

THE EFFECTIVENESS OF COGNITIVE BEHAVIORAL THERAPY  
IN REDUCING PERFORMANCE ANXIETY  
IN ELITE TURKISH ATHLETES



BİRGE BİRGİN

BOĞAZIÇI UNIVERSITY

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THE EFFECTIVENESS OF COGNITIVE BEHAVIORAL THERAPY  
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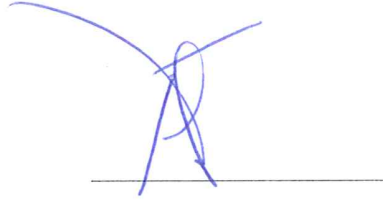
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The Effectiveness of Cognitive Behavioral Therapy in Reducing Performance  
Anxiety in Elite Turkish Athletes

The thesis of Birge Birgin  
has been approved by:

Prof. Falih Köksal  
(Thesis Advisor)



Assoc. Prof. Serra Müderrisoğlu



Assist. Prof. Mehmet Koyuncu  
(External Member)



April 2019

## DECLARATION OF ORIGINALITY

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## ABSTRACT

### The Effectiveness of Cognitive Behavioral Therapy in Reducing Performance Anxiety in Elite Turkish Athletes

Performance anxiety has been a hot research topic for a couple of decade; however, the research is relatively rare with athletes. Elevated levels of anxiety symptoms may especially be problematic during a sport performance that requires increased focus, high physical strength and high control. The aim of the present study is to investigate the effectiveness of cognitive behavioral therapy (CBT) to reduce performance anxiety of elite athletes. 22 voluntary participants from a group of elite Turkish sprinters, between the ages of 15 and 19, were randomly assigned to CBT group or control group. After six sessions of CBT, it is expected that participants of CBT group show significantly reduced levels of anxiety before the competition, and significantly improved scores compared to participants from the control group. In accordance with a pretest-posttest design, the CBT application was held between two competitions, the scores of the competitions were used as performance measurement. The anxiety levels of participants were measured before each competition with Four Systems Anxiety Questionnaire (FSAQ). 2X2 ANOVA and Paired samples t-test detected significant differences between pretest and posttest scores of CBT group in terms of performance and anxiety level, whereas there was no significant difference for control group. The implications of the results were discussed regarding treatment of performance anxiety in sports.

## ÖZET

### Bilişsel Davranışçı Terapinin Performans Kaygısı Sağıtma Üzerindeki Etkisinin Profesyonel Sporcularla Çalışılması

Performans kaygısı uzun süredir araştırmacıların dikkatini çeken bir konu olmasına rağmen, sporcularla bu konu üzerinde yapılmış az sayıda çalışma bulunmaktadır. Yüksek kaygı seviyeleri, odaklanmış dikkat, güçlü fiziksel kuvvet ve tam kontrol gerektiren spor performansları göz önüne alındığında özellikle büyük problem yaratabilir. Çalışmanın amacı, bilişsel davranışçı terapinin (BDT) profesyonel sporcuların kaygı seviyesini azaltarak performanslarını yükseltmek üzerindeki etkisini araştırmaktır. 15-19 yaşları arasındaki, 22 gönüllü profesyonel Türk sprinter koşucu ile yapılan çalışmada, sporcular BDT grubu ve kontrol grubu olarak ikiye ayrılmıştır. 6 günlük BDT uygulaması sonucunda, BDT grubundaki sporcuların, kontrol grubundaki sporculara nazaran performans skorlarında belirgin bir iyileşme ve kaygı skorlarında belirgin bir düşüş beklenmiştir. Ön test son test yöntemi uygulanarak, BDT uygulaması iki ulusal müsabaka arasında yapılmış, kaygı ve skor ölçümleri için de bu müsabakalar kullanılmıştır. Katılımcıların kaygı seviyeleri yarışlar öncesinde Dört Sistem Kaygı Envanteri (DSKE) ile ölçülmüştür. 2x2 ANOVA ve eşleştirilmiş örneklem t testi ile yapılan analize göre, BDT grubunun ön test ve son test ölçümleri arasında performans ve kaygı skorları anlamlı bir farklılık gösterirken, kontrol grubu için anlamlı bir fark görülmemiştir. Sonuçların performans kaygısı sağıtım teknikleri açısından etkileri çalışmada tartışılmıştır.

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# CHAPTER 1

## INTRODUCTION

### 1.1. General introduction

Anxiety, which seems to be both an evolutionary bliss and a functional curse for humankind, remains as an elusive subject for researchers to define. It has a critical role in human life to maintain survival by alarming and preparing the individual according to the learned cues before the danger is even present (Barlow, 1988; Spielberger & Vagg, 1995). Humans are capable of, and moreover they tend to, attend and associate the environmental stimuli with the existing threat, which later enables them to predict the approaching danger by paying attention to relevant cues. This must be a great advantage in the life of first homo sapiens, who were an underdog out in the jungle in terms of physical capabilities. However, inferences on the relationship between the environmental stimuli and the danger may also lead to wrong associations, and anxiety may emerge without any actual threat (Beck & Clark, 1997). This would be a case of maladaptive or pathological anxiety, which seems to be one of the greatest sufferances of modern human life. According to “Global Health Estimates” report from World Health Organization (WHO, 2017), the global prevalence rate for anxiety disorders was 3.6% in 2015, and it has been increased by 14.9% since 2005. The subject matter of the present study, performance anxiety, is one good example of such maladaptive trend. Performance anxiety can be briefly defined as feeling highly anxious before performing a specific task under evaluative conditions (Jamshidi, Hossien, Sajadi, Safari & Zare, 2011). It has been research topic for a while now, but it is mostly studied with musicians (Lehrer, Goldman & Strommen, 1990; Mor, Day, Flett & Hewitt, 1995) and students

(Sarason, 1980; Köksal, 1982; Barlow, 1988), and the research is relatively rare with athletes, especially from a clinical point of view. The goal of the present study is to introduce a multidimensional measurement to better understand the relationship between anxiety and performance, and, to assess the effectiveness of cognitive behavioral interventions in reducing performance anxiety.

## 1.2. Anxiety: Theoretical history and current trends

It was Sigmund Freud who was first to suggest a link between anxiety and psychological problems with his psychoanalytic framework, but it was cognitive behaviorist theoreticians who have proposed the first experimental multidimensional conceptualizations of anxiety. For the sake of the coherence among definitions, theories and application, present review on emotion and anxiety will remain within cognitive behavioral literature.

Starting with Darwin's suggestion of the evolutionary function (Barlow, 1988; Lang, Bradley & Cuthbert, 1998), "emotion", with a frequent focus on anxiety, has been conceptualized and explained many times over, behaviorally, physiologically, and cognitively (Lang et al., 1998; Beck & Clark, 1997). The current paradigm still seems to focus on the functional role of emotions in the person-environment transaction (Saarni, Campos, Camras & Witherington, 2006; Dennis, Cole, Wiggins, Cohen & Zalewski, 2009). A recent, handy definition would be from Cole, Martin and Dennis (2004, pp. 319): "...emotions are defined as biologically endowed processes that permit extremely quick appraisals of situations and equally rapid preparedness to act to sustain favorable conditions and deal with unfavorable conditions". This definition is congruent with cognitive theories, such as appraisal theories (Schacter & Singer, 1962, Lazarus, 1968; cited in Barlow,

1988), bioinformational approach (Lang et al., 1998, Barlow, 1988;), and information processing model (Beck & Clark, 1997).

In the early 60's, cognitive theories of emotion had started to be generated. In 1962, Schacter and Singer claimed that the individual's appraisal of the environment is the main factor to generate emotion (Barlow, 1988). Few years later, in 1968, Lazarus suggested that emotion, which is anxiety in our case, arises in relation to the individual's appraisal of the impact of the event occurrence or the situational change on him/herself (Barlow, 1988). A more elaborate conceptual account came from Lang (1998). Actually, his bioinformational approach might be the first to suggest some kind of combination of behavioral and cognitive approaches. Lang (1998) claimed that "affective expression is in great part a tactical response to contextual demands", it is learned through conditioning, and it elicits behavior based on two dimensions: valence of stimuli (either appetitive or aversive) and level of arousal. He further explained that human emotion expressions are flexible due to the complex instrumental learning and neural pathways of behavioral delay and inhibition. Therefore, each emotion offers a wide range of possible responses stored in and retrieved from the memory by appraisal of the level of arousal and the valence of stimulus, a reaction is chosen among the possible action tendencies (Barlow, 1988; Gross, 1998); e.g. anxiety and fear usually elicits fleeing or fighting, but in certain circumstances it may also elicit freezing or fainting (Beck & Clark, 1997). Beck (1997) offered an even more elaborate and anxiety-specific conceptualization, which he called "information processing model". The model differentiates between different modes of processing environmental information according to the level of reflexivity and flexibility of individual's interpretations. Anxiety has a critical survival function, and, therefore, it is more likely to activate

the primal mode for information processing which is quick and efficient. Primal mode includes many schemas, which are created based on learning from previous experiences. Upon encountering a stimulus, primal mode activates the relevant schema to generate an automatized response. Automatized responses are “effortless, involuntary and unintentional, generally outside conscious awareness, fast, difficult to stop or regulate, consumes minimal attention capacity, stereotypic, utilizes low levels of cognitive processing” (Beck & Clark, 1997). When facing threat, an automatic and rapid activation system is a great tool, however giving up reflective processing in order to save time and energy, may also cause overgeneralization, bias and false interpretations. According to Beck (Beck & Clark, 1997), failure to make accurate interpretation of the situation is the main reason of pathological or maladaptive anxiety. The individual “perceives” a threat in the environment whereas there is none, which leads to more cognitive blockage and ineffective allocation of resources. It is also important to note that according to information processing model of anxiety, the level of arousal, rather than the type of stimuli, differentiates between the adaptive and maladaptive anxiety. This has been a helpful change of point of view, since it has been a long time since humans lived in an environment of sustained survival threat. In 21<sup>st</sup> century, maintaining survival does not constitute a problem for humans (Harrari, 2014), unless they live in unusual conditions, such as in a war zone. Living conditions has been changed, and so do the “threats” in the environment, however both the physiological and the psychological systems eliciting anxiety are still the same, and so are the associated arousal levels and responses. Therefore, it is also reasonable to redefine the criteria for adaptive and maladaptive anxiety. Beck (Beck & Clark, 1997) also drew attention to the individual’s ability to cope with the expected negative event, or to be exact, the individual’s perception of

his/her own ability to cope. Individuals, who show high levels of anxiety, are the ones who usually underestimate their own ability to cope (Bandura, 1994).

Likewise, Barlow (1991) added a sense of helplessness to the conceptualization of anxiety, and he pointed out that anxiety emerges when the individual feels that he/she is not able to foresee, control or get a positive outcome in a future negative event. He also suggested that the attentional shift, which happens upon anxious arousal, has a critical role in reinforcing the negative affect and sense of uncontrollability, and ends up creating a kind of vicious cycle.

As seen in Figure 1, activated by variety of cues, anxiety evokes high negative affect, perceptions of uncontrollability and a set of physiological symptoms, which leads individual to direct attention to the self, internal cues and states to find coping resources. The self focused attention, as Barlow (1991) calls it, causes a greater subjectivity about internal and external experience, which in turn, causes distorted evaluation of the self, coping mechanisms and the environment, which subsequently reinforces the negative affect and the sense of being out of control. The process eventually leads a chronic anxious state, extensive worrying and, if required, crippled performance. Barlow (1991) clearly pointed out that the main problem is the shift in the focus of attention rather than the level of arousal; as long as the self-focused attention remains, the biased perceptions of ability to cope and control would increase the level of anxious arousal, and the high level of anxiety would further interfere with coping, taking control and performing.

In other words, once the anxiety arises, a good possibility of reaching the dreaded outcome also arises due to appearance of biased perceptions and inferences about the situation and self-capability. Occurrence of the dreaded outcome

reinforces the significance of the associated environmental cues; therefore a vicious cycle of anxiety is developed.

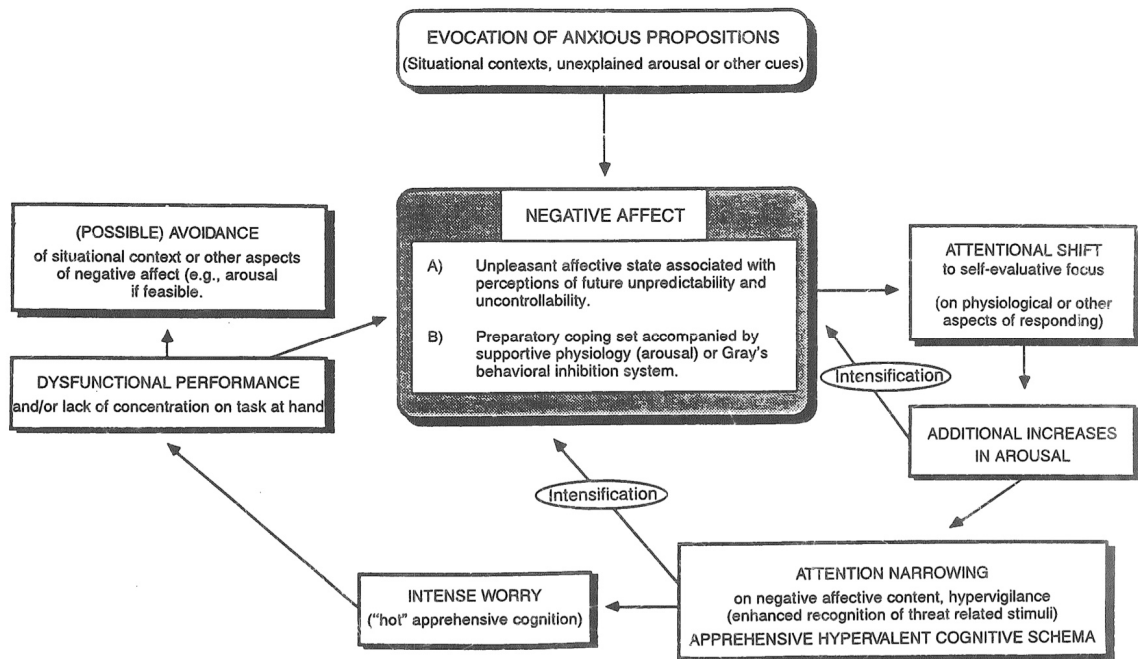


Figure 1: The process of anxiety (Barlow, 1988)

### 1.3. Cognitive behavioral therapy (CBT) applications in treatment of anxiety

In terms of anxiety reduction, empirical research and treatment methods seems to be synchronized from the beginning. Before the appraisal theories were formulated, behavioral methods, which are in line with the research, were being implemented (Köksal, 1982). Since maladaptive anxiety has been shown to be the result of classical and instrumental learning processes (Lang, 1998), early methods of treatment heavily relied on counter-conditioning, such as systematic desensitization (Köksal, 1982). The systematic desensitization, introduced by Wolpe, is a process, which combines physiological relaxation with exposure by imagery, in order to extinct the conditioned anxious reaction (Köksal, 1982). After the cognitive reformulations of theoretical frameworks of anxiety, Meichenbaum added cognitive components to the behavioral methods (Köksal, 1987), and developed cognitive



behavior modification technique for reduction of anxiety in stressful settings.

Cognitive behavior modification aims both to alter problematic cognitive appraisals, to provide coping strategies to handle the anxious arousal, and to counter-condition the anxiety-arousing setting (Köksal, 1987). The technique offers semi-structured sessions, starting with a discussion on problematic thoughts and beliefs about the situation at hand. The aim of the discussion is to create awareness in the client about the exaggeration or irrationality of associated thoughts and beliefs, and to restructure them with more objective and healthy ones. During the discussion, the client is also asked to create a hierarchy by listing the conditions related to the specified thoughts, from the least anxiety-evoking to the most anxiety-evoking, in order to work on them with imagery. The second part of the session includes progressive muscle relaxation, which is an approximately 30-minute procedure. During the progressive muscle relaxation procedure, the therapist gives specific instructions to the client to contract and loosen several muscle groups associated with anxious arousal; respectively these are the muscles on hands, arms, shoulders, eyebrows, eyes, lips, teeth, neck, back, chest, stomach, legs and feet. Contracting and loosening these muscles put the individual in a physiologically relaxed state, which is required for countering the expected anxious arousal during imagery part. On the third part of the session, the coping imagery is implemented based on the created hierarchy, starting with the least anxiety-evoking item. The individual is asked to visualize being in the specified setting, and, if he/she reports anxious arousal when imagining, the therapist moves on giving to coping instructions; which are focusing on deep breathing, finding the body part associated with anxious sensation, contracting and loosening the body part while instructing him/herself to relax, and thinking positive self-statements. The same instructions are to be repeated until the individual stop feeling anxious while

visualizing the specific item. Then, the procedure proceeds with the next item on the hierarchy. The aim of the coping imagery is to create a safe environment for exposure to anxious conditions, and provide the individual with coping skills, which he/she can use in real life conditions.

Currently, cognitive behavioral therapy is a well-established and effective treatment method for reduction of anxiety (Stewart & Chambless, 2009). The previous research has revealed that although it has a moderate effect when working on personality disorders (Leichsenring & Leibing, 2003; Tolin, 2010; Hofmann, Asnaani, Vonk, Sawyer & Fang, 2012), it is found to be largely effective with social anxiety disorder (Heimberg, 2002), generalized anxiety disorder (Borkovec, Newman, Pincus & Lytle, 2002), text anxiety (Spielberger & Vagg, 1995) and musical performance anxiety (McGinnis & Milling, 2005).

#### 1.4. Performance anxiety

Around 1930 (Sarason, 1980; Köksal, 1982; Spielberger & Vagg, 1995) performance anxiety, or test anxiety, has been differentiated as a research topic from generalized anxiety by several aspects. First, it takes place in a “well-defined” context instead of an ambiguous one; the individual is given a specific task with specific requirements (Sarason, 1980). Second, the individual has to meet some evaluation criteria, and he/she is aware of such expectation (Sarason, 1980; Wilson & Roland, 2002). In such situations, it seems that the anxiety emerges when the individual either overestimates the requirements and expectations, or he/she underestimates his/her own capability to handle the task, or both (Sarason, 1980; Raglin, 1992; Wilson & Roland, 2002; Kenny, 2011).

Performance anxiety is considered similar to phobias in the sense that it associates a strong fear of failure with the threat of humiliation (Sarason, 1980; Wilson & Roland, 2002). Overestimated evaluation criteria and/or low sense of self-capability pose a strong sense of threat on the individual, and the sympathetic nervous system is activated just like in any other phobia (Spielberger & Vagg, 1995; Wilson & Roland, 2002). Activation of the sympathetic nervous system, which actually has an adaptive survival function, elicits various somatic, cognitive, emotional and behavioral symptoms (see Table 1), which seems to interfere with the level of performance. An individual with high level of performance anxiety usually starts to have an overwhelming sense of being inadequate, a growing fear of failure, continuous rumination about the consequences of underperforming, uncontrolled somatic arousal, perception of loss of self-control and feelings of helplessness, upon being exposed related environmental cues of the expected performance (Sarason, 1980; Köksal, 1982; Raglin, 1992; Wilson & Roland, 2002; Kenny, 2011). Since it is a learned response, it is reinforced with each crippled performance, and leaves the individual with a lower self-esteem and increased level of anxiety for the next time.

Table 1: Symptoms of Anxiety (Nolen-Hoeksema, 2007)

	Somatic	Emotional	Cognitive	Behavioral
Goosebumps	Dilated pupils	Sense of dread	Anticipation of harm	Escape
Tense muscles	Increased perspiration	Terror	Exaggeration of danger	Avoidance
Increased heart rate	Adrenaline secretion	Restlessness	Problems in concentrating	Aggression
Accelerated respiration	Inhibited stomach acid	Irritability	Hypervigilance	Freezing
Deepened respiration	Decreased salivation		Worried, ruminative	Decreased appetitive
Spleen contraction	Bladder relaxation		Fear of losing control	Increased aversive
Dilated peripheral			Fear of dying	
Widened bronchioles			Sense of unreality	

Performance anxiety has been mostly investigated in three main fields so far, music (musical performance anxiety) (Steptoe & Fidler, 1987; Abel & Larkin, 1990; Van Kemenade, Van Son & Van Heesch, 1995; Kenny, 2011), education (test anxiety) (Sarason, 1980; Köksal, 1982; Spielberger & Vagg, 1995) and sports (competitive anxiety) (Raglin, 1992, Hanton, 1996; Cox, Martens & Russell, 2003; Mellalieu, Hanton & Fletcher, 2009). Previous research has shown that in all fields, the higher the level of anxiety, the poorer the level of performance (Sarason, 1980; Raglin, 1992; Spielberger & Vagg, 1995; Wilson & Roland, 2002, Kenny, 2011). Several individual differences have been revealed to be related with this maladaptive response; such as high trait anxiety (Sarason, 1980; Raglin, 1992; Spielberger & Vagg, 1995; Wilson & Roland, 2002), perfectionism (Sarason, 1980; Wilson & Roland, 2002; Kenny, Davis & Oates, 2004, Mellalieu et al., 2009), pessimism (Mellalieu et al., 2009; Kenny, 2011), low self-esteem (Sarason, 1980; Raglin, 1992; Wilson & Roland, 2002; Kenny, 2011), and excessive need for personal control (Wilson & Roland; 2002; Kenny, 2011). Previous research (Sarason, 1980; Köksal, 1982; Abel & Larkin, 1990; Raglin, 1992; Van Kemenade et al., 1995; Spielberger & Vagg, 1995; Hanton, 1996; Wilson & Roland, 2002; Mellalieu et al., 2009; Kenny, 2011) suggests that, in all fields where performance anxiety is present, the interfering symptoms are effective, and the associated individual traits exist. However, there are also apparent symptomatic and factorial differences between music, education and sport, due to the requirements of the expected performance, which seems to be the cause of the differentiation in research areas.

#### 1.4.1. Test anxiety

Test anxiety seems more global comparing the other subtypes of performance anxiety, since every individual has to survive through numerous academic testing during their education. Especially in Turkey, the educational system is highly relied on achievement over test-taking, and every Turkish student has to take at least two nation-wide tests to continue their education, which are seen as a matter of life or death by most parents, teachers, and therefore, by themselves. A recent research (Kavakçı, Semiz, Kartal, Dikici & Kuğu, 2014) has claimed that the prevalence rate of test anxiety is 48% among Turkish high school students. In another research (Eskin, 2017), it is reported that 36,1% of Turkish high school students have planned about suicide, whereas 9,4% of them proceeded to commit suicide at least once in their lifetime, and the figures are thought to be related to the anxious anticipation of the upcoming nation-wide college exam. Research (Sarason, 1980; Spielberger & Vagg, 1995) has shown that cognitive and emotional symptoms seem to be the ones that mostly interfered with the test performance, since the test-taking requires higher cognitive abilities such as memory retrieval, mental reasoning and highly focused attention in a limited time. High test-anxious students most frequently report self-deprecating thoughts and excessive rumination about test results, which seems to cause a cognitive intrusion, which is a very similar process with the one described in Figure 1 (Sarason, 1980; Barlow, 1988; Spielberger & Vagg, 1995). Previous research on test anxiety mostly highlighted the effect of task requirements and expectations; high test-anxious students display more crippled performance when they perceive high expectations from environments, and they receive more feedbacks on failure (Sarason, 1980; Spielberger & Vagg, 1995). However, the research also shown that high test-anxious students show more improved performance than low-

anxious students when they perceive the expectation is decreased (Spielberger & Vagg, 1995).

#### 1.4.2. Musical performance anxiety

Also known as stage fright, musical performance anxiety is less universal than test-anxiety, but also it is an established area of research. The prevalence rates in Turkey is unknown, however, previous research in The Netherlands (Van Kemenade et al., 1995) suggested that 59% of professional musicians have problems of performance anxiety, which is quite high. Musicians most frequently report trembling, hyperventilation, nausea, dry mouth, sweaty palms and memory slips as symptoms of stage fright (Steptoe & Fidler, 1987; Abel & Larkin, 1990; Kenny, 2011). Therefore, it seems that high anxious musicians mostly suffer from intrusions to cognitive and fine motor abilities; especially trembling of hands and memory slips are highlighted as intrusive symptoms (Steptoe & Fidler, 1987; Abel & Larkin, 1990; Kenny, 2011). Several specific aspects of music performance make its conceptualization slightly differed from other subtypes of performance anxiety; the most important one is the presence of an audience. Kenny (2011) underlies the importance of “the attunement with the audience” as a regulatory factor of performance anxiety; the musicians who shift their attentional focus to exterior, to the audience, rather than focusing on self-sensations, are most likely to be resilient in face of performance anxiety (Kenny, 2011). The mentioned attentional process is also similar to the one in Figure 1 (Barlow, 1988). The research on musical performance anxiety also focuses on perfectionism as an associated trait; musicians who have high scores of perfectionism on related scales, are also more self-critical, more afraid of making mistakes (Van Kemenade et al., 1995; Kenny et al., 2004). As a result, they show a

more inhibited motor performance combined with excessive rumination, which is similar to freeze reaction of anxiety, and which prevent them to “go with the flow” (Kenny et al., 2004).

#### 1.4.3. Competitive anxiety

Comparing with educational and musical fields, performance anxiety in sport setting is a much more recent research topic, and the clinical literature seems to be scarce. Although the prevalence rates are unknown, previous reviews suggested that every athlete have been suffered from competitive anxiety during their career at least few times regardless of their level of experience and previous success (Raglin, 1992; Hanton, 1996; Mellalieu et al., 2009; Ford, Ildefonso, Jones & Arvinen-Barrow, 2017). Athletes more frequently report increased heart rate, tense muscles, ruminations about losing and being humiliated, fear of injury as anxious symptoms (Raglin, 1992; Hanton, 1996; Wilson & Roland, 2002; Mellalieu et al., 2009; Ford et al., 2017). Relevant international research seems to focus on cognitive and somatic dimensions of the competitive anxiety; it is claimed that athletes’ cognitive appraisal of the situation is the main factor in emergence of anxious symptoms (Hanton, 1996; Mellalieu et al., 2009; Ford et al., 2017). It is further suggested that the cognitive and somatic symptoms interferes the motor abilities and attentional resources, which cause “increased muscle tension, narrowing of visual field and increased distractibility” (Ford et al., 2017). The suggested process, also congruent with Barlow’s model (1988) in Figure 1, has been shown to lead to a crippled performance, and, even in some cases, may result with serious sport injury depending on the intensity of symptoms.

### 1.5. Performance anxiety in sport psychology (competitive anxiety)

Although competitive anxiety research is scarce in clinical psychology, recently in sport psychology, the topic has started to gain importance. Previous studies suggested a few numbers of theoretical frameworks (Raglin, 1992; Mellalieu et al., 2009; Ford et al., 2017). Earliest ones are;

- Inverted-U hypothesis, which assumes that an optimal level of anxiety is actually required for good performance, and only lower or higher levels of anxiety would cause a hindrance,
- Drive theory, which claims that there is a positive linear relationship between anxiety and performance,
- Reversal theory, which suggests that anxiety may be facilitative or debilitating depending on the athletes' cognitive appraisals (Raglin, 1992; Mellalieu et al., 2009; Ford et al., 2017).

None of these early theories were supported with empirical findings (Raglin, 1992; Mellalieu et al., 2009; Ford et al., 2017). Recently, the researchers seem to focus on two revised versions of them, which are;

- Individual zones of optimal functioning, which claims that every individual has his/her own optimal level of anxiety for achieving an optimal performance,
- Multidimensional anxiety theory, which models anxiety with three subcomponents; cognitive anxiety, somatic anxiety and self-confidence (Mellalieu et al., 2009; Ford et al., 2017).

Research findings on these revised theories are also inconsistent, and these frameworks are not considered as empirically supported as today (Ford et al., 2017).



However, the multidimensional approach still seems to be maintained in terms of measurement and intervention of performance anxiety (explained in detail below).

One solid reason for inconsistent research findings may be the fact that, in sport psychology literature, the definitions and the conceptualizations of the terms like “anxiety”, “arousal”, “stress” and “activation” are less clear and open to confusion (Raglin, 1992; Hanton, 1996; Mellalieu et al., 2009). Previous studies do not seem to qualitatively and operationally differentiate between the motoric arousal, which is required for sport performance, and the physiological symptoms of anxiety, which interferes with the sport performance (Raglin, 1992; Hanton, 1996; Wilson & Roland, 2002; Mellalieu et al., 2009). It seems critical to make clear differentiations when defining and measuring anxiety via physiological arousal, since such arousal may be present for many emotions other than anxiety, like excitement, fury, or rage (Spielberger & Vagg, 1995).

On the other hand, congruent with clinical literature, sport psychology research also supports the effect of subjective appraisal and biased perception of the situation on the level of anxiety, prior or during the performance (Hanton, 1996; Wilson, Raglin & Pritchard, 2002; Hanton, Mellalieu & Hall, 2004; Mellalieu et al., 2009; Tripp, Stanish, Ebel-Lam & Brewer; 2011; Poliseo & McDonough, 2012; Matosic, Cox & Amorose, 2014). Jones (1990 cited in Hanton, 1996) suggested a transactional model of stress and anxiety, which clearly shows the role of appraisal and coping on the emergence of anxiety. The transactional model, which is very similar to the one that Barlow (1988) suggested, explains that each time stress emerges, the individual assesses the situation and his/her own coping skills, if s/he perceives that s/he has the resources to cope with the stress, his/her feelings about the upcoming performance would be positive, but if s/he perceives that s/he does not

have the necessary abilities to cope, the feelings of anxiety would increase (Hanton, 1996). In the model, the stress was defined as “an ongoing transaction between an individual and the environmental demands associated primarily and directly with competitive performance”, and the anxiety was defined as “a specific negative emotional response to competitive stressors” (Mellalieu et al., 2009). Taking the role of the appraisal a step further with above-mentioned reversal theory (Raglin, 1992; Mellalieu et al., 2009; Ford et al., 2017), sport psychologists still suggests that anxiety, based on the appraisal, might have one of two effects on performance, facilitative or debilitating (Hanton, 1996; Mellalieu et al., 2009). It is claimed that the anxiety may also be “facilitative” as well as “debilitative”, if it is interpreted accordingly (Hanton, 1996). Although the connotation of the word “facilitative” assume a positive effect, it seems that it is not clear whether facilitative anxiety actually enhances the performance, or simply implies a situation where the anxiety symptoms have been controlled and neutralized, and therefore do not interfere with the performance. In any case, previous research in both fields clearly stated the effect of the appraisal on performance anxiety.

Research (Hanton, 1996; Cox et al., 2003; Mellalieu et al., 2009) also highlights self-confidence as a critical factor on the level of performance anxiety, which reminds the sense of being in control and perceptions of being able to cope suggested by Beck (1997) and Barlow (1988). Previous studies revealed many times that self-confidence is negatively correlated with performance anxiety in sports (Maynard, Hemmings & Warwick-Evans, 1995; Hanton, 1996; Wilson & Roland, 2002; Mellalieu et al., 2009). Therefore, both literatures suggested that athletes who feels in control of their anxiety symptoms, and perceives that they can cope with the situation and excel the performance, experience less interference while they are

performing. Lack of feelings of helplessness also blocks the state of self-preoccupation, and therefore, averts the self-focused attention, which is suggested to create biased assessments and the cycle of anxious reinforcement (Barlow, 1991).

#### 1.5.1. Measurement of performance anxiety in sport

It appears that usually State Trait Anxiety Inventory (STAI) is being used to measure performance anxiety regardless of the specific field (Cox et al., 2003; Kenny et al., 2004). However, around 1980, sport psychologists (Cox et al., 2003; Mellalieu et al., 2009) developed Competitive State Anxiety Inventory (CSAI) to measure performance anxiety exclusively in sport. CSAI has introduced three subcomponents of performance anxiety; cognitive anxiety, somatic anxiety and self-confidence.

Being able to measure anxiety on multiple dimensions, CSAI has been shown to better predict the relationship between anxiety and performance than STAI (Hanton, 1996; Hale & Whitehouse, 1998; Cox et al., 2003; Mellalieu et al., 2009). Three subcomponents measured by CSAI are cognitive anxiety, somatic anxiety and self-confidence, which all have different relationships with the performance in terms of direction (Hanton, 1996; Hale & Whitehouse, 1998; Mellalieu et al., 2009).

Research has shown that cognitive anxiety has negative linear relationship with performance whereas somatic anxiety has an inverted-U relationship, and self-confidence has a positive linear relationship (Hanton, 1996; Hale & Whitehouse, 1998; Mellalieu et al., 2009).

#### 1.5.2. Intervention to performance anxiety in sport

Sport psychologists, upon having a multidimensional understanding of performance anxiety after introducing CSAI, especially highlight the importance of this

multidimensional intervention (Maynard et al., 1995; Hanton, 1996). “The matching hypothesis” has been suggested for intervention in sports (Maynard et al., 1995), which assumes that treatment methods targeting the specific type of anxiety component would be more effective, e.g. interventions using mental tools would be more effective if the individual displays more cognitive anxiety symptoms. Several possible interventions have been listed in the sport psychology literature to handle performance anxiety (Raglin, 1992; Wilson & Roland, 2002; Mellalieu et al., 2009), such as mental rehearsal, thought stopping for cognitive anxiety reduction, the use of relaxation techniques for somatic anxiety reduction, and positive self talk, external encouragement from trainers for improving self confidence. On the other hand, previous research also claims that there is a concern regarding relaxation techniques; they may be problematic when they are implemented just prior to competition, due to the fact that they lower the motor activation and arousal level of athletes, which are required for certain sports (Mellalieu et al., 2009).

#### 1.6. Present study

As mentioned above, to our knowledge, the research on competitive anxiety from a clinical point of view is very scarce; especially in Turkey. Therefore, the main purpose of the present study is to make a contribution for exploring and understanding performance anxiety in Turkish sport setting from a clinical point of view.

The present study also aims to introduce a new scale for measuring performance anxiety to investigate more elaborated relationship pattern between different dimensions of anxiety and performance. It is assumed that CSAI is a better predictor than STAI because of the fact that it allows a multidimensional

measurement, rather than a unidimensional one (Hanton, 1996; Mellalieu et al., 2009). Therefore, seeking for a more accurate prediction, Four Systems Anxiety Questionnaire (FSAQ) (see Appendix A) has been chosen for measurement in present study. FSAQ has been developed by Köksal and Power (1990) based on the bioinformational theory of Lang (1998) which suggests a three dimensional view of anxiety; cognitive, behavioral and somatic. Köksal and Power (1990) argued that the conceptualization of the cognitive dimension is problematic, since it does not differentiate between the cognition and the affect. They conceptualized affect as a distinct component rather than an epiphenomenon of cognition. Nevertheless, the distinction between cognition and emotion with regard to anxiety conceptualization has been long established with research since then (Mennin, Heimberg, Turk & Fresco, 2002; Hannesdottir & Ollendick, 2007; Cisler, Olatunji, Feldner & Forsyth, 2010). FSAQ measures anxiety on four different dimensions; cognitive, emotional, behavioral and somatic. It is also effective for detecting the anxiety levels on each dimension (Köksal & Power, 1990).

Another aim of the present study is to suggest an effective intervention program for performance anxiety in competitive conditions. In line with previous research, cognitive behavioral therapy has been chosen for implementation. Based on previous clinical psychology literature, it seems that an effective intervention of performance anxiety should targeted two main points: the biased appraisal and the coping skills. CBT is frequently suggested, and found to be effective in previous clinical research regarding these points (Köksal, 1987; Stewart & Chambless, 2009). CBT is expected to be most instrumental to reduce high levels of performance anxiety, since it both provides the individual with a different frame of reference, and equips him/her with several coping tools (Köksal, 1987). In addition, cognitive

behavioral techniques are not only targeting cognitive dimension such as unrealistic appraisal of environmental stimuli, but also working on somatic symptoms (Köksal, 1982; Barlow, 1988, Beck & Clark, 1997; Wilson & Roland, 2002).

The intervention is designed to be a group process and sampled from earlier research on test anxiety with Turkish high school students (Köksal, 1982). To our knowledge, group therapy has not been tried before with elite athletes. It is expected that group setting would be enhancing for discussions by enabling intimacy and acceptance by peers, by encouraging commitment to process, and by increasing the awareness via sharing experiences and possible solutions among participants (Ford, Falloot & Harris, 2009). The process is designed to target cognitive and emotional dimensions with cognitive relabeling techniques and discussion on emotion; the aim is to develop an awareness of the subjective feelings and thoughts emerging in relation to increase in anxiety, and, determine and alter the irrational thoughts and biased inferences. Somatic and behavioral dimensions is targeted with progressive muscle relaxation and imagery, where the therapist gives instructions to group members to attend their bodily sensations when contracting and loosening their specific muscles groups, and then asks them to imagine themselves coping in anxious situation. The aim is to create a somatic awareness of bodily sensations during increasing anxiety, to gain ability to control them, and to developing effective coping behaviors in anxiety evoking conditions. It is hypothesized that after 6 group sessions, the experimental group will show a significant difference between pretest and posttest of competition scores and anxiety scores (in all four dimension and total score), whereas the control group will not.

## CHAPTER 2

### METHOD

#### 2.1. Participants

Twenty-two elite sprinter athletes, ages between 15-19, who are registered in Turkish Athletic Federation, were invited to participate to the study via their trainer. The participation to the study was voluntary, and the athletes were not offered any incentives other than the possible effect of the group study itself. Although previous research (Raglin, 1992) do not suggest any effect of age or gender on the relationship between anxiety and performance, these variables were considered when recruiting participants; volunteers younger than 15 years of age, and three female volunteers were excluded from the data. Remaining volunteers (12 females and 10 males) were randomly assigned, with respect to their gender, to one of two groups; the CBT group (n=11) and the control group (n=11).

#### 2.2. Measurement

A pretest-posttest design with control group was planned to carry out the study, in which anxiety scores and performance scores were dependent variables.

As mentioned detailed above, the anxiety prior to competition were measured with Four Systems Anxiety Questionnaire (FSAQ) (see Appendix B). FSAQ has been translated and standardized in Turkish with significant split-half reliability (N=342,  $r=.92$ ), test-retest reliability (N=120,  $r=.76$ ), concurrent validity with STAI (N=120,  $r=.48$ ), and criterion validity ( $t=16.08$ ,  $df=335$ ;  $p<.001$ , two-tail) (Vural, 1987). FSAQ is constructed as a Thurstone scale with 60 items of yes/no statements. Each subscale (cognitive, somatic, behavioral and emotional) has 15 items, which are

calculated with specific weighted scores (Köksal & Power, 1987; Vural, 1987). Therefore, FSAQ provides four subscale scores and a total score for each participants; which enables a multidimensional measure for anxiety.

The group therapy was held between two national competitions, and the participants' competition scores before and after the intervention were used as measure of performance level. Since the participants are sprinter athletes, their performance were measured by seconds, therefore lesser scores show better performances. Regarding performance, several conditions were controlled before starting the study; these are participants' training program, training frequency, training time, trainer, competition days, and competition place. All participants have been training with the same trainer, on same days, with same programs, same frequency, during same time. Their competitions were on the same day, at the same place. However, their sub-branches were different than each other; short-distance sprint race, long-distance sprint race, and hurdle race.

It was also planned to measure heart rate prior to the competitions as an additional physiological measure, however due to financial obstacles, it could not be done.

## 2.3. Procedure

### 2.3.1. Recruitment procedure

Until the present study, the procedure was repeated several other groups of elite athletes from different branches without reaching completion.

First group was planned to be a pilot study to refine the procedure. A trainer from Turkish Archery Federation was contacted and informed about the study. Five elite archers among volunteered athletes were selected randomly. A pretest-posttest



design without control group was held. The scores from the pilot study were not included in the present study.

Subsequent to the pilot study, 24 volunteered elite archers from the same group were recruited for the second group. The treatment procedure could not be scheduled with second group due to their competition calendar.

The third group was formed of 16 elite sprint athletes, who were contacted via their trainer from Turkish Athletic Federation. The procedure could not reach to completion due to group attrition before posttest measurement. The scores from third group were not included in the present study.

Another trainer, who was working with elite cyclists, was contacted and informed about the study. 5 elite cyclists volunteered to participate, and completed the procedure. Subsequently, an additional group of 19 elite cyclists were volunteered. During treatment procedure, 7 participants from CBT group withdrew from the study due to their busy daily schedule. The scores from these groups were not included in the present study.

On the fifth trial, another group of elite cyclist were contacted via their trainer. The treatment procedure could not be scheduled with the group due to their heavy training program.

For the present study, another trainer from Turkish Athletic Federation was contacted and informed about the study. 22 of his trainees volunteered for the study.

### 2.3.2. Measurement procedure

Subsequent to receiving approval from Ethics Committee of Boğaziçi University (see Appendix C), elite sprinter athletes were contacted after their daily workout, and, invited to a meeting where they were briefed about the study. The volunteers were

asked to sign the informed consent (see Appendix D), fill out demographic form (see Appendix E) and the study was scheduled according to the dates of two national competitions, which were on March 2<sup>nd</sup>, 2019 and April 7<sup>th</sup>, 2019 respectively. All volunteers were asked to fill out FSAQ before the first national competition, and their scores were recorded for pretests. They were randomly assigned to one of two groups, with consideration of gender; CBT group or control group. The control group has been told that they were in the waitlist for the group therapy. 6 sessions of 50 minutes were held twice a week, on Wednesdays and Saturdays after daily workouts. After two weeks of group therapy, one week was off due to a competition in another city, since some of the participants from CBT group were competing.

### 2.3.3. Treatment procedure

Session structures of group therapy are as reported below:

First session:

- Psycho-education on anxiety: conditioned responses, stimulus generalization, anxiety generating thoughts, systematic desensitization
- Brief explanation about the purpose of the group therapy
- Discussion about the personal experiences of participants: how and when they usually feel anxious?
- Progressive muscle relaxation
- Imagination training

Second session:

- Summary of previous session

- Discussion about anxiety and problematic thoughts: when, where, how and under what conditions they feel anxious, and have anxious thoughts
- Common points mentioned by group are stressed
- Participants are encouraged to construct an anxiety hierarchy from common experiences that they mentioned (an 8 item list)
- Discussion about the first two items of the hierarchy: determining the related stimuli, conditions, thoughts and sensations
- Progressive muscle relaxation
- Imagination training and coping imagery for the first two items of the hierarchy

Third session:

- Discussion about anxiety generating thoughts, group sharing about how to cope and relabel them
- Discussion about third and fourth items of the hierarchy: determining the related stimuli, conditions, thoughts and sensations
- Progressive muscle relaxation
- Imagination training and coping imagery for third and fourth items of the hierarchy

Fourth session:

- Discussion about anxiety generating thoughts, group sharing about how to cope and relabel them
- Discussion about fifth and sixth items of the hierarchy: determining the related stimuli, conditions, thoughts and sensations
- Progressive muscle relaxation (shorter version)

- Imagination training and coping imagery for fifth and sixth items of the hierarchy

Fifth session:

- Discussion about anxiety generating thoughts, group sharing about how to cope and relabel them
- Discussion about seventh and eighth items of the hierarchy: determining the related stimuli, conditions, thoughts and sensations
- Progressive muscle relaxation (shorter version)
- Imagination training and coping imagery for seventh and eighth items of the hierarchy

Sixth session:

- Discussion about anxiety generating thoughts, group sharing about how to cope and relabel them
- Discussion about ninth and tenth items of the hierarchy: determining the related stimuli, conditions, thoughts and sensations
- Progressive muscle relaxation (shorter version)
- Imagination training and coping imagery for seventh and eighth items of the hierarchy
- Discussion about the program: whether the participants feel any change, which part of the process they liked the most

Upon termination of the 6-session group therapy, all participants were asked to fill out FSAQ again prior to the second national competition, and their scores were recorded again for posttest.

## CHAPTER 3

### RESULTS

#### 3.1. Descriptive statistics

Frequencies of gender and subbranch, and mean age for both CBT group and control group are shown in Table 2 and Table 3.

Table 2. Mean Age, Frequency of Gender and Subbranch for CBT Group (N=11) and Control Group (N=11)

	Age ( <i>M</i> )	Gender		Subbranch		
		Male (N)	Female (N)	Short-Distance (N)	Long-Distance (N)	Hurdle Race (N)
CBT	16.3	6	5	7	2	2
Control	17.1	7	4	6	3	2

Table 3. Descriptive Statistics for CBT Group and Control Group in Pretest-Posttest Conditions

Variable	CBT				Control			
	Pretest		Posttest		Pretest		Posttest	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Running*	29.03	34.8	28.68	34.6	24.66	18.3	24.89	18.7
Total Anxiety**	107.83	35.9	71.89	42.4	82.38	41.9	84.38	49.3
Cognitive Scale**	38.93	15	24.46	16.9	22.46	16.9	18.97	16.2
Emotional Scale**	29.95	13.9	18.47	14.6	20.46	9.5	22.96	15.1
Somatic Scale**	24.46	9.6	16.97	12.9	20.96	15.5	23.46	19.5
Behavioral Scale**	14.5	9.6	12	12.3	18.5	15	19	13.6

Note. \* Running scores are in seconds. \*\*Anxiety scores measured by FSAQ.

A one-way ANOVA was administered to check whether there is a difference between CBT group and control group at the pretest condition. There was no statistically significant difference between CBT and control group ( $F(1, 20)=0.136$ ,  $p=.716$ ) regarding running scores at the pretest condition. There was no statistically significant difference between CBT and control group ( $F(1, 20)=2.332$ ,  $p=.142$ ) regarding total anxiety scores at the pretest condition.

### 3.2. Analysis

A 2 (time) x 2 (group) ANOVA was conducted to evaluate the effectiveness of CBT treatment. In addition, a paired sample t-test was administered to compare means of both groups. Results are shown in Table 4.

Table 4. Results for 2x2 ANOVA and Paired-Samples t Test

Variable	2x2 ANOVA			Paired-samples <i>t</i> test			
	Time x Group			CBT		Control	
	<i>F</i>	<i>p</i>	$1 - \beta$	<i>t</i>	<i>p</i>	<i>t</i>	<i>p</i>
Running	3.051	.096	.38	3.065	.012*	-.739	.477
Total Anxiety	18.278	.000*	.982	4.579	.001*	-.483	.640
Cognitive Scale	3.961	.060	.474	3.12	.011*	1.17	.269
Emotional Scale	10.859	.004*	.88	4.394	.001*	-.747	.472
Somatic Scale	6.135	.022*	.654	2.193	.053	-1.166	.271
Behavioral Scale	1.277	.272	.190	1.166	.271	-.319	.756

Note. \*  $p < .05$

### 3.2.1. Performance

2x2 ANOVA did not show a significant interaction effect for running scores,  $F(1, 20) = 3.051, p > .05$ . In the paired-sample t test, there was a significant difference between pretest and posttest scores of running times for CBT group ( $t = 3.065, df = 10, p = .012$ ). There was not any significant difference of running times for control group ( $t = -.739, df = 10, p = .477$ ). Group means are shown in Figure 2.

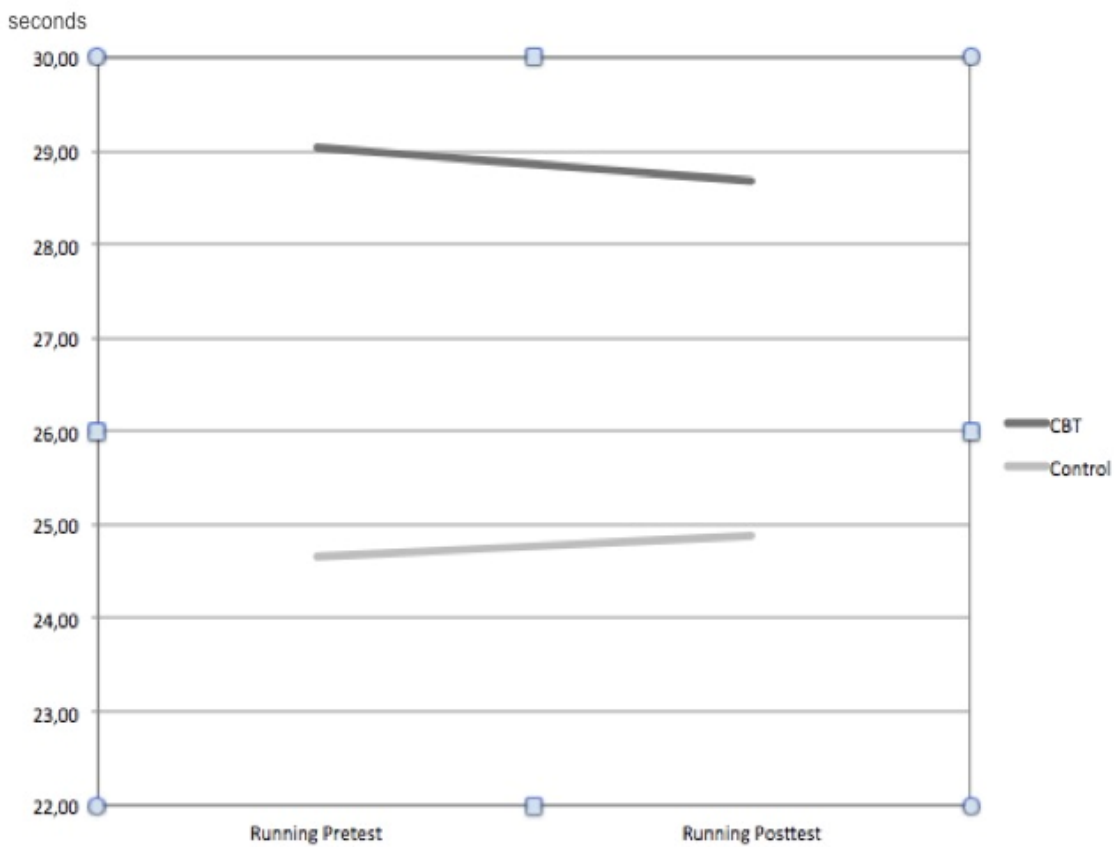


Figure 2. Running times means (in seconds) in national competitions for CBT group and control group before and after CBT treatment

### 3.2.2. Total anxiety

2x2 ANOVA showed a significant interaction effect for total anxiety scores,  $F(1, 20) = 18.278, p < .05$ . In the paired-sample t test, there was a significant difference

between pretest and posttest scores of total anxiety scores for CBT group ( $t=4.579$ ,  $df=10$ ,  $p=.001$ ). There was not any significant difference of total anxiety scores for control group ( $t=-.483$ ,  $df=10$ ,  $p=.640$ ). Group means are shown in Figure 3.

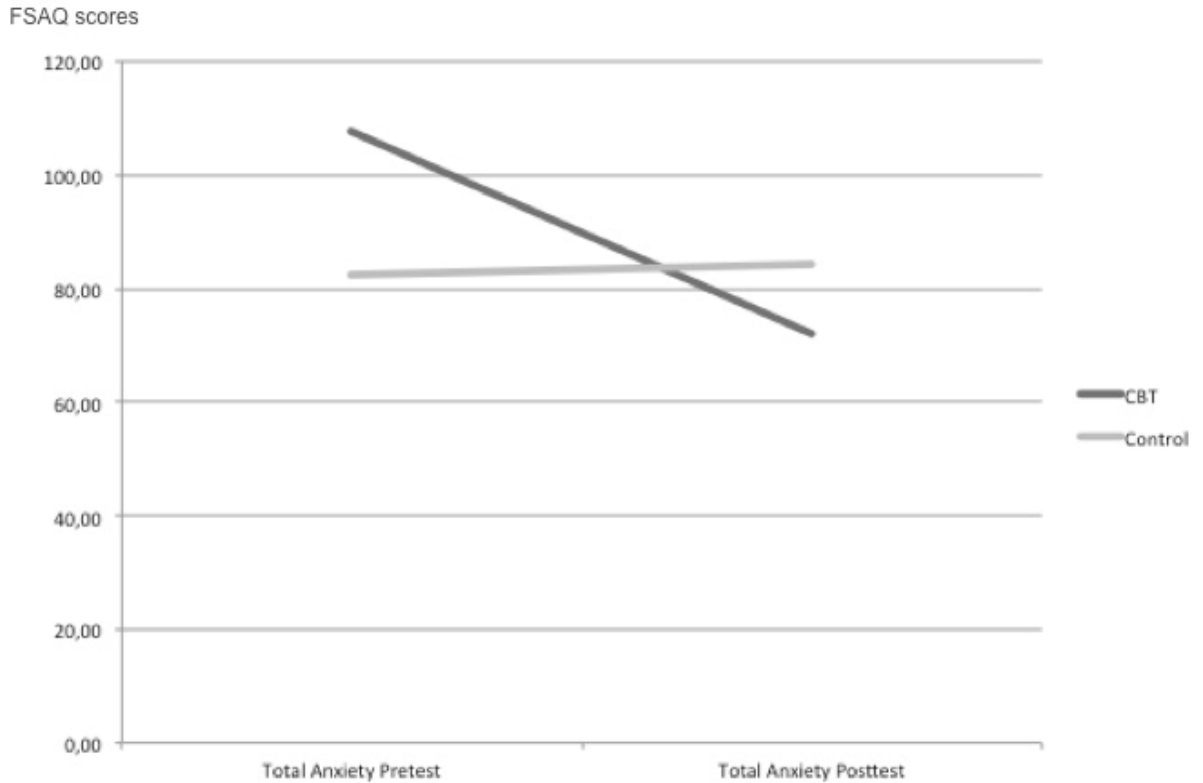


Figure 3. FSAQ score means of total anxiety level prior to the competition for CBT group and control group before and after CBT treatment

### 3.2.3. Cognitive dimension

2x2 ANOVA did not show a significant interaction effect for cognitive dimension,  $F(1, 20)= 3.961$ ,  $p>.05$ , it showed a significant main effect of time  $F(1, 20)=10.606$ ,  $p<.05$ ,  $1 - \beta=.872$ . In the paired-sample t test, there was a significant difference between pretest and posttest scores of cognitive anxiety for CBT group ( $t=3.120$ ,  $df=10$ ,  $p=.011$ ). There was not any significant difference of cognitive anxiety for control group ( $t=1.170$ ,  $df=10$ ,  $p=.269$ ). Group means are shown in Figure 4.



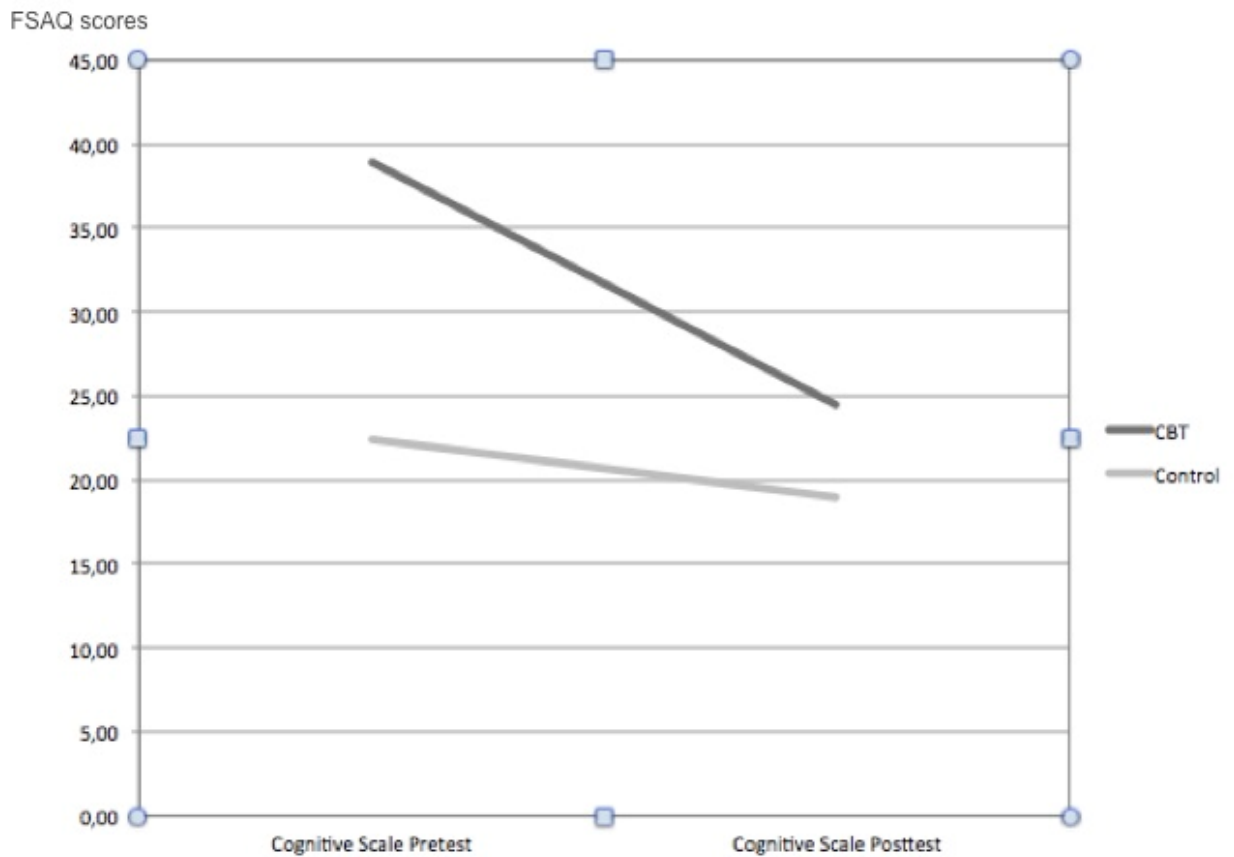


Figure 4. FSAQ score means of cognitive anxiety level prior to the competition for CBT group and control group before and after CBT treatment

#### 3.2.4. Emotional dimension

2x2 ANOVA showed a significant interaction effect for emotional dimension,  $F(1, 20) = 10.859, p < .05$ . In the paired-sample t test, there was a significant difference between pretest and posttest scores of emotional anxiety for CBT group ( $t = 4.394, df = 10, p = .001$ ). There was not any significant difference of emotional anxiety for control group ( $t = -.747, df = 10, p = .472$ ). Group means are shown in Figure 5.

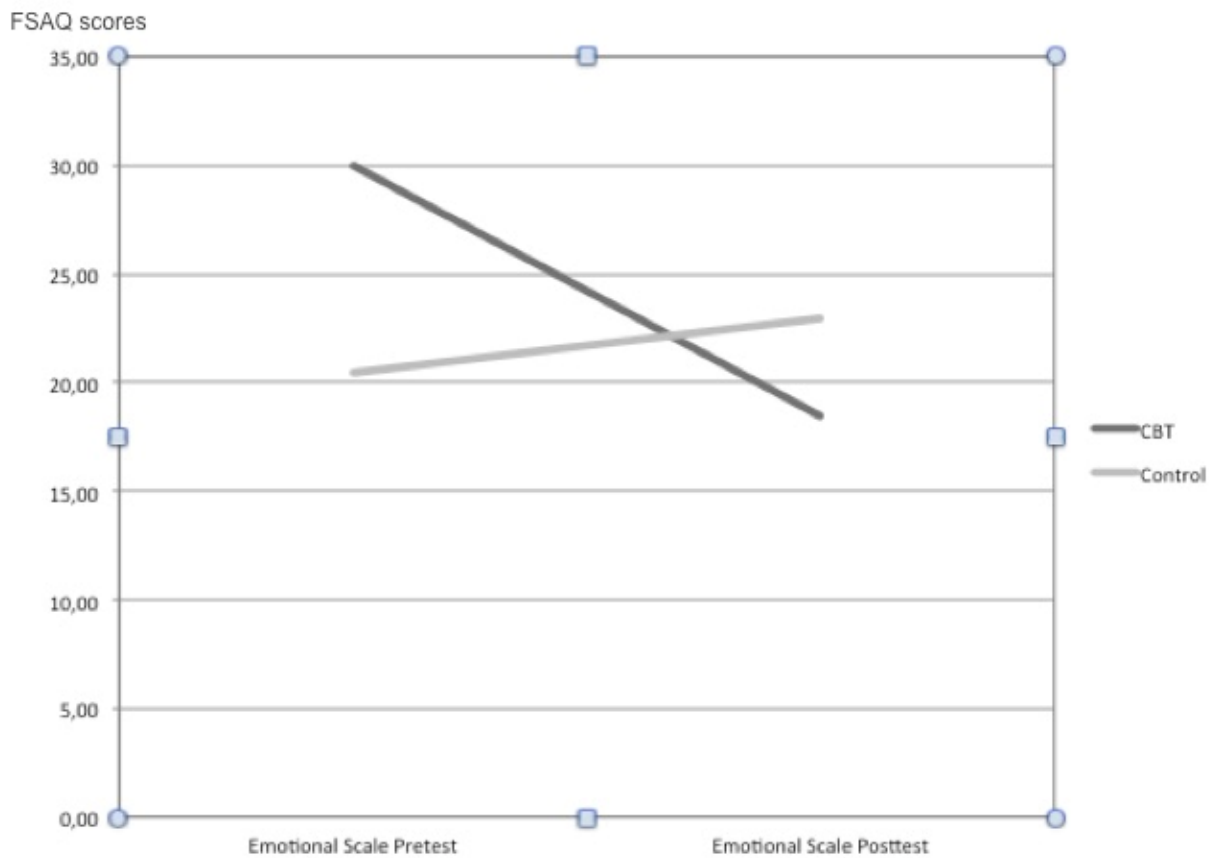


Figure 5. FSAQ score means of emotional anxiety level prior to the competition for CBT group and control group before and after CBT treatment

### 3.2.5. Somatic dimension

2x2 ANOVA showed a significant interaction effect for somatic dimension,  $F(1, 20) = 6.135, p < .05$ . In the paired-sample t test, there was not a significant difference between pretest and posttest scores of somatic anxiety for CBT group ( $t = 2.193, df = 10, p = .053$ ). There was not any significant difference of somatic anxiety for control group ( $t = -1.166, df = 10, p = .271$ ). Group means are shown in Figure 6.

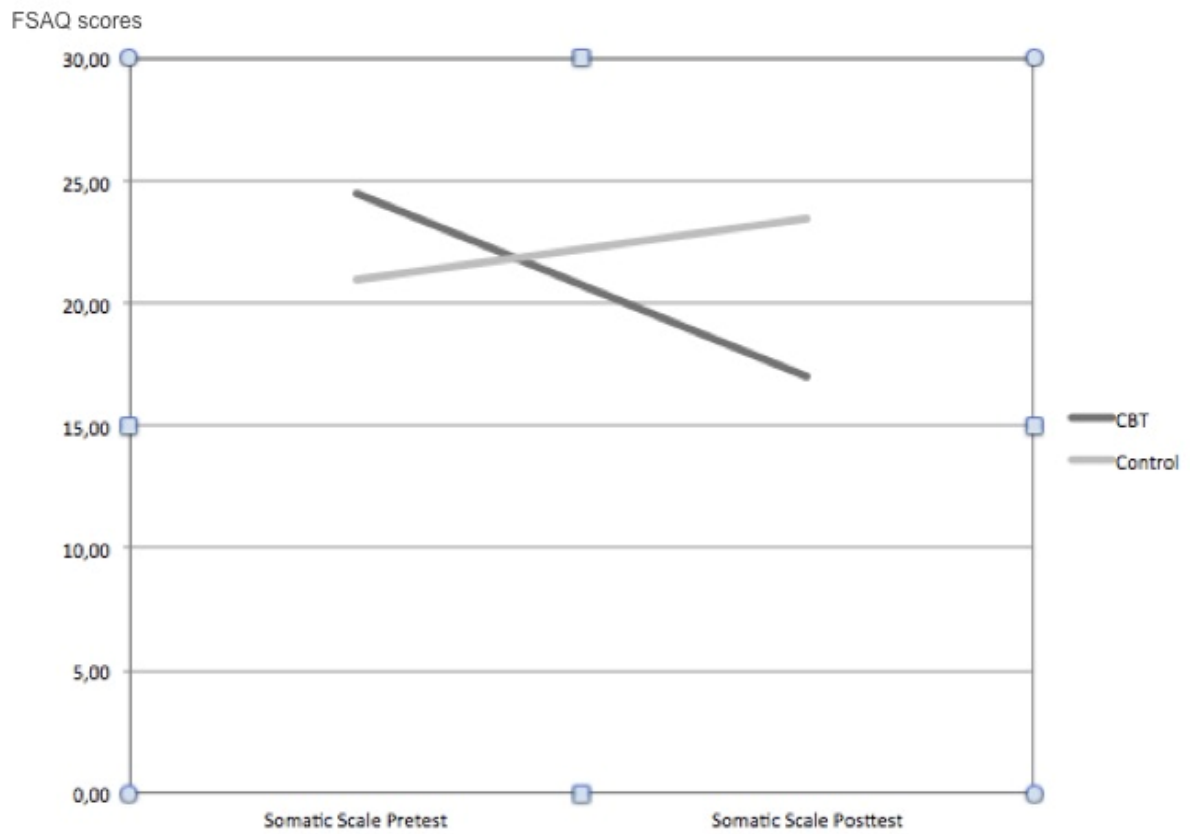


Figure 6. FSAQ score means of somatic anxiety level prior to the competition for CBT group and control group before and after CBT treatment

### 3.2.6. Behavioral dimension

2x2 ANOVA did not show a significant interaction effect for behavioral dimension,  $F(1, 20) = 1.277, p > .05$ . In the paired-sample t test, there was not a significant difference between pretest and posttest scores of behavioral anxiety for CBT group ( $t = 1.166, df = 10, p = .271$ ). There was not any significant difference of behavioral anxiety for control group ( $t = -.319, df = 10, p = .756$ ). Group means are shown in Figure 7.

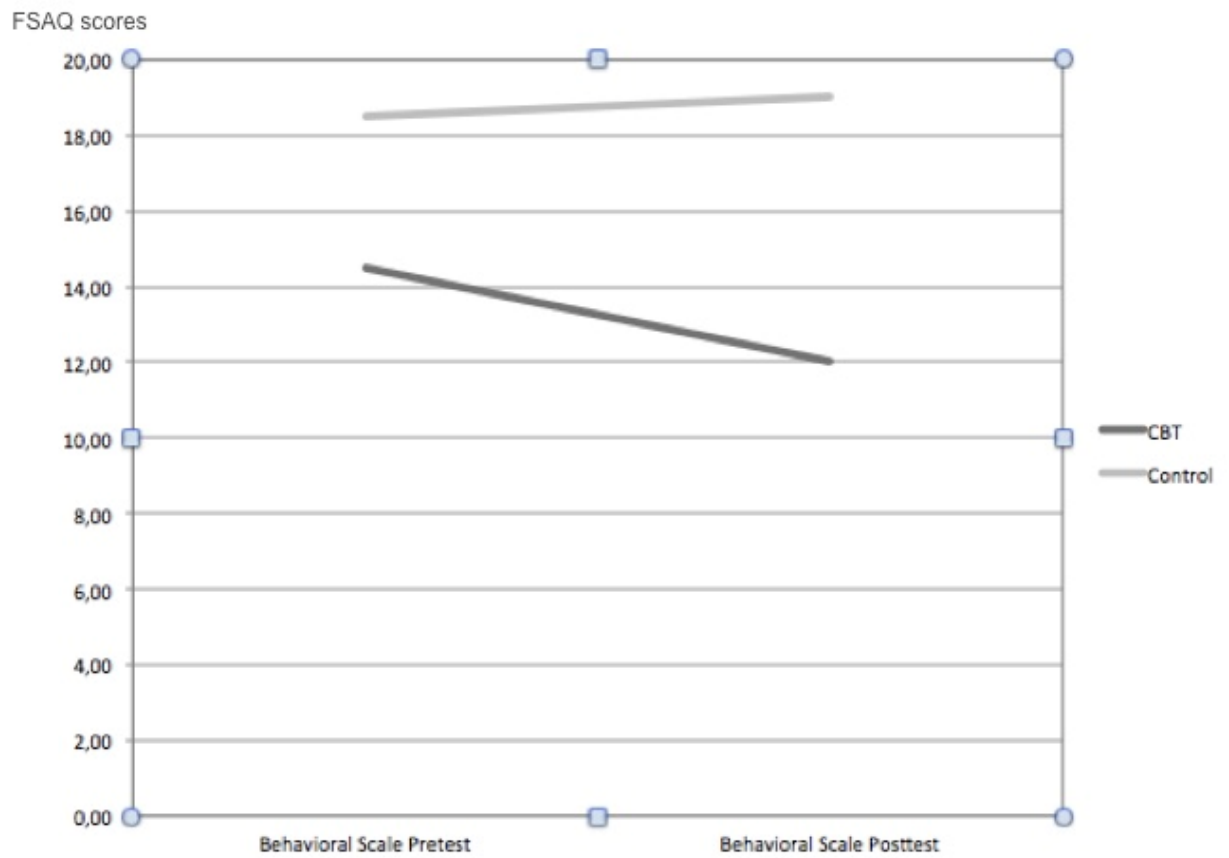


Figure 7. FSAQ score means behavioral anxiety level prior to the competition for CBT group and control group before and after CBT treatment

## CHAPTER 4

### DISCUSSION

#### 4.1. Present results

Overall, the results are in congruence with past research. As expected, the cognitive behavior therapy (CBT) is revealed to be effective in reduction of competitive anxiety; 2X2 ANOVA detected the effect of treatment on total anxiety, and paired-sample t-test showed significant difference between pretest and posttest condition of CBT group, whereas there is not any significant difference in total anxiety for control group.

Regarding performance, ANOVA did not detect any effect for treatment on running scores, however, considering the low value of statistical power and significant difference of pretest and posttest conditions in paired-sample t test for CBT group, it is reasonable to assume a type II error. Larger sample sizes with more power may detect the treatment effect.

In the present study, a correlation analysis for anxiety and performance was not conducted due to small sample size. However, decreasing means of running times and anxiety scores, as seen in Figure 2 and Figure 3, suggest a negative correlation relationship between anxiety and performance, congruous with previous research; sport performance improves while anxiety level decreases.

Regarding sub dimensions, present study suggest that the treatment is especially effective for reducing emotional symptoms. In the present study, discussion on emotions was intentionally included in the discussion part, aiming to address emotional dimension of anxiety. Adding emotional component was a slight change in treatment technique in comparison to original CBT procedure, which

usually does not require working on emotions (Köksal, 1982). This additional component might have contributed to the significant change in CBT group. Future research may reveal clear findings by comparing effectiveness of two techniques on emotional dimension of anxiety.

Analysis of cognitive subscale scores differed between ANOVA and paired-sample t test. ANOVA did not detect a significant treatment effect on cognitive dimension of anxiety, however it showed a significant change between pretest and posttest condition. Nevertheless, results for treatment effect revealed a marginal p value and relatively low statistical power. Also considering the significant difference for CBT group shown in paired-sample t test, it is possible to assume that a type II error might have occurred, and larger sample sizes would have yielded more congruent results.

Scores of somatic subscale differed also between analyses, ANOVA revealed a treatment effect on somatic dimension, whereas paired-sample t test did not detect a significant difference between pretest and posttest conditions for CBT group. The statistical power in ANOVA was moderate, while p was marginal for CBT group on paired-sample t-test, therefore it seems difficult to lean on a conclusion according to analyses. It may be the case that more sessions of treatment would make a significant change. As mentioned above, the somatic component of CBT, progressive muscle relaxation, aims for somatic awareness and control of tension due to anxiety, which is learned through repetition. It is possible that 6 sessions is sufficient for reducing text anxiety (Köksal, 1982), but more sessions are required for meaningful change in treatment in case of competitive anxiety.

Regarding behavioral sub-dimension, it was not found any significant difference in both analyses. Lack of effectiveness may be due to the fact that CBT

relies on imagery for behavioral change; imagining coping in specific situation may be creating slow changes in real life situations. Considering the decreasing trend shown in Figure 7, it may be reasonable to anticipate detecting a change after more sessions of treatment, as in case of somatic dimension of anxiety. Also, it may be due to the small sample size; a larger sample size may detect significant differences.

To sum up, the present study suggests that CBT is promising to work on performance anxiety in sport. Future studies with more number of sessions or larger sample size may obtain more clear empirical results. Implications of present results combined with clinical observation were discussed below.

#### 4.2. Session notes

Several points from sessions seem to be important to be mentioned. Please note that this section includes the sessions with withdrawn experimental groups as well as present group, since there were clear commonalities between them.

First of all, it was very unexpected that whenever the participants were asked about what they think or how they feel, their first response was always based on bodily sensations; most common ones were heart rate, stomachaches and headaches. An exemplary dialogue would be as followed (from session notes of the present group, translated from Turkish, not verbatim):

TH- You have rated “waiting at the start” as highest on anxiety hierarchy. How do you feel when you are waiting there?

P1- It is the worst. My heart starts racing, and I feel horrible aching in my stomach.

P2- My heart is like exploding too. My heart rate must be 200 at that time, just by standing there.

P3- I also have stomachaches and a terrible trembling.

(Group generally agrees by nodding.)

TH- It must be hard waiting there like this. These are some sensations you feel in your body. Can you tell me some of your feelings?

Group- ...

P1- My feelings are ... I want to throw up, I guess. (Laughs from group)

TH- Oh, it must be terrible. What do you think when you feel like this?

P1- I take deep breaths to avoid stomachache, and I do not think anything.

Such soma-based expressions were common and consistent across all groups. Participants were usually only able to mention about feelings and thoughts when several alternatives were suggested as example. It may be speculated that as elite athletes, they were taught at an early age to attend to their body, and, they are used to express themselves mostly with their body (the implications on treatment were discussed below).

It was also interesting that the participants' attitudes and expectations differed for different components of the study. During the treatment process, they showed different levels of comfortableness with different topics and issues. To be more elaborate, all of the groups were in consensus on the fact that they do not like the cognitive component of the treatment. During sessions, it is also observable that the participants were not at ease when talking about what they think. They repeatedly explained that they do not think about anxiety because they believe that anxiety would grow if they think or talk about it. In Turkish sport setting, it seems like a common belief among trainers and athletes. In addition, this belief is actually the reason of one of the previous groups' dropping out from the study by not filling out questionnaires before the competition. Such beliefs and misinformation encouraged



by trainers and other professionals seems to leave very little room to work with athletes on anxiety. Speculatively, it might also be the covert reason of numerous dropouts from various groups; requirements of the study might seem contradictory with what they were told to do by their trusted trainer or psychologist. Regarding the present group, their trainer consistently encouraged the process, and overtly expressed his belief in the process, which might have helped the participants to manage to complete the study. Nevertheless, the present group barely mentioned their anxiety-evoking thoughts. They only reported ruminative thinking as a symptom, which usually start a day before the competition, while they easily reported and discussed about many somatic and behavioral symptoms such as having stomachaches, headaches, goose bumps, tense muscles, increased heart rate, trembling, accelerated respiration just before the competition, decreased appetite in the morning of the competition, freeze reaction at the start of the competition (which is called faux depart and which pose a threat to be eliminated from the competition).

Similarly, the participants had hard time to answer when they were asked about how they feel. Most of the participants described a strong desire to escape upon arriving the place of competition. Almost all of them reported strong sense of dread and terror while even mentioning the competition, also a prolonged restlessness and irritability, which start few days before competition. They were not willing to talk about anxiety-related feelings too. Interestingly, it seems relatively easy for them to talk about their other feelings during discussions; mostly feelings about peers, teachers, and trainers. It is considerable that expressing these proxy feelings might have helped with the emotional dimension of anxiety, and displaying a significant effectiveness in treatment.

On the other hand, all of the groups were also at a consensus that they like the relaxation component of the treatment the most, and at the end of the process, they reported that it worked. Some of them reported using it a night before the competition to fall asleep, some other reported using contracting-loosening process at the beginning of the competition to regulate their anxiety. Such liking may create the change in somatic component, although it seems a slight one.

Another interesting note is that, the present group was especially comfortable with talking about their relationship with their trainer. The nature of their relationship with their trainer, their feelings about him, and his behaviors towards and expectations from the participants were discussed in each session. They described their trainer as structured, distant and authoritarian. They reported that although they admire, love and respect their trainer, they are mostly anxious about his thoughts and comments about their competitive performance. They identified his motivational speeches prior to competition as one of the extremely anxiety-evoking situations. The issue seems similar to Sarason's (1980) findings about high anxious students' performing worse when receiving frequent and excessive critics. The participants seemed to feel overwhelmed by their perception of trainer's expectations, and, the anticipation of being punished upon failing seemed to contribute their reported sense of dread, desire to escape and ambivalent self-esteem.

#### 4.3. Implications on treatment and suggestions

Although present results suggest that CBT is effective for treating competitive anxiety, considering the discomfort of cognitive and emotional components of treatment for participants, it seems important to reflect deeper on the issue before settling on a decision. First of all, considering the age group (all participants of all

groups were at adolescence) and the cultural context, such difficulties in expression might have been expected. Previous research points out that adolescence is a period that individuals become more autonomous both emotionally and behaviorally, which lead them to be emotionally less expressive and even contradictory (Klimes-Dougan & Zeman, 2007). In addition, cultural context is one of the key factors on emotional expressiveness (Klimes-Dougan & Zeman, 2007; Friedlmeier, Çorapçı & Cole, 2011), and several studies have been found that Turkish culture does not usually encourage emotional expressiveness (Wege, Sanchez Gonzalez, Friedlmeier, Mihalca, Goodrich & Çorapçı, 2014), especially in regard to negative emotions except sadness (Çorapçı, Aksan & Yağmurlu, 2012). Therefore, age and cultural context may be accounted for the lack of expression in the groups. Nevertheless, clinical observations in present study suggest that Turkish elite athletes have a strong tendency and preference for somatic expression, as well as having a heavy somatic symptomatology. From a clinical approach, this revelation seems to pose two questions. The first one is whether elite athletes are differentiated from the general population by their emotional expression patterns. Becoming a professional athlete requires a heavy training generally starting at a young age, before puberty at latest (Baxter-Jones & Helms, 1996), which might overlap with sensitive periods of emotion regulation and socialization in the childhood. According to the reports from the participants of the present study, being successful in competitive sports also seems to demand total attentiveness and control over the motor abilities and bodily cues of arousal and exhaustion. Growing up with such training, in which they learned methods of total focus on body, might have created a unique developmental pathway of emotion regulation and socialization for elite athletes. Recently, a growing body of research in sport psychology started to be interested in the

relationship between emotion regulation and motor abilities (Lane, Beedie, Devonport & Stanley, 2011; Wagstaff, Hanton & Fletcher, 2013; Wagstaff, 2014). However, the conceptualization of emotion regulation in sport psychology is quite different from the clinical one, and it did not seem to show any clinical finding about the issue. In addition, there is not any study on the topic in the field of clinical psychology to our knowledge. Future research investigating emotion regulation and socialization patterns of elite athletes, or younger candidates, may shed light on the issue, which would also inform the intervention and treatment methods.

The second question is whether elite athletes are to be considered as a clinically differentiated group, which requires customized treatment methods. Across all groups, which held the sessions, participants consistently reported that they like the relaxation component the best, and that they used relaxation skills when they feel anxious before the competition and it worked to reduce their anxiety level. They can readily report their bodily sensations, and somatic symptoms of anxiety, but they seem clueless when it comes to their feelings and thoughts. When asked about feelings and thoughts, they tend to answer with some version of an associated body sensation instead. Considering the matching hypothesis and preference for somatic expression, the overall picture points out that a soma-based approach might be more efficient in terms of both treatment effectiveness and time. Especially considering the busy schedule of elite athletes, time is the essence for an efficient treatment. Using the available time to implement methods based on somatic component, which is matched both with symptomatology and expression style, may create a critical difference in handling the competitive anxiety. Although there is not any research on performance anxiety, past research suggests some additional thoughts on the issue through anxiety disorders and the matching hypothesis. In

several meta-analyses on effectiveness of CBT (Norton & Price, 2007; Olatunji, Cisler & Deacon, 2010), it is shown that the effectiveness of CBT and its specific components may change across different disorders. Regarding social phobia, which is considered the closest pathology to performance anxiety in terms of etiology and symptomatology (Wilson & Roland, 2002), the effectiveness of CBT was found to be smaller in comparison to generalized anxiety disorder (GAD) and posttraumatic stress disorder (PTSD) (Norton & Price, 2007). Other research also has shown that exposure-based methods are elementary for treatment of phobias (Olatunji et al., 2010), and, relaxation training combined with exposure creates a more significant effect than cognitive restructuring when working with social phobia (Heimberg, 2002). Only relaxation training conditions, in comparison to CBT or cognitive therapy (CT), were also found to be equally effective in several studies on panic disorder, PTSD and GAD (Borkovec & Costello, 1993; Borkovec, et al., 2002; Norton & Price, 2007; Olatunji et al., 2010), and even suggested as a primary treatment for all anxiety disorders (Norton & Price, 2007). To sum up, considering the past research, especially on social phobia, and the somatic expression tendency of the athletes, it is reasonable to assume that revised techniques based on relaxation combined with coping imagery might create a critical effect when working with performance anxiety. It might be useful to alter the sessions structures accordingly, such as by decreasing the time for the cognitive or emotional component, and by adding some additional somatic methods. Future research informed by clinical psychology may help for developing customized methods for sport settings.

#### 4.4. Additional suggestions for future directions

Regarding clinical implementations, considering the “no-talk” belief in Turkish sport setting, and the negative effect of the trainer’s attitude on participants, it would be reasonable to suggest implementing a psycho-education program for both trainers and athletes as a pre-treatment intervention. It seems that the lack of knowledge on psychological aspects of sport performance plays a major role in the problem in Turkey. Informing trainers and athletes about the related psychological concepts, their role on performance, and the related scientific data may create a more effective and sustainable improvement regarding common problems with anxiety.

Regarding measurement, FSAQ seems to effectively detect the multidimensional aspects of competitive anxiety. It might help conceptualizing more elaborated models of performance anxiety by revealing more relationships between related constructs.

Regarding the research, considering the heaviness of reported somatic symptoms, it would be useful to investigate the relationship between required motor abilities and performance anxiety. A successful sport performance requires high physical effort and control, and under heavy somatic anxiety symptoms, it might be hard to show the required level of motor ability, which would severely cripple the sport performance. An elaborate understanding about the nature of the relationship between these constructs may also help to develop more effective interventions and treatments.

## APPENDIX A

### FOUR SYSTEMS ANXIETY QUESTIONNAIRE

This questionnaire contains sixty (60) items concerning difficulties that most people experience from time to time. Read each item carefully, IF YOU HAVE experienced any of the thoughts, feelings, physical symptoms or behaviours in the manner indicated by any of the items, then put an X into the bracket under the column headed YES. IF YOU HAVE NOT put an X in the bracket under the column headed NO. Please make sure that none of the items are omitted. There are no right or wrong answers, this is not a measure of intelligence or ability. Do not spend too much time over any question we are interested in your first reaction, not a deeply considered response. Thank you for participation.

YES NO

- 1 - I blush easily.
- 2 - I often feel so helpless, and desperate that life becomes a source of suffering for me.
- 3 - Poor sleep is one of my biggest problems.
- 4 - I often avoid talking to people in a train or a bus.
- 5 - I tend to avoid going out.
- 6 - I often have a headache.
- 7 - I often experience the feeling of embarrassment.
- 8 - A jittery feeling has become part of my life.
- 9 - I often have dizzy attacks.
- 10- I sometimes cannot think of anything except for my worries.
- 11- I seldom experience chest pains.

- 12- I seldom feel on edge.
- 13- I cannot concentrate on a task because of disruption by uncontrolled thoughts.
- 14- I rarely feel joyful.
- 15- I have persistent disturbing thoughts.
- 16- I definitely avoid going to any kind of place again, where I previously had a difficult time (for example, a social gathering or a street etc.).
- 17- I sometimes think of myself as an inefficient person.
- 18- My feelings dominate my personality so much that I have no control over them.
- 19- I worry a lot when I think of possible disapproval of me from others.
- 20- I often experience the feeling of excitement.
- 21- I rarely try to steer clear of challenging jobs.
- 22- I rarely have disturbed sleep.
- 23- I sometimes feel upset.
- 24- My muscles are quite tense throughout the day.
- 25- When at home I usually try not to stay alone at night.
- 26- I sometimes get easily tired even when not working hard.
- 27- I rarely worry about unimportant events.
- 28- I seldom laugh freely.
- 29- I usually worry that I will not be able to cope with difficulties in my life.



- 30- I tend to avoid talking to someone who is above me such as my boss.
- 31- I rarely find myself lost in worrying.
- 32- Wherever I go, or whatever I do, I always have a feeling of discomfort.
- 33- I sometimes avoid participating in discussions even though I know the topic well.
- 34- My hands rarely shake.
- 35- I sometimes feel extremely self-conscious.
- 36- I am worried that others may misunderstand me.
- 37- I occasionally experience a tingling sensation around my body.
- 38- I rarely try to keep away from social gatherings.
- 39- I sometimes feel happy but it easily fades away.
- 40- Even if everything is going well, my mind is occupied by imaginary upsetting ideas.
- 41- I seldom have palpitations.
- 42- I cannot think clearly about anything because disrupting thoughts keep occurring in my mind.
- 43- There seems to be a lump in my throat much of the time.
- 44- I cannot feel relaxed, even though I am not in a hurry.
- 45- I seldom avoid speaking at social occasions.
- 46- Even if it is necessary, I sometimes avoid asking other people questions.

YES NO

47- I very rarely imagine myself being unpopular with my friends.

48- I have diarrhoea once a month or more . 49- I often find myself thinking about possible embarrassing situations.

50- I usually feel quite insecure in my life.

51- I have a tight sensation at my neck.

52- I usually avoid getting involved in social activity.

53- My uneasy feelings flare up at any moment.

54- I usually try to avoid walking in crowded streets.

55- I always feel irritable.

56- I hardly ever tell jokes.

57- I am concerned about how others view me.

58- I sometimes have stomach problems.

59- Half of my thoughts are related to some kinds of worries.

60- I try to avoid standing up to other people even if they have taken advantage of me.

## APPENDIX B

### FOUR SYSTEMS ANXIETY QUESTIONNAIRE (TURKISH)

#### DÖRT SİSTEM ENDİŞE ENVANTERİ

Bu envantere çoğu kişinin zaman zaman karşılaştığı zorluklarla ilgili 60 (altmış) soru bulunmaktadır. Her soruyu dikkatle okuyunuz. Eğer soruda belirtilen sorun size uyuyorsa “EVET”, uymuyorsa “HAYIR” işaretleyiniz. Teşekkür ederiz.

	EVET	HAYIR
1. Çabuk yüzüm kızarır.		
2. O kadar çaresiz ve mutsuz hissederim ki hayat benim için bir sıkıntı kaynağı olur.		
3. İyi uyuyamamak en büyük sorunlarımdan biridir.		
4. Tren veya otobüste iken insanlarla konuşmaktan çoğunlukla kaçınırım.		
5. Evden dışarı çıkmaktan kaçınırım.		
6. Sık başım ağrır.		
7. Utanma hissine sık kapılırım.		
8. Huzursuzluk hissi yaşantımın bir parçası haline geldi.		
9. Sık sık başım döner.		
10. Bazen endişelerimden başka bir şey düşünemiyorum.		
11. Nadiren göğüs ağrılarım olur.		
12. Diken üstünde hissettiğim anlar enderdir.		
13. Kontrol edemediğim düşünceler yüzünden dikkatimi bir işte toplayamıyorum.		
14. Nadiren neşeli hissederim.		
15. Sürekli rahatsız eden düşüncelerim var.		
16. Daha önce zor anlar yaşadığım bir yere tekrar gitmekten kesinlikle kaçınırım. (Örneğin bir davet veya bir sokak vb.)		
17. Bazen yetersiz biri olduğumu düşünürüm.		
18. Hislerim kişiliğime öylesine hükmeder ki onlar üzerinde hiçbir kontrolüm yok.		
19. Başkalarının beni olumsuz eleştirebileceklerini düşündüğümde kaygılanırım.		
20. Sık sık heyecanlandığımı hissederim.		

	EVET	HAYIR
21. Mücadele gerektiren işlerden nadiren kaçırım.		
22. Nadiren rahatsız uyurum.		
23. Bazen keyifsiz hissedirim.		
24. Gün boyunca kaslarım oldukça gergindir.		
25. Evde olduğum geceler genellikle yalnız kalmamaya gayret ederim.		
26. Bazen yoğun çalışmadığım halde kolayca yorulurum.		
27. Önemsiz konular için nadiren kaygılanırım.		
28. Nadiren rahatça gülerim.		
29. Genellikle yaşantımdaki zorluklarla baş edemeyeceğimi düşünüp kaygılanırım.		
30. Benden yüksek mevkide olan insanlarla konuşmaktan kaçınırım.		
31. Nadiren kaygıların içinde kaybolmuş olduğumu fark ederim.		
32. Nereye gitsem ya da ne yapsam daima bir huzursuzluk hissedirim.		
33. Konuyu iyi bilmeme rağmen bazen tartışmaya katılmaktan kaçınırım.		
34. Ellerim nadiren titrer.		
35. Bazen kendimden tedirgin olduğumu hissedirim.		
36. Başkalarının beni yanlış anlayacağını düşünüp kaygılanırım.		
37. Ara sıra vücudumda bir karıncalanma olur.		
38. Nadiren sosyal toplantılardan kaçınırım.		
39. Bazen kendimi mutlu hissedirim fakat bu his hemen yok olur.		
40. Her şey yolunda gitse bile aklım hayali karamsar düşüncelerle doludur.		
41. Nadiren çarpıntım olur.		
42. Sürekli olarak aklımı rahatsız edici düşünceler meşgul ettiği için hiçbir konuda net düşünemiyorum.		
43. Pek çok zaman sanki boğazım düğümleniyor gibi olur.		
44. Acelem olmadığı zamanlarda bile rahat hissedemem.		

	EVET	HAYIR
45. Sosyal ortamlarda konuşmaktan nadiren kaçınırım.		
46. Gerekli olduğu halde bazen başkalarına soru sormaktan kaçınırım.		
47. Nadiren arkadaşlarımla arasında gözde olmayan birisi olduğumu düşünürüm.		
48. Ayda bir veya daha fazla ishal olurum.		
49. Kendimi sık sık olası utanç verici durumlarda düşünürüm.		
50. Genellikle oldukça güvensiz hissederim.		
51. Boynumda gerginlik var.		
52. Sosyal faaliyetlere katılmaktan kaçınırım.		
53. Her an beni rahatsız eden hislere kapılabilirim.		
54. Genellikle kalabalık caddelerden yürümekten kaçınırım.		
55. Her zaman huzursuz hissederim.		
56. Fıkra anlatmaktan kaçınırım.		
57. Başkalarının beni nasıl gördüğü, nasıl değerlendirdiği ile ilgiliyim.		
58. Bazen mide sorunlarım olur.		
59. Düşüncelerimin yarısı birtakım endişelerim ile ilgilidir.		
60. Başkaları iyi niyetimi kötüye kullanmalarına rağmen onlara karşı gelmekten çekinirim.		

APPENDIX C

APPROVAL FROM ETHICS COMMITTEE

T.C.  
**BOĞAZIÇI ÜNİVERSİTESİ**  
Sosyal ve Beşeri Bilimler Yüksek Lisans ve Doktora Tezleri Etik İnceleme Komisyonu

Sayı: 2019-21

7 Mart 2019

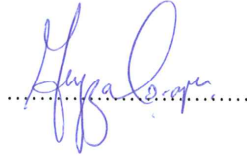
Birge Birgin  
Psikoloji

Sayın Araştırmacı,

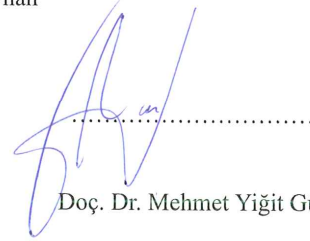
"Bilişsel Davranışçı Terapinin Performans Kaygısı Sağılma Üzerindeki Etkisinin Profesyonel Sporcularla Çalışılması" başlıklı projeniz ile ilgili olarak yaptığımız SBB-EAK 2019/02 sayılı başvuru komisyonumuz tarafından 7 Mart 2019 tarihli toplantıda incelenmiş ve uygun bulunmuştur.



Dr. Öğr. Üyesi İnci Ayhan



Prof. Dr. Feyza Çorapçı



Doç. Dr. Mehmet Yiğit Gürdal



Doç. Dr. Ebru Kaya



Dr. Öğr. Üyesi Şebnem Yalçın

APPENDIX D  
CONSENT FORM

Katılımcı Bilgi ve Onam Formu

Araştırmayı destekleyen kurum: Boğaziçi Üniversitesi, Psikoloji Bölümü  
Araştırmanın adı: Bilişsel Davranışçı Terapi'nin Performans Kaygısı Sağıltma  
Üzerindeki Etkisinin Profesyonel Sporcularla Çalışılması

Araştırmacı: Birge Birgin

E-mail adresi: birgebirgin@gmail.com

Telefonu: 0 536 432 25 69

Proje yürütücüsü: Prof. Dr. Falih Köksal

E-mail adresi: koksalfa@boun.edu.tr

Telefonu: 0 212 359 70 50

Sayın Sporcu,

Proje konusu: Bugüne kadar konu üzerinde yapılan çalışmalarla, kaygı seviyesinin performansı belirleyici etkenlerden biri olduğu ortaya konulmuştur, kaygı seviyesi düşük olan sporcular daha yüksek performanslar sergileyebilmektedirler. Bu kapsamda yapılacak grup çalışması ile kaygı seviyesi düşürülerek müsabaka performansının yükselmesi amaçlanmaktadır. Çalışma Boğaziçi Üniversitesi etik kurulu onayı ile, 11-17 Mart 2019 tarihleri arasında gerçekleşecektir.

Onam: Profesyonel bir sporcu olarak sizi kaygı azaltmaya yönelik çalışmamıza katılmaya davet ediyoruz. Bu çalışma kapsamında size kaygınızı azaltarak performansınızı geliştirmeye yönelik bir teknik kazandırmayı hedefliyoruz.

Araştırmaya katılmayı kabul ettiğiniz takdirde 11-17 Mart tarihleri arasında her gün, günde 50 dakika yapılacak bir grup çalışması ile kaygı azaltmaya yönelik teknikler uygulayacaksınız. Kampın başında ve sonunda sizden bazı formlar doldurmanız istenecek, antrenman skorlarınız kaydedilecek ve hız, denge ve kuvvet ile ilgili ölçümler yapılacaktır. İsminiz, bilgileriniz ve grup çalışmasında yapılacak olan konuşmalar tamamen gizli tutulacaktır. Elde edilen skorlar bireysel değil, grup halinde değerlendirilecektir. Elde edilen skorlar yalnızca çalışma için kullanılacak, size öğrencilik veya profesyonel yaşamınızda herhangi bir etkisi olmayacaktır. Bireysel bilgileriniz çalışma dışındaki kişilerle (örn. antrenör, teknik direktör) paylaşılmayacaktır.

Grup terapisi şeklinde yapılacak olan seanslarda, her seansın ilk yarısı kaygı üzerine teorik eğitim, kaygı uyandıran düşünceler ve bunlarla baş etme üzerine grup tartışmasına ayrılacak, ikinci yarısında ise kas gevşetme ve imgeleme çalışması yapılacaktır. Kas gevşetme çalışması, terapistin size vücudunuzdaki kaygı ile ilgili bazı temel kas gruplarını kasmak ve gevşetmek üzerine talimatlar vermesi ile yapılır. Çalışmanın amacı hem bu kas gruplarının kasılmış ve gevşek olduğu zamanlar üzerine bedensel farkındalık yaratmak, hem de kaslarınızı gevşeterek kaygınızı rahatlatmak için size bir teknik öğretmektir. İmgeleme çalışması için grubun en az kaygılı hissettiği durumdan en çok kaygılı hissettiği duruma kadar sıralayacağı 10

maddelik bir liste hazırlanır, ve her seans iki madde çalışılır. İmgeleme çalışmasının amacı bu belirli durumlarda hissedilen kaygının seviyesini düşürmektir.

Çalışmaya katılmanız tamamen isteğe bağlıdır. Sizden ücret talep etmiyoruz ve size herhangi bir ödeme yapmayacağız. Çalışmanın herhangi bir bölümünde devam etmekten vazgeçme hakkınız bulunmaktadır. Böyle bir durumda size ait veriler çalışmaya eklenmeyecek ve imha edilecektir.

Yapmak istediğimiz araştırmanın size risk getirmesi beklenmemektedir. Bununla beraber, kaygınızın düşeceği ve performansınızın yükseleceğine dair bir söz vermek de mümkün değildir. Çalışmamızın konuya yönelik etkili teknikleri ortaya çıkarmak için yararlı olmasını beklemekteyiz.

Bu formu imzalamadan önce, çalışmayla ilgili sorularınız varsa lütfen sorun. Daha sonra sorunuz olursa, proje yürütücüsüne (telefonu: 05364322569) sorabilirsiniz. Araştırmayla ilgili haklarınız konusunda yerel etik kurullarına da danışabilirsiniz.

-----  
Bana anlatılanları ve yukarıda yazılanları anladım. Bu formun bir örneğini aldım / almak istemiyorum (bu durumda araştırmacı bu kopyayı saklar).

Çalışmaya katılmayı kabul ediyorum.

Katılımcı Adı-Soyadı:.....

İmzası:.....

Tarih (gün/ay/yıl):...../...../.....



## APPENDIX E

### DEMOGRAPHIC INFORMATION FORM

#### Demografik Bilgi Formu

Aşağıdaki sorular hakkınızda genel bilgi almak içindir. Alınan bilgiler bu araştırma dışında hiçbir amaçla kullanılmayacak ve hiç kimseyle paylaşılmayacaktır.

Katılımcının,

- Adı ve soyadı: \_\_\_\_\_
- Doğum tarihi: Gün \_\_\_\_ Ay \_\_\_\_ Yıl \_\_\_\_
- Cinsiyeti (lütfen işaretleyiniz): Kadın \_\_\_\_ Erkek \_\_\_\_

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