et al. (2013) conducted a meta-analysis of over 90 studies on test anxiety in children and teenagers in the fields of psychology and education. In this 10-year evaluation study including elementary and middle school students, it was found that techniques such as biofeedback, cognitive behavioral theory (CBT), and priming competency (von der Embse et al., 2013) were effective in decreasing test anxiety. In a study conducted among university students, acceptance-based behavioral therapy was found to be effective in decreasing test anxiety (Bannon, 2017). In a meta-analysis (Ergene, 2003), 56 experimental applications were analysed to investigate the effectiveness of intervention programs in reducing test anxiety. Among these intervention programs, some counseling therapies were found to be more effective. It was reported that among these programs, those based on combining behavioral approaches, such as systematic desensitization and relaxation exercises, with techniques of cognitive behavioral therapy (CBT) had a significant effect on reducing test anxiety. The same study, by contrast, revealed that meditation, physical exercise, gestalt therapy, and humanistic counselling approaches had lower effects on reducing test anxiety. In a meta-analysis, Ergene (2003) revealed that six-sessions of CBT were more effective in reducing test anxiety compared to other schools of therapy. In considering these different findings, the present study was performed to determine whether a specific form of acceptance and commitment therapy (ACT) is as effective in reducing test anxiety as CBT.

Acceptance and commitment therapy (ACT) is a third-generation CBT approach (Hofmann & Asmundson, 2008; Hofmann & Hayes, 2019). In the historical development of CBT, it is important to mention three periods. The first wave of behavioural therapy emerged as an approach based on scientifically well-structured basic principles and devoted itself to the development of well-structured and strictly tested applied technologies. Behavioral therapy has rejected limited research and claims about clinical theory and technologies related to cognitive processes (Hayes et al., 2004).

With the emergence of cognitive methods, the second wave was initiated, and this caused a change in the first behavioral therapy process. Second-wave cognitive

therapists considered emotion and thought to be central, and they developed a more direct therapy process. They started to work with cognition and cognitive processes to change the therapy process. Early cognitive therapies approached cognition in ways that were direct and clinically related. In the present study, cognition refers to common categories, such as thoughts, ideas, beliefs, or assumptions in general. Through surveys and clinical interviews focusing on such targets, clinicians learned to define cognitive failures in specific patients, and they developed direct tools to verify these problems (Hofmann & Hayes, 2019; Hayes et al., 2004).

The third wave questions the necessity of changing cognitions, or the goal in therapy to feel "better." Instead, they promote the acceptance of experience and the use of mindfulness techniques. Mindfulness-based acceptance (MBA) is a synthesis of ACT and mindfulness interventions. MBA is a therapy model that emphasizes contextual and experiential change strategies rather than the functions of psychological phenomena and the didactics of context (Hofmann & Asmundson, 2008). Acceptance and mindfulness-based interventions are directed towards changing the content of the subjective state and the social-verbal context of dysfunctional control through subjective states instead of psychologically accepting the specific state caused by experiential avoidance and consciously suppressing thought (Hayes et al., 2006). The main objective of ACT is to live a commitment with values and at the moment rather than experiential avoidance, excessive verbal responses to cognitive content or contact with the past and future (Hayes, 2019).

Negative opinions of students towards exams and their behavioral avoidance demotivate them to study and make them unwilling to take exams, which could result in undesired bodily and emotional states. For the students who are in this vicious cycle, an MBA intervention program was designed to increase the psychological acceptance of test anxiety and to motivate behavior change towards discouraging behavioral avoidance (Hofmann & Asmundson, 2008).

ACT was developed and put into effect by different researchers to reduce test anxiety (Brown et al., 2011; Nikkhah & Arefi, 2015; Zettle 2003). At the same time, various intervention programs aimed at test anxiety were put into practice, including psycho-education (Bozanoğlu, 2005; Demirci & Erden, 2016; Koruklu et al., 2006; Özdemir, 2005), psychotherapy (Başpınar-Can et al., 2012; Ulusoy et al., 2016), group guidance (Erkan, 1994), and psychodrama approaches (Dikici et al., 2010). Through the aforementioned studies, the effectiveness of ACT was revealed. After the introduction of MBA, we hypothesized that MBA would be effective in reducing test anxiety.

This research is an experimental study, helping students in their process to deal with test anxiety that is commonly observed among students who are in the period of transition from high school to university. The primary aim of the present research is to perform group applications of MBA intervention and CBT-based skill training among students who experience test anxiety and to analyse which counseling model is more effective to apply in schools in order to reduce cognitive and emotional processes of test anxiety.

With this aim, it was decided to apply MBA intervention to one group and to apply CBT-based skill training to the other group in order to enable students to give appropriate reactions to the understanding of test anxiety and to cope with it. At the end of skill training, final tests were compared, and it was analysed whether there was any difference or not.

The significant thing about this research is that there are few pieces of research about the effects of MBA intervention on test anxiety that have not been applied. Another important thing is that there has not been any comparison of skill training programs carried out by using MBA intervention and CBT-based skill training in the literature on test anxiety. Thus, it is considered that psychological counsellors, school psychologist, pedagogues and researchers in schools can benefit from the findings of this research.

In this study, CBT-based skill training was chosen in order to compare the effectiveness of MBA interventions. In many anxiety states, CBT is an effective intervention method. It has been thought that MBA intervention will reduce test anxiety and increase the effectiveness of psychological counsellors and, hence, it will enable students to be aware of test anxiety and to acquire coping skills.

The second aim of this study is to reach, through qualitative questions, a better understanding of intervention methods for test anxiety by supporting sessions of MBA intervention and CBT-based skill training through the answers of participants. In this way, it is thought to make contributions to the literature about the content of intervention sessions. We conducted a pilot study to investigate the practicality and reasonableness of such an intervention in high schools. The authors also make recommendations to prepare a program for the test anxiety population, based on the feedback from the students themselves.

Method

Research Design

This research is a quasi-experimental study to comparatively analyse the effects of MBA intervention and a CBT-based skill training program on the reduction of test anxiety in students. Pretest, posttest, and design with the control group were used in the study (Huck & McLean 1975; Shadish, Cook, & Campbell, 2002). In accordance with this design, there were two experimental groups and one control group. While the first experimental group applied an MBA intervention and the second experimental group was applied a CBT-based skill training program, no program was applied to the control group. Participants of the first experimental group applied for MBA for six weeks, and participants of the second experimental group were applied for CBT skill training for six weeks. The research has indicated that the six-session cognitive-behavioural based test anxiety coping method was effective on students with a higher level of test anxiety, reduced test anxiety in students, and created a positive change in test anxiety coping

methods. The effect size of the test anxiety coping programs, which were carried out in six sessions, was found to be 0.80 (Ergene, 2003).

Quantitative Analysis

Participants

Participants in the research were selected from a class of 12th graders who studied at a high school and were preparing for the Turkish national Transition to Higher Education Examination and Undergraduate Placement Exam. The demographic information form and the Test Anxiety Inventory (TAI) were administered to all 243 12th grade students (Figure 1. CONSORT participant flow diagram).

Procedure

The TAI was tested on 30 students who were selected at random from among 50 students who had the highest scores, indicating higher levels of anxiety. The MBA, CBT, and CG were formed through the lot method with 18 female and 12 male students with higher test anxiety. Subjects were then assigned to groups using the paired sampling method. The MBA group consisted of 10 students (7 female and 3 male); the CBT group consisted of 10 students (7 female and 3 male); and the CG group consisted of 10 students (6 female and 4 male). The permission of the parents of the students who participated in the study was obtained through a consent form. Students, their parents, and their classroom teachers were not informed about which group the students would participate in. The programs were administered to each group for 75 minutes per week. The interventions and data collection for all three study groups occurred simultaneously.

Counselor and Supervision

The counselling was provided by a psychological counselling doctoral student with experience and training in both ACT and CBT. Prior to treatment, the counselor participated in group counselling and a comprehensive ACT and CBT training program. He received CBT training in a graduate counseling program at the university. During the treatment phase, the counselor received six-week supervision. The CBT supervisor is accredited by the Beck Institute CBT Certification Program. The ACT supervisor is a lecturer in the psychology program and a psychiatrist at the Mental Health Hospital.

Measures

Test Anxiety Inventory (TAI)

The test anxiety of the students was evaluated using the Turkish version of the TAI. The TAI was developed by Spielberger et al. (1980) to measure test anxiety. The validity and reliability analyses of the Turkish version of the scale were conducted by Albayrak-Kaymak (1987). The TAI is a 20-item inventory consisting of two sub-dimensions: Worry (TAI-W) and Emotionality (TAI-E). Responses are scored on a 4-point Likert scale (1 =

almost never; 4 = *almost always*). For the adapted TAI, the total test anxiety score (range = 20–80) could also be calculated separately for each sub-dimension. The TAI-E subscale ranges from 12 to 48 points, whereas the TAI-W subscale ranges from 8 to 32 points. The Cronbach's alpha coefficients of the Turkish version at different levels (undergraduate and high school) were calculated between .82 and .92 for the total score of the TAI, between .64 and .79 for the TAI-W, and between .71 and .89 for the TAI-E. The reliability coefficient of the measurement scale, which was calculated by the test-retest method, ranged from .70 to .90. In this study, a comparison was made between genders, and no significant difference was found (Albayrak-Kaymak, 1987).

Experimental Application

While one experimental group was subjected to MBA, the other experimental group was subjected to CBT. The CG did not receive any therapy. The programs were started in November in 2018. While the sessions were in progress, three members of the MBA group left the study. Thus, the MBA program was completed with seven participants. In the study, both experimental groups participated in six experimental sessions, each of which took approximately 75 minutes per week. Since the data of the research, experimental groups, and CG did not have a size showing a normal distribution, the TAI total and sub-dimension scores were evaluated through nonparametric statistics. To achieve this aim, Kruskal–Wallis H, Mann–Whitney U, and Wilcoxon signed rank tests (Z) were used (Zimmerman & Zumbo, 1993). The value of Z could be used to calculate an effect size, such as *r* (Cohen, 1988). In the present research, nonparametric Kruskal–Wallis H, Mann–Whitney U, and Wilcoxon signed rank tests were utilized to determine whether the MBA, CBT, and CG groups varied in terms of the subscale points and the total points of TAI.

The Group Sessions of MBA Intervention

MBA is a group intervention based on mindfulness and ACT for high school students with high-level test anxiety. The program aimed to improve skills in the following areas: mindfulness, acceptance, cognitive defusion, committed actions in the context of values, and homework to strengthen MBA skills. The aims and sub-aims of the sessions are given in Table 1.

Group Sessions on CBT-Based Skills Training

Inspired by the intervention program developed by Özdemir (2005), the intervention was designed based on CBT techniques. The programs that were implemented involved setting goal, breathing exercises, restructuring, and homework in CBT. The aims and sub-aims of the sessions are given in Table 1.

Data Analyses

The interventions and data collection for all three study groups occurred simultaneously. The three participants who left the MBA group were not included in the data analysis.

Thus, the analyses were performed with the pre-test and post-test scores of seven participants in the MBA group, 10 participants in CBT group, and 10 participants in the CG. The nonparametric Kruskal–Wallis H test was used to determine whether the participants' post-test scores on the TAI varied significantly. The nonparametric Mann–Whitney U test was performed to determine among which groups the post-test scores on the TAI significantly varied. SPSS 18 package software was used in the analysis of the data.

In order to ensure the validity of the research, therapy theories were thematically determined, and sessions were categorically determined in the analysis of the data. Within this context, for each session of the research, research data were analysed in accordance with the coding that was carried out in order to provide validity of the research (Creswell, 2009). As a small pilot study, these findings were considered preliminary to help inform the design of a larger activity trial that would involve exam anxiety at school.

Qualitative Analysis

Research Model

The case study, as one of the qualitative research methods, was used in this study. A case study is used to provide insight into a topic (Glesne, 2013). Based on the questions of how and why, a case study is a qualitative research method that attempts to examine the depth of a phenomenon or an event that the researcher cannot control (Creswell, 2009). A case is “a phenomenon which is unique to a time and place”. A phenomenon or process “can be theoretical, empirical, or both” (Johansson, 2003; Yin, 2017). The case study makes it possible to explore, identify and explain a unique phenomenon, and allows an experimental and/or situational relationship to give an experiment-based unity (Yin, 2001; see also R Ramos, de Pires et al., 2013). The case studies can be combined with other research strategies. Within this context, a case study is a meta-method (Johansson, 2003; Yin, 2017). A Case study allows for methodological eclecticism to some extent. This eclecticism prominently includes asking questions to participants, observing what is happening, and analysing documents (Bassey, 1999).

Research Group

The research group of the study is a critical incident sample from purposive sampling methods. A critical incident works in such a way that if something happens in a given situation, it will certainly happen in other similar situations or if it does not happen in that situation, it will not happen in any other situations (Creswell, 2009). It was formed according to the session main headings in order to reveal how sessions were perceived by the members at the end of the intervention program. Based on the themes formed for the content of sessions, the study group consisted of 7 participants who participated in MBA interventions and 10 participants who participated in CBT-based skill training.

Data Collection Tool

A semi-structured interview form was used for data collection. After the last revisions, it became an interview form in order to evaluate the applied intervention programs. Interviews were carried out in the practice hall of the school where sessions were carried out. During the interviews, interviews with participants were conducted in a standard format by means of voice recording systems. The semi-structured data collection tool, which was created for the evaluation of each session of intervention programs and for a general evaluation, was carried out with group members; and each was completed as a interview lasting for 7 to 14 minutes.

Data Analysis

Data from the semi-structured interview forms was analysed by carrying out descriptive analysis on the acquired data. Descriptive analysis is a type of qualitative data analysis that involves the interpretation and summarization of the collected data by using various data collection techniques and in accordance with the themes specified before. Descriptive analysis is the presentation of data with the aim of strengthening its meaning, sometimes by quoting, without touching the essence of the opinions received from members participating in the research (Glesne, 2013).

Preparing Data for Analysis

During this process, the interviews, which lasted 155 minutes and 21 seconds, were written out in 28 pages. Later, these texts were read by the researchers twice without any interruption and once with interruptions.

Coding and Themes

At this stage, the researchers prepared a code list based on the literature (Creswell, 2009). This code list was used to provide external validity proof. In the second part, the raw data set was coded by considering significant data units. Codes which were obtained with the codes prepared based on the literature were compared with the main categories; and the latest themes were identified through matches that were carried out during the real coding processes. Codes acquired from the literature and codes acquired from participants in accordance with these codes were combined and then analysed under three categories of MBA intervention "mindfulness exercise, cognitive fusion, and acceptance". CBT-based skill training was analysed under two main categories: "coping strategies, restructuring of thoughts".

Coding of the Data and Their Association with Themes

Significant data units about each code were organized in *MSEXcel* spreadsheets. In this way, it is possible to observe which statement type the participants created is related to each code.

Reporting

At this stage, themes to be used in order to explain the results of the research were determined; Codes related to each theme were clarified through the references chosen by the participants. To provide diversity in quotations, statements of samples covering the data sources and describing the themes and codes in the best way were included. Findings were presented in the MBA intervention under these titles: a) mindfulness exercise, b) cognitive defusion and c) acceptance. CBT-based skill training was presented under these titles: a) Realizing thought mistakes, b) coping strategies and c) restructuring of thoughts about test anxiety.

Credibility and Ethics

The researchers took certain precautions to ensure validity and reliability. In order to increase transmissibility, critical incident sampling of purposive sampling methods was used. A critical incident is as follows: if it happens in this situation, it will definitely happen in some other similar situations or if it does not happen in this situation, it will never happen in another situation (Creswell, 2009). Data loss was prevented through audio records. With the approval of the participants, it was tried to reveal how much the results reflect the truth. For this purpose, the transcripts of the interviews were later read again to the interviewers, and they were asked if there was anything they would like to add or change. Research data was analysed after participants had approved transcripts. After the data was finalized, the reliability of the study was tried to be provided by applying expert opinion. The researcher explained his role and situation during the research process in a clear way. The acquired data was explained by being reported in detail. The study received ethics approval from the ethics committee of Muğla Sıtkı Koçman University (03.01.2017).

Role of the Researcher

The field researcher is a PhD student, a psychological counsellor, and a lecturer at a university's Psychological Counselling and Guidance program. The researcher has worked for 12 years in institutions which provide education for exams. He took classes in psychological counselling with group and practiced psychological counselling with groups during his postgraduate and doctoral studies. This study is the second qualitative research experience of the researcher. There was no teacher-student relationship between the participants and the researcher when he was conducting his studies at the university. In addition, the researcher explained the reason for the research after the intervention program. He explained the information about where, how and for what purposes he would use the data obtained during the interviews. It helps participants to be completely honest with their answers. The researcher took necessary the precautions to increase the transmissibility and reliability of the research.

Quantitative Analysis Results

The pre-test and post-test scores on the TAI, TAI-W, and TAI-E (n; mean; and standard deviation [SD]) belonging to the MBA group, the CBT group, and the CG are shown in Table 2.

The results of the Kruskal–Wallis H test to determine whether the MBA group, the CBT group, and the CG showed a significant difference in terms of the post-test scores on the TAI, the difference between the scores of the groups was found to be significant ($X^2 = 6.85$, $p < .05$) (see Table 3). Regarding whether the MBA group, the CBT group, and the CG showed a significant difference in terms of the post-test scores on the TAI-W, the difference between the scores of the groups was found to be significant ($X^2 = 8.87$, $p < .05$). However, the analysis revealed that there was an insignificant difference in terms of the TAI-E post-test scores.

The Mann–Whitney U test aimed to analyze the source of the differences between the post-test scores on the TAI and those on the TAI-W. According to the results, the post-test scores on the TAI for all three groups differed significantly (post-test of the TAI: MBA vs. CG: $U = 12.00$, $p < .05$; CBT vs. CG: $U = 21.00$, $p < .05$). However, the post-test scores on the TAI for the MBA and CBT groups did not differ significantly ($U = 32.50$, $p > .05$) (see Table 4).

According to the results of the Mann–Whitney U test, the post-test scores on the TAI-W for the MBA group, the CBT group, and CG differed significantly (post-test of the TAI-W: MBA vs. CG: $U = 10.50$, $p < .05$; CBT vs. CG: $U = 16.00$, $p < .05$). However, the results for the post-test scores on the TAI-W for the MBA and CBT groups did not differ significantly ($U = 28.50$, $p > .05$).

The results of the Wilcoxon signed rank tests indicated that the point ranks of the pre-test vs. post-test scores on the TAI for the MBA group differed significantly ($Z = -2.20$, $p < .05$) with a large effect size ($r = .83$) (see Table 5). The point ranks of the pre-test vs. post-test scores on the TAI for the CBT group also differed significantly ($Z = -2.50$, $p < .05$) with a large effect size ($r = .78$). The point ranks of the pre-test vs. post-test scores on the TAI for the CG did not differ significantly ($Z = -.41$, $p > .05$) with a small effect size ($r = .13$).

Qualitative Analysis Results

The findings of the research that was given to all participants in the last session of the applied intervention programs were designed to understand what the group perceived in each session.

As can be observed in Table 6, according to the data obtained from the descriptive analysis of the intervention program, the results match the dimensions of the MBA intervention. The first theme was created under the title “mindfulness exercise”. With the statements of A3 “Realize thoughts” and A4 “When I am too stressed, I take a deep

breath and focus on the moment", it was attempted to save group members from the pressure of past and future experiences and to enable them to live the experience of "mindfulness exercise". It was understood from the structure of these sessions that group members can use the experience of "mindfulness exercise" and improve it as a skill. When sub-dimensions of the theme "mindfulness exercise" were analysed, it was determined that group members can recognize anxiety in their bodies, make sense of the change in their bodies during the experience, and change bodily reflections of anxiety. It can be inferred from this theme that group members can develop skills of mindfulness and improve their physical awareness when they experience test anxiety.

As the basic hypothesis of ACT, "Cognitive fusion" and "Experiential avoidance" are seen as the basic reasons for psychological rigidity. Group sessions were created by considering these assumptions; and in group sessions, it was aimed to teach cognitive defusion, which is the opposite of cognitive fusion. According to the acquired data, A2 "I did not care about negative thoughts that came to my mind during the exam", A6 "Realize thoughts and then send them", and A7 "Now, I am aware of my anxiety, and I do not fight against myself" were created in the second theme under the title "cognitive defusion". It can be understood from this theme that group members improved their skills in cognitive defusion. Group members stated that when they experienced test anxiety, they realized that negative thoughts automatically came to their minds, and when they did not deal with them cognitively, test anxiety decreased.

Created by considering the assumptions, in group sessions, it was aimed at improving acceptance experiences, which are the opposite of experiential avoidance. Since group sessions are based on ACT, sessions were created with the aim of helping members develop acceptance skills instead of experiential avoidance. When the statements of members, A1 "I learned how to live with my test anxiety", A2 "Instead of fighting against my anxiety and wasting time, I accept it and become friends with it", and A7 "I realized that my experiential avoidance does not save me" were analysed, the third theme was created under the title of "acceptance". It can be understood from this theme that group members improved their skills of acceptance and experiential avoidance caused by test anxiety decreased. It means that group members opened a space in their minds for the thoughts about exams and they could cope with them. At this point, it can be understood that when they experience test anxiety, they can realize negative emotions and thoughts about it, and they can cope with it.

According to the findings, it is observed that the acquired themes match up with the session aims of the MBA intervention. It was determined that group members had learned techniques taught in the skill training and could use them when they experienced test anxiety. Some group members emphasized the effectiveness of methods that were applied in order to decrease test anxiety.

As observed in Table 7, according to the data acquired from the qualitative analysis of the intervention program, themes match up with CBT based skill training sessions.

The first theme was created under the title “realizing thought mistakes”. When statements of group members were taken into consideration and when statements such as B3 “Applying it successfully by realizing thought mistakes”, B4 “I realized my thought mistakes”, And B7 “Controlling my anxiety and overcoming thought mistakes” were analysed, it was primarily aimed in the CBT-based psycho-education process to make group members realize that their cognitive mistakes cause problems in their way of understanding and interpreting events. During the process of group sessions which were created in line with this purpose, it was understood from the written statements of group members that they were not aware of their problematic perspectives or cognitive distortions about test anxiety, and it was considered that the session achieved its aim.

The second theme was created under the title “coping strategies”. When the statements of group members were taken into consideration and as can be observed from statements such as B4 “When something negative happens in my life, I get angry or excited less thanks to breathing exercise”, B1 “I applied breathing exercises when I was extremely stressed”, and B7 “Doing breathing exercises”, group members used breathing exercises as a coping strategy against test anxiety. Therefore, it can be evaluated as such that group members can use relaxation exercises from behavioural techniques, which are used to decrease test anxiety, in their daily lives.

The third theme was created under the title “Restructuring the thought about test anxiety, cognitive restructuring, changing the thought, using the alternative thought”. Deducing from statements such as B1 “I learned that the exam is not the last solution, there are other ways to achieve my goal”, B2 “My anxiety is not like it was on the first day, but it did not disappear and I think anxiety is necessary”, and B6 “I learned that I am seeing only one colour in life and I can learn something from people”, it is observed that interventions about the changing process of making sense of events and interpreting them are required for change in the CBT-based psycho-education process. When the statements of group members are analysed, it can be evaluated as such that practices of restructuring thoughts to decrease test anxiety and of developing alternative thoughts have had reflections of group members, and they can reflect what they learned on their daily lives in a written way; and from this point of view, it can be stated that the aimed intervention achieved its aim.

According to the data acquired from the CBT-based psycho-education program, it is inferred that group members can realize their mistakes and change them. It can be inferred that members can use functional methods to reach their aims, and it can also be inferred that they can try functional methods to solve their problems. As understood from these themes, the acquired themes match up with the session aims of CBT-based skill training. Some group members emphasized the effectiveness of methods which were applied in order to decrease test anxiety.

Discussion

Quantitative Analysis

The aim of this research was to analyze the effectiveness of MBA and CBT in alleviating test anxiety among students. According to the findings of the research, both MBA and CBT decreased students' test anxiety scores.

Specifically, in the study, MBA appeared to be as effective as CBT in reducing test anxiety. According to the post-test results, it was observed that MBA was statistically significant in reducing test anxiety. The outcomes of MBA have been found to be consistent with those reported in previous studies (Bannon, 2017; Bellinger et al., 2015; Brown et al., 2011; Hayes et al., 2011; Nikkhah & Arefi, 2015; Zettle, 2003).

The TAI scores of participants in the MBA and CBT groups indicated that they achieved their goals of reducing their test anxiety. In this period, they emphasized the functionality of coping strategies aimed at reducing test anxiety. The MBA group members learned about the *acceptance* of the emotions associated with test anxiety; they were enabled to *be in the moment* with their anxiety and experience cognitive defusion through *breathing exercises* and *cognitive defusion* techniques, which helped them to focus on the moment to which they were reacting. The fact that the cognitive defusion technique is an effective method to reduce the negative emotions of an individual is actually reported in the literature (Aydın & Yerin-Güneri, 2020; Masuda et al., 2004; Zettle & Hayes, 1986). In this way, it is obvious that the skills intended to be taught during the sessions were achieved. Therefore, they reported experiencing less test anxiety in situations where they would be expected to have higher levels of test anxiety (Cunha & Paiva, 2012).

Values are purposeful choices that can guide our actions (Hayes & Strosahl, 2004). Test anxiety can prevent us from acting on our values. By enabling individuals to realize their values, they were ensured to have positive attitudes to struggle with their exams by recognizing their values.

It has been reported that mixed interventions are more effective than other approaches, as in the case of teaching functional skills with CBT (Gregor, 2005; Yahav & Cohen, 2008). According to the post-test results, CBT appeared to significantly reduce test anxiety. It was observed that the effectiveness of CBT in reducing test anxiety in the present study corresponds to the results reported in previous research (Ergene, 2003; Goldfried et al., 1978; Hembree, 1988; Huntley, et al., 2019; Koruklu et al., 2006; Meichenbaum, 1972).

CBT appeared to effectively reduce test anxiety. Studies on anxiety generally focus on emotions and cognitive dimensions (Cunha & Paiva, 2012; de Hullu et al., 2017; Olatunji et al., 2010). The results of this and previous studies support the idea that a change in thoughts reveals a change in behaviour and emotions, according to CBT, and that this has a significant effect on reducing test anxiety (Arch et al., 2012; Türk & Katmer, 2019). However, in the statistical analysis to determine which program was

more effective, a comparative analysis was performed, and no significant difference was found between MBA and CBT with respect to test anxiety scores. This result also corresponds to previous research (Brown et al., 2011; Johnston et al., 2013; Zettle, 2003). Although the approaches have different methods for alleviating test anxiety, it can be said that both intervention methods are effective in reducing students' test anxiety.

Based on these results, MPA appeared equally effective as CBT in reducing test anxiety. It was previously determined that MBA has the ability to reduce students' test anxiety (Masuda et al., 2004; Zettle & Hayes, 1986). Thus, after being implemented in different cultures, the results of interventions for reducing test anxiety correspond to each other, which makes it possible to think that ACT is a highly effective therapy model.

The mindfulness-training program (Zylowska et al., 2008) and ACT (Hayes et al. 2011) were shown in recent research to help alleviate psychological problems and improve school performance (Aydın & Yerin-Güneri, 2020; Frank et al., 2017; McKeering & Hwang, 2019). Based on the results of the current study, MBA can be applicable in future intervention programs that aim to reduce test anxiety. In accordance with this information, for future studies, the effective application of MBA in studies aimed at reducing test anxiety is highly important to improve the academic performance of students. The application of this program in schools for students who experience test anxiety is expected to be beneficial. Moreover, these findings contribute to the growing literature on the role of mindfulness in alleviating test anxiety.

Qualitative Analysis

The aim of this study is to contribute to the better understanding of intervention methods for test anxiety by supporting sessions of MBA intervention and CBT-based skill training through the answers of participants. It is thought that, in this way, it will contribute to the literature about the contents of intervention sessions. The qualitative findings of the study were supported by the quantitative results of skill training group applications and the analysis of the data acquired from the answers of participants.

Group members of MBA intervention and CBT-based skill training stated that they achieved their aims to reduce test anxiety; and in this period, they emphasized the functionality of coping strategies aimed at reducing test anxiety. Group members of the MBA intervention learned the acceptance of emotions about test anxiety; they were enabled to be in the moment of anxiety and to experience cognitive defusion through breathing exercises and cognitive defusion techniques which helped them to focus on the moment they gave reactions. The fact that the cognitive defusion technique is an effective method to reduce negative emotions of an individual corresponds to the literature (Aydın & Yerin Güneri, 2020; Masuda et al., 2004; Zettle & Hayes, 1986). In this way, it was understood that the skill which was attempted to be taught during sessions was achieved. Thereby, participants felt better in situations in which they experienced test anxiety (Cunha & Paiva, 2012).

Group members of CBT-based skill training stated that they realized their thought mistakes about test anxiety and tried to turn them into functional thoughts. Meanwhile, they stated that having negative thoughts about exams led them to experience a mood in which they lived unconsciously. In order to cope with this situation, they realized their thought mistakes, and used relaxation techniques such as thought changing cognitive strategies and breathing exercises (Cho et al., 2016; Hinton et al., 2013). It reveals that the program has helped them to develop skills of coping, and it corresponds to the literature (Johnston et al., 2013; Kaya & Avcı 2016). In conclusion, participants have felt better in situations where they experience test anxiety.

Limitations and Future Directions

A limitation of this study is that it involved a, small sample study with a test. Although this study gives us a preliminary view of the effectiveness of teaching mindfulness in test anxiety and contributes to the small group base, future work should involve larger samples. A second limitation concerns the generalizability of this study to other content domains. Further research is needed to examine whether these results in the sample are specific and whether they are generalizable to another sample.

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Table 2.

The Pretest and Posttest of the TAI, TAI-W and TAI-E, Mean, and Standard Deviation of the MBA intervention, the CBT-based Skill Training and the Control Group

		MBA		CBT		Control Group (CG)	
Test Points	n	Mean(SD)	n	Mean(SD)	n	Mean(SD)	
TAI							
Pretest	7	56.71(12.81)	10	56.3(10.59)	10	57.70(4.08)	
Posttest	7	43.43(5.12)	10	43.90(11.63)	10	56.40(11.62)	
TAI-W							
Pretest	7	22.00(5.16)	10	23.10(4.68)	10	24.20(2.74)	
Posttest	7	16.85(2.34)	10	16.9(5.44)	10	23.20(5.18)	
TAI-E							
Pretest	7	34.71(7.95)	10	33.20(6.84)	10	33.50(3.66)	
Posttest	7	26.57(3.10)	10	27.00(6.72)	10	33.20(7.1)	

Table 3.

Total Points of Test Anxiety Inventory and Sub-Dimensions Results of Kruskal Wallis-H Test for MBA intervention, CBT-based Skill Training, and Control Group

Point	GROUP	N	Mean Rank	X ²	Sd	p
Final Test Total Points of TAI	MBA	7	11.07	6.85	2	.033*
	CBT	10	10.85			
	CONTROL	10	19.20			

Final Test Total Points of Delusion	MBA	7	11.43			
	CBT	10	9.95	8.87	2	.012*
	CONTROL	10	19.85			
Affective Final Test Total Points	MBA	7	11.43			
	CBT	10	11.60	4.46	2	.107
	CONTROL	10	18.20			

* $p < .05$, ** $p < .01$

Table 4.

Total Points of Test Anxiety Inventory and Sub-Dimensions Results of Mann Whitney U Test for MBA intervention, CBT-based Skill Training, and the Control Group

Point	GROUP	N	Mean Rank	Sum of Ranks	U
Final Test Total Points of TAI	MBA	7	5.71	40.00	12.00*
	CONTROL	10	11.30	113.00	
	CBT	10	7.60	76.00	21.00*
	CONTROL	10	13.40	134.00	
Final Test Total Points of Delusion	MBA	7	9.36	65.50	32.50
	CBT	10	8.75	87.50	
	MBA	7	5.50	38.50	10.50*
	CONTROL	10	11.45	114.50	
	CBT	10	7.10	71.00	16.00*
	CONTROL	10	13.90	139.00	
	MBA	7	9.93	69.50	28.50
	CBT	10	8.35	83.50	

* $p < .05$, ** $p < .01$

Table 5.

Total Points of Test Anxiety Inventory Results of Pretest-Posttest Wilcoxon Signed Ranks Test Analysis for MBA intervention, CBT-based Skill Training, and the Control Group

Point	GROUP	Rank	N	Mean Rank	Sum of Ranks	Z
Pretest-Posttest Total Points of TAI	MBA	Negative Ranks	6	4.50	27.00	2.20*
		Positive Ranks	1	1	1.00	

CBT	Negative Ranks	8	6.5	52.00	2.50*
	Positive Ranks	2	1.5	3.00	
Control Group	Negative Ranks	6	4.33	26.00	0.41
	Positive Ranks	3	6.33	19.00	

* $p < .05$, ** $p < .01$

Table 1.

The Content of MBA and CBT Intervention Sessions

MBA		CBT
Session	Contents	
Session 1	Meeting Mindfulness exercise (Practice mindful breathing) Determining the rules of the group Learning MBA Creating personal aims	Enabling participants to meet each other, Determining rules of the group, Creating personal aims, Breathing Exercise
Session 2	Mindfulness exercise (Practice breathing space) Learning acceptance and cognitive defusion Realizing experiential avoidance Realizing experiential avoidance about the exam Realizing cognitive fusion Realizing cognitive fusion about the exam	Introducing Cognitive Behavioural therapy Enabling the realization of basic elements causing anxiety Enabling participants to realize their emotions and thoughts during the exam
Session 3	Mindfulness exercise (Practice breathing space and sitting meditation) Cycle of test anxiety and cognitive fusion Cycle of test anxiety	Realizing physiological changes on the body created by test anxiety Revealing the qualities of the anxiety experienced in the exam environment Enabling them to relax through breathing practices
Session 4	Mindfulness exercise (Practice activity awareness, breathing space) I am aware of my values Describing values	Revealing thinking errors and belief systems of participants Enabling participants to realize thinking errors and belief systems Enabling them to relax corporeally
Session 5	Mindfulness exercise (Practice body scan) Existence of our values Maintaining our stable actions Observing Self Maintaining stable actions in line with values	Enabling the maintenance of rational thoughts in group participants Enabling them to gain awareness about behaviours in exam environments where anxiety is not present Enabling them to relax corporeally
Session 6	Mindfulness exercise (Mindful walking) Sharing acquirements obtained from group experience	Enabling participants to evaluate the conducted sessions Determining how much participants reach their personal aims

Receiving feedback from participants Farewells	Discussing how much the group participants achieve to use their ability to cope with test anxiety Breathing Exercise Farewells
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Table 6.

Statements of Participants of MBA intervention and Themes

Participant	Statements of participants	Themes
A1	Thanks to being in the moment exercise, I learned to feel relaxed when I am stressed.	Mindfulness exercise
A2	I use the bus metaphor by being in the moment.	
A3	Realize thoughts and then send them.	
A3	Acceptance and being in the moment helps me.	
A4	When I am too stressed, I take a deep breath and focus on the moment.	Cognitive defusion
A1	Now when I have an undesired thought, I do not try hard to get rid of it. I just say "Yes, I remember that I have such a thought" and I let it go.	
A2	I did not care about negative thoughts that came to my mind during the exam.	
A6	Realize thoughts and then send them.	
A7	Now, I am aware of my anxiety and I do not fight against myself.	Acceptance
A1	I learned how to live with my test anxiety. I accepted the test anxiety I experienced and I learned to live with it.	
A2	Instead of fighting against my anxiety and wasting time, I accept it and become friends with it.	
A4	My acceptance of test anxiety and ability to live with it helped me to overcome test anxiety.	
A6	I could finally use my ability of acceptance. Acceptance and mindfulness helps me.	

Table 7.

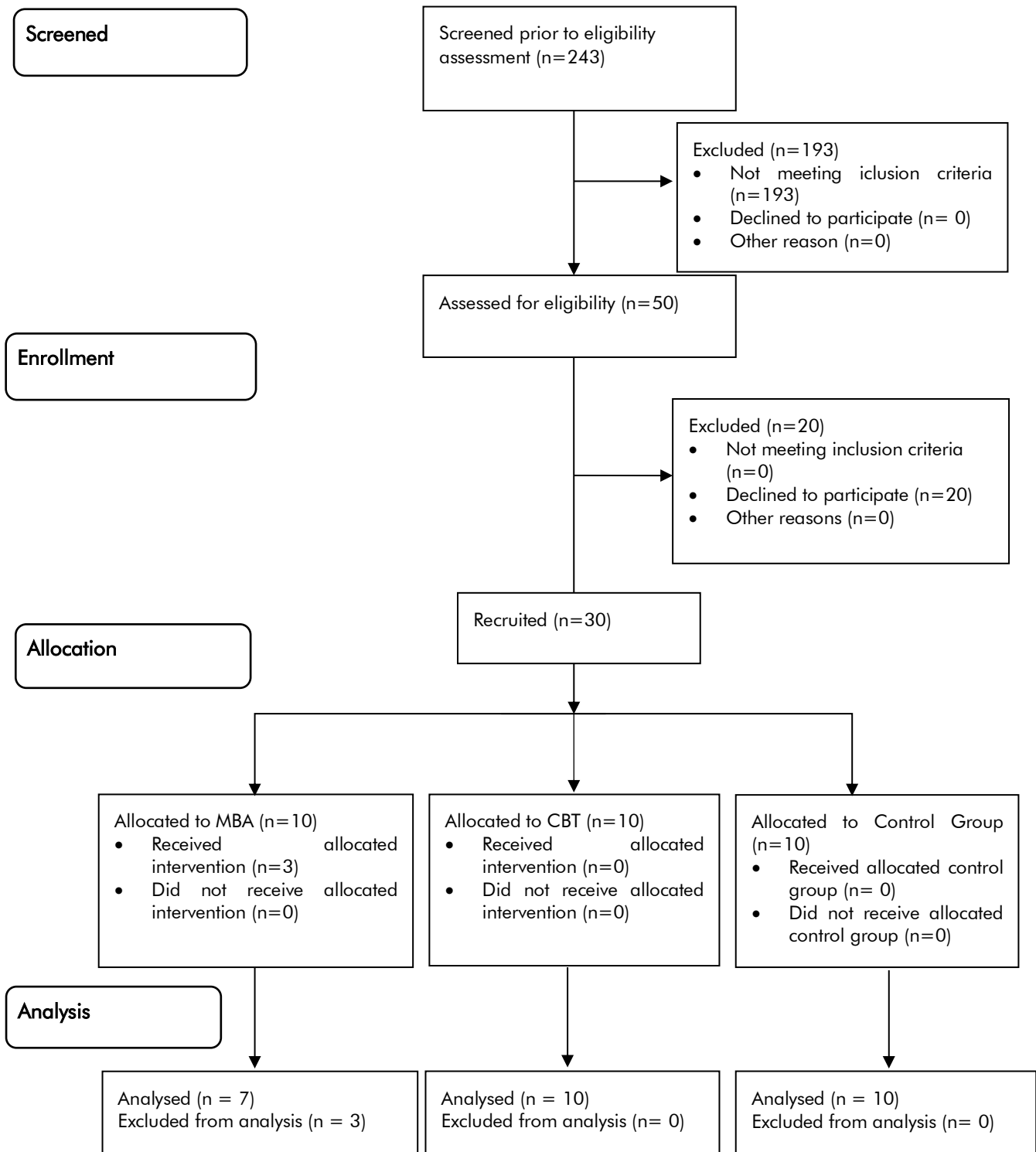
Statements of Participants of CBT Based Skill Training and Themes

Participant	Statements of participants	Themes
B2	Overcoming thought mistakes by believing	Realizing thought mistakes
B3	Applying it successfully by realizing thought mistakes	
B4	I realized my thought mistakes.	
B5	Finding thought mistakes	
B7	Controlling my anxiety and overcoming thought mistakes	
B10	I realize my thought mistakes	Coping strategies
B1	I applied breathing exercises when I was extremely stressed	
B3	When I am stressed, I can think in a healthier way by doing breathing exercise and thinking about safe zone	
B4	When something negative happens in my life, I get angry or excited less thanks to breathing exercise.	
B5	If I am stressed during an exam, I take deep breaths and feel relaxed by going to my safe zone	
B6	I use it in a way that affects me positively	

B7	Doing breathing exercises	
B7	Controlling my anxiety	
B8	Breathing exercise	
B9	Breathing exercise	
B10	When I am stressed during an exam or while I am doing a test and thinking that I cannot do it, I do breathing exercise	
B1	I learned that the exam is not the last solution, there are other ways to achieve my goal	
B2	I learned that not everything depends on only one exam My anxiety is not like it was in the first day but it did not disappear and I think anxiety is necessary	Restructuring the thought about test anxiety, cognitive restructuring,
B3	I learned that not everything depends on only one exam	changing the thought, using the alternative thought
B6	I learned that I am seeing only one colour in life and I can learn something from people	
B7	I realized that if I understand that stress is meaningless and I prepare for the exam in a better and less stressed way, I can solve my problems in the best way	

Figure 1.

CONSORT participant flow diagram.



Genişletilmiş Türkçe Özet

Japonya, Güney Kore, Yunanistan ve Türkiye'deki öğrenciler için üniversiteye giriş sınavları akademik alanlarda standartları belirler ve öğrenciler için kariyer yolları oluşturur. Bu tür sınavların öğrencilerin yaşamlarına yön verme gücü düşünüldüğünde olumsuz etkileri ortaya çıkabilmektedir. Üniversiteye giriş sınavları çok sayıda kişiyi ilgilendirir ve sonuçları yaşamları üzerinde olumlu veya olumsuz etkilere sahiptir. Araştırmalar, sınav kaygısının düzeyinin, sınav kaygısının kendisiyle değil, bu olumsuz çıktılarla ilişkili olduğunu göstermektedir.

Bu araştırma, liseden üniversiteye geçiş sürecinde olan öğrencilerde yaygın olarak görülen sınav kaygısıyla baş etme süreçlerinde öğrencilere yardımcı olan deneysel bir çalışmadır. Bu araştırmanın temel amacı, sınav kaygısı yaşayan öğrencilere farkındalık temelli kabul (FTK) müdahalesi ve bilişsel davranışçı terapi (BDT) temelli beceri eğitiminin grup uygulamasını gerçekleştirmek ve sınav kaygısının bilişsel ve duygusal süreçlerini azaltmak için okullarda hangi psikolojik danışma modelinin uygulanmasının daha etkili olduğunu analiz etmektir. Bu amaçla, öğrencilerin sınav kaygısını anlamalarına uygun tepkiler vermeleri ve bununla baş etmelerini sağlamak amacıyla bir gruba FTK müdahalesi, diğer gruba BDT temelli beceri eğitimi uygulanmasına karar verilmiştir. Beceri eğitimi sonunda son testler karşılaştırılmış ve fark olup olmadığı analiz edilmiştir.

Bu araştırmayla ilgili önemli olan şey, FTK müdahalesinin sınav kaygısı üzerindeki etkilerine ilişkin az sayıda araştırma olması ve uygulanmamış olmasıdır. Bir diğer önemli husus ise sınav kaygısı literatüründe FTK müdahalesi kullanılarak gerçekleştirilen beceri eğitimi programları ile BDT temelli beceri eğitiminin karşılaştırmasının yapılmamış olmasıdır. Böylece psikolojik danışmanların, okul psikologlarının, pedagogların ve okullardaki araştırmacıların bu araştırmanın bulgularından yararlanabileceği düşünülmektedir.

Bu çalışmada, FTK müdahalesinin etkinliğini karşılaştırmak için BDT tabanlı beceri eğitimi seçilmiştir. Birçok kaygı durumunda BDT etkili bir müdahale yöntemidir. FTK uygulamasının sınav kaygısını azaltacağı ve psikolojik danışmanların etkinliğini artıracacağı, dolayısıyla öğrencilerin sınav kaygısının farkına varmalarını ve başa çıkma becerileri kazanmalarını sağlayacağı düşünülmektedir.

Bu çalışmanın diğer amacı, FTK müdahalesi ve BDT temelli beceri eğitimi oturumlarını katılımcıların cevaplarıyla destekleyerek sınav kaygısına yönelik müdahale yöntemlerinin nitel sorular aracılığıyla daha iyi anlaşılmasına ulaşmaktır. Bu sayede müdahale oturumlarının içeriği ile ilgili literatüre katkı sağlanacağı düşünülmektedir. Liselerde böyle bir müdahalenin uygulanabilirliğini ve makul olup olmadığını araştırmak için bir pilot çalışma gerçekleştirdik.

Bu araştırma, FTK müdahalesi ile BDT temelli beceri eğitimi programının öğrencilerin sınav kaygısını azaltma üzerindeki etkilerini karşılaştırmalı olarak analiz etmek için yarı

deneysel bir çalışmadır. Araştırmada ön test, son test ve kontrol gruplu desen kullanılmıştır. Bu desene uygun olarak iki deney grubu ve bir kontrol grubu oluşturulmuştur. Birinci deney grubuna FTK müdahalesi, ikinci deney grubuna BDT temelli beceri geliştirme programı uygulanırken, kontrol grubuna herhangi bir program uygulanmadı. Birinci deney grubundaki katılımcılara altı hafta FTK, ikinci deney grubundaki katılımcılara ise altı hafta BDT beceri eğitimi uygulanmıştır.

Araştırmanın katılımcıları, bir lisede öğrenim gören Yükseköğretime Geçiş Sınavı ve Lisans Yerleştirme Sınavına hazırlanan 12. sınıf öğrencilerinden seçilmiştir. 243 12. sınıf öğrencisine demografik bilgi formu ve Sınav Kaygısı Envanteri (SKE) uygulandı.

FTK, BDT ve kontrol grubu (KG) sınav kaygısı yüksek olan 18 kız ve 12 erkek öğrenci ile kura yöntemiyle oluşturulmuştur. Denekler daha sonra eşleştirilmiş örnekleme yöntemi kullanılarak gruplara atanmıştır. FTK grubu 10 öğrenciden (7 kız ve 3 erkek) oluşuyordu; BDT grubu 10 öğrenciden (7 kız ve 3 erkek) oluşuyordu; KG ise 10 öğrenciden (6 kız, 4 erkek) oluşmaktadır.

Öğrencilerin sınav kaygıları SKE'nin Türkçe versiyonu kullanılarak değerlendirilmiştir. SKE, Kuruntu (SKE-K) ve Duyuşsal (SKE-D) olmak üzere iki alt boyuttan oluşan 20 maddelik bir envanterdir. SKE, 4'lü Likert ölçeğinde puanlanır.

FKT grubundan ayrılan üç katılımcının verileri analize dahil edilmemiştir. Böylece analizler FKT grubundan 7, BDT grubundan 10 ve KG grubundan 10 katılımcının ön test ve son test puanları ile gerçekleştirilmiştir. Katılımcıların SKE son test puanlarının anlamlı bir şekilde değişip değişmediğini belirlemek için parametrik olmayan Kruskal-Wallis H testi kullanılmıştır. SKE son test puanlarının hangi gruplar arasında anlamlı farklılık gösterdiğini belirlemek için parametrik olmayan Mann-Whitney U testi yapılmıştır.

Bu çalışmanın diğer bölümü nitel araştırma yöntemlerinden biri olan durum çalışması ile yapılmıştır. Durum çalışması, bir konu hakkında içgörü sağlamak için kullanılır. Veri toplamak için yarı yapılandırılmış görüşme formu kullanılmıştır. Yapılan son revizyonlardan sonra uygulanan müdahale programlarının değerlendirilmesi amacıyla görüşme formu haline getirilmiştir. Görüşmeler, seansların gerçekleştirildiği okulun uygulama salonunda gerçekleştirilmiştir. Görüşmeler, katılımcılardan alınan onam ile görüntü kaydı ile gerçekleştirilmiştir. Müdahale programlarının her bir oturumunun değerlendirilmesi ve genel bir değerlendirme için oluşturulan yarı yapılandırılmış veri toplama aracı, grup üyeleri ile gerçekleştirilmiş ve her biri 7 ile 14 dakika süren görüşmeler olarak tamamlanmıştır.

FTK grubu, BDT grubu ve KG grubunun SKE son test puanları açısından anlamlı bir fark gösterip göstermediğini belirlemek için yapılan Kruskal-Wallis H testi sonuçları, grupların puanları arasındaki farkın anlamlı olmak FTK grubu, BDT grubu ve KG'nin SKE-K son

test puanları açısından anlamlı bir fark gösterip göstermediğine bakıldığında, grupların puanları arasındaki fark anlamlı bulunmuştur. Ancak yapılan analiz SKE-D son test puanları açısından anlamlı bir fark olmadığını ortaya koymuştur.

Mann-Whitney U testi, SKE'deki son test puanları ile SKE-K'dekiler arasındaki farkların kaynağını analiz etmeyi amaçladı. Sonuçlara göre, her üç grup için SKE son test puanları arasında anlamlı bir fark vardır. Ancak, FTK ve BDT grupları için SKE'deki son test puanları anlamlı bir farklılık göstermemiştir.

Mann-Whitney U testinin sonuçlarına göre FTK grubu, BDT grubu ve KG için SKE-K son test puanları anlamlı olarak farklılaştı. Ancak, FTK ve BDT grupları için SKE-K'deki son test puanlarının sonuçları anlamlı bir farklılık göstermemiştir.

Tablo 6'da görüldüğü gibi, müdahale programının betimsel analizinden elde edilen verilere göre sonuçlar FTK müdahalesinin boyutlarıyla örtüşmektedir. İlk tema "farkındalık egzersizi" başlığı altında oluşturulmuştur. Kabul ve Kararlılık Terapisi(KKT)'nin temel hipotezi olarak "bilişsel kaynaşma" ve "yaşantısal kaçınma" psikolojik katılığın temel nedenleri olarak görülmektedir. Grup oturumları bu varsayımlar dikkate alınarak oluşturulmuştur; grup oturumlarında ise bilişsel kaynaşmanın tam tersi olan bilişsel ayrışmanın becerisinin kazanımı hedeflenmiştir.

Tablo 7'de görüldüğü gibi, müdahale programının nitel analizinden elde edilen verilere göre, temalar BDT temelli beceri eğitimi oturumları ile örtüşmektedir. İlk tema "düşünce hatalarını fark etme" başlığı altında oluşturulmuştur. İkinci tema "başta çıkma stratejileri" başlığı altında oluşturulmuştur. Üçüncü tema "Sınav kaygısına ilişkin düşünceyi yeniden yapılandırma, bilişsel yeniden yapılandırma, düşünceyi değiştirme, alternatif düşünceyi kullanma" başlığı altında oluşturulmuştur.

Bu sonuçlara dayanarak FTK, sınav kaygısını azaltmada BDT kadar etkili görülmüştür. Daha önce FTK'in öğrencilerin sınav kaygısını azaltma yeteneğine sahip olduğu tespit edilmiştir. Böylece farklı kültürlerde uygulandıktan sonra sınav kaygısını azaltmaya yönelik müdahalelerin sonuçlarının birbiriyle örtüşmesi KKT'nin oldukça etkili bir terapi modeli olduğunu düşündürmektedir.

Ethics Committee Approval: The ethics committee approval for this study/research was obtained from Ethics Committee of Muğla Sıtkı Koçman University (Ref number: 3/3).

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