TURKISH ADAPTATION AND VALIDATION OF SPIELBERGER'S
STATE ANGER SCALE

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İSTANBUL, 2015

TURKISH ADAPTATION AND VALIDATION OF SPIELBERGER'S STATE
ANGER SCALE

A THESIS SUBMITTED TO
THE GRADUATE SCHOOL OF SOCIAL SCIENCES
OF
BAHÇEŞEHİR UNIVERSITY

BY

TUBA KALAY

IN PARTIAL FULFILMENT OF THE REQUIREMENTS
FOR
THE DEGREE OF MASTER OF ARTS
IN
THE DEPARTMENT OF CLINICAL PSYCHOLOGY

JANUARY, 2015

THE REPUBLIC OF TURKEY
BAHÇEŞEHIR UNIVERSITY

GRADUATE SCHOOL OF SOCIAL SCIENCES
CLINICAL PSYCHOLOGY

Name of the thesis: Turkish Adaptation and Validation of Spielberger's State Anger Scale
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Date of the Defense of Thesis: 04.01.2015
The thesis has been approved by the Graduate School of Social Sciences.

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ABSTRACT

TURKISH ADAPTATION AND VALIDATION OF SPIELBERGER'S STATE

ANGER SCALE

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M.A., Clinical Psychology

Supervisor: Assist. Prof. İlke Sine EĞECİ

January 2015, 87 pages

This study investigated the psychometric properties of the Turkish version of the State Anger Subscale of Spielberger's State Trait Anger Expression Inventory using a sample of Turkish undergraduate students aged 18 to 31 years. The reliability and construct validity of the State Anger Subscale were addressed by examining the internal consistency, factor analytic structure, and concurrent and contruct validity. Supporting the validity of the scale, one factor structure underlying the original form was replicated. Moreover, boys were found to be more angry than girls. Similar to the previous studies, a statistically significant relation between the State Trait Anger Expression Inventory and Novaco Anger Scale was also detected. Investigating construct validity of the study, an experimental design was conducted with a sample of 60 participants andanger induction by using imagination as an experimental manipulationwas done. A significant difference between experimental and control

group was found. Depending on these findings, the State Anger Subscale provided to

be a reliable and valid assessment tool for future research and for clinical practice to

identify angry people in Turkey.

*Key words:*State anger, anger expression, adaptation, STAXI, emotions

ÖZ

SPIELBERGER'İN DURUMLUK ÖFKE ÖLÇEĞİ'NİN TÜRKÇE'YE
UYARLAMASI VE GEÇERLİLİK ÇALIŞMASI

Kalay, Tuba

Yüksek Lisans, Klinik Psikoloji

Tez Yöneticisi: Yrd. Doç. Dr. İlke Sine EĞECİ

Ocak 2015, 87 sayfa

Bu çalışma, 18-31 yaş arası üniversite öğrencilerinden oluşan bir örneklem kullanılarak Spielberger'in Durumluk Öfke Ölçeği'nin psikometrik özelliklerini araştırmayı amaçlamıştır. Ölçeğin güvenirliği ve geçerliliği, iç tutarlılığı, faktör analizi yapısı,eşdeğer (parallel) form güvenirliği ve deneysel çalışmaya bakılarak incelenmiştir. Ölçeğin orijinal faktör yapısına uygun olarak, bu çalışmada da tek faktörlü bir ölçek yapısı elde edilmiştir.Ayrıca, erkeklerin kadınlara kıyasla daha fazla durumluk öfke repor ettikleri görülmüştür.Önceki çalışmalara benzer olarak, bu çalışmada da Novaco Öfke Ölçeği ve Durumluk Sürekli Öfke Ölçeği arasında anlamlı bir ilişki bulunmuştur.Yapı geçerliliğini test etmek amacıyla, 60 üniversite öğrencisinden oluşan bir örneklemle, hayalleme ile öfkelendirme yöntemi kullanılarak deneysel bir çalışma yürütülmüştür. Çalışamnın sonucunda, deney ve control grubu arasında anlamlı bir fark bulunmuştur. Elde edilen sonuçlar, gelecekte

yürütülecek öfke çalışmalarında ve öfkeli insanları tanılamak amacı ile klinik ortamlarda kullanılabilecek, Durumluk Öfke Ölçeği'nin güvenilir ve geçerli bir ölçme aracı olduğunu kanıtlamıştır.

*Anahtar Kelimeler:*Durumluk öfke, sürekli öfke, öfke ifadesi, uyarlama, STAXI,

To my father with love and kind regards…

ACKNOWLEDGEMENTS

First of all, I would like to thank my thesis advisor Asst. Prof. Dr. İlke Sine Eğeci for her great tolerance, helps and patience in the preparation of this thesis. She has always been a sincere pleasure to know and work with. Her support, guidance and contributions made it possible to deal with the pressures that seemed, at times, insurmountable. Without her help, it would not be possible for me to actualize this study.

I would like to express my special thanks and gratitude to procreator of this study, Assoc. Prof. Dr. Nur Serap Özer. She introduced me to the area of psychological testing and sparked my interest in the subject. Her professionalism and precious ideas guided and motivated me to build up this study. I hope our paths will cross again.

I would also thank to my committee member Asst. Prof. Dr. Bengü Börkan. She introduced me to the area of assessment, evaluation and statistical analysis in my undergraduate degree. I am grateful because she supported me by attending to thesis committee and made precious contributions to my thesis.

I also wish to express special thanks to my committee member Asst. Prof. Dr. Ayşe Meltem Budak for attending to my thesis committee and sharing her constructive-criticism, always with a smile. She was overwhelmingly supportive, especially during the data collection process.

Charles Donald Spielberger of the University of South Florida… His State Trait Anger Expression Scale inspired my research in the first place. I thank him for

emotional support during my depressive periods with her sunny smile. I will never forget she supported me while am burned up and hopelessly wanted to see the end of this work.

Last but not least, I wish to express my special thanks to my dear family for their endless courage, hopes and believing in me. Without their existence, it would not be possible to be successful in my life.

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER 1

INTRODUCTION

"Anyone can get angry – that is easy;…but to do this to the right person, to the right extent, at the right time, with the right motive, and in the right way, that is not for everyone nor is it easy; wherefore goodness is both rare and laudable and noble" (p.50).

Aristotle (1962)

Anger is a common uncomfortable emotion that every person may experience at least in a lifetime. Even though anger is a daily experience for people, literature about anger shows that it is rather complex for the theorists to understand and clarify the definition of anger for years. Anger has come to be recognized as a crucial social problem worthy of clinical attention and systematic research especially in the last two decades. However, currently there is no definition of anger generally agreed upon. This disagreement stems from diversity of theories and approaches on emotions (Rotenberg, 1971; Berkowitz, 1989; Bandura, 1973; Novaco, 1975).

1.1. Definitions of Anger

Throughout the history, many of the researchers have made different conceptualizations and definitions for anger. The concept of anger usually refers to "an emotional state that consists of feelings that varies in intensity, from mild irritation to intense rage" (Spielberger, Jacobs, Russell, & Crane, 1983, p.52). "Anger is also considered a normal emotion signaling that one is in pain" (Schultz, 2005, p.9). As an experiential or subjective component, anger is generally accompanied by physiological arousal, characteristic facial expression and activation of action tendencies or impulses toward aggression (Lazarus, 1991). In general, more recent definitions consider anger as a multidimensional construct composed of physiological, cognitive and behavioral variables. In the literature of anger concept, these emotional, cognitive and behavioral characteristics are gathered under the roof of *hostility,* yet; this concept mostly represents cognitive factors (Augsburger, 1993). In order to understand anger concept comprehensively, it was needed to explore the relation and distinction of the terms anger, hostility and aggression. Because of a need to make clearer conceptualization to distinct domains, anger was defined as an emotional aspect of hostility and hostility consists of additional behavioral and cognitive components (Augsburger, 1993). Hostility generally involves intense angry feelings and has the connotation of a complex set of attitudes and behaviors that include being mean, vicious, vindictive, and often cynical (Spielberger et al., 1985). Also, it has been defined as negative attitudes and beliefs towards someone or a tendency to view the world in a cynical fashion (Martin, Watson and Wan, 2000). Consequently, Reiser (2001) compared anger with hostility in the way that hostility colors one's point of view like wearing mud-colored glasses; however, anger is more likely to reduce negative feelings. While hostility refers having revenge and

satisfaction because of someone's downfall or bad fortune, anger is related to overcoming some frustration or righting a misunderstanding.

When it comes to understanding relationship between anger and aggression, some theorists base their own definition on whether aggression is a part of anger or not. For instance, Rotenberg (1971) claimed that aggression is not part of anger but anger contributes to communication problems, disturbed interpersonal relationships, and psychosomatic disorders, and it is critical in motivating violent behavior. On the contrary, Berkowitz (1989) described aggression as a part of anger by asserting that the experience of anger goes along with the aggressive tendencies and is originates from aggression-related thoughts, memories, expressive-motor responses, and bodily sensations. Bandura (1973) was ambiguous whether aggression has a connection with anger and finally agrees on this notion by expressing that "people often experience anger without taking any action related to aggression". In this respect, according to Averill (1983), people often do not become aggressive when they are angry which is mostly related to the inhibition, transformation, displacement, or sublimation of the aggressive response. Rubin (1986) interpreted this discrepancy in conceptualizing anger as differing definitions of aggression some of which are limited to behaviors classified as overt aggression by excluding covert aggression.

These definitions suggest that anger, hostility, and aggression describe related, but distinct domains. Unfortunately, the terms often are used interchangeably and without clear operationalizations. The subsequent confusion makes it difficult to identify precisely what is assessed by various self-report measures of anger and

hostility. For example, the same questionnaires that are identified as measures of anger and hostility by some researchers (e.g., Biaggio & Maiuro, 1985; Matthews, Jamison, & Cottington, 1985) also are described as measures of aggression by others (e.g., Edmunds & Kendrick, 1980; Megargee & Menzies, 1971). All of these definitions suggest that anger, hostility, and aggression describe related, but distinct domains. Because the terms often are used interchangeably and without clear operationalizations, a difficulty comes up to identify precisely what is assessed by various self-report measures of anger and hostility. For instance, while some researchers like Biaggio and Maiuro (1985), and Matthews, Hamison and Cottington (1985) identified the same questionnaires that are accepted as measures of anger and hostility, others (e.g., Edmunds & Kendrick, 1980; Megargee & Menzies, 1971) also described these questionnaires as measures of aggression. The conceptual ambiguity surrounding these constructs makes it problematic to draw meaningful conclusions about the social and health consequences of anger, hostility, and aggression, for this reason, definitions made for clear away this discrepancy enabled both clarifying the distinction among these three terms and understanding the anger concept in detail. ABC model of Martin, Watson and Wan (2000) argued that trait anger comprises three basic components: *affective*, *behavioral*, and *cognitive*. According to this model, anger corresponds to affect, aggression to behavior, and hostility to cognition.

In general, the most commonly used definitions of anger were constituted according to the behavioral, cognitive and emotional components of anger concept. The most comprehensive one of these definitions belonged to Kassinove and Sukhodolsky (1995) that "anger is a negative, phenomenological (or internal) feeling

state associated with specific cognitive and perceptual distortions and deficiencies (e.g. misappraisals, errors, and attributions of blame, injustice, preventability, and/or intentionality), subjective labeling, physiological changes, and action tendencies to engage in socially constructed and reinforced organized behavioral scripts" (p.179). Novaco's (1975) cognitive-behavioral conceptualization supported the idea of Kassinove and identified anger as a stress reaction with three response components, which are cognitive, physiological and behavioral. According to the cognitive-behavioral approach, cognitive component was defined as the perception of social stimuli, attributions concerning responsibility and evaluation of oneself and the situation. Together with cognitive deficits and distortions, aggressive individuals display high states of emotional and physiological arousal. Deffenbacher (1999) also emphasized co-occurrence of these emotional, cognitive and physiological components and their rapid interaction with and influence on each other as a singular phenomenon.

In common, anger has been defined many times in different perspectives with different expressions and viewed as an internal, experiential state associatively with the cognitive, emotional and physiological components but there is a need to separate from how the person behaves or expresses anger. Some of the researchers distinguished between anger experience, which is the tendency to feel anger emotions inwardly and anger expression, which is related to behaving outwardly in an angry or hostile manner (Moscovitch, McCabe, Antony, Rocca and Swinson, 2008). Freud explicitly explained this distinguishment by expressing that "if anger reactions are inhibited, they are replaced by substitutes. Psychoanalytic theorists

5

have been likely to encourage people to express their anger freely because suppression results in built-up energy that is converted into somatic phenomenon. Ellis (1973) also supported this idea and stated that "anger, both suppressed and overt, can easily result in psychosomatic reactions, including high blood pressure, heart problems, ulcers, and various other physical conditions". In a more comprehensive mention, according to the State-Trait Anger Theory, Spielberger (1988) labeled the phenomenology of anger experience as state anger which was defined as psychobiological feeling that has changes in intensity (from mild irritation to fury) accompanied by physical reactions indicating autonomic nervous system arousal. In this sense, he considered an individual's tendency to have intense angry feelings (state anger) as the other corresponding component of anger experience called trait anger. On the other hand, anger expression can be directing it outwardly toward individuals like violent behavior or object in the environment, or directing it inwardly by trying to suppress or hold in angry feelings like anxiety (Spielberger, 1996; Deffenbacher et al., 1996).

In the development of Spielberger's anger expression inventory, three forms of anger expression were defined: Anger-Out, the tendency to overtly express anger, typically in negative, aggressive ways; Anger-In, the tendency to experience but suppress the overt expression of anger in passive-aggressive ways; and Anger-Control, the tendency to be patient, calm, and modulate emotional and behavioral expression of anger. While, Anger-In describes the tendency to experience intense angry affect and stay aroused cognitively through activities such as harboring grudges and being critical, Anger-Control refers the tendency to engage in calming

and palliative activities that lower arousal and calm the individual. On the other hand, Anger-Control leads to a lessening of aggressive and other dysfunctional responding by lowering the cognitive and emotional arousal which specifically cues such behavior, whereas Anger-In describes the inhibition of the behavior and the maintenance of considerable cognitive and emotional arousal (Spielberger, 1988; Spielberger et al., 1985, 1995).

1.2. Theories of Anger

Many of the researchers and theorists investigated anger as a construct and discussed about the processes of anger occurrence. All of the debates in understanding the nature of anger were explored in different theoretical models of anger. Five different theories of anger come into prominence in the literature and they were considered in detail in this study, which are; the frustration-aggression hypothesis of Berkowitz; his later hypothesis, the neo-associationist model of anger; cognitive-clinical theory of Novaco; the SPAARS model of anger and state-trait anger theory.

Firstly, the frustration aggression hypothesis was formulated by Dollard, Doob, Miller, Mowrer and Sears (1939) and according to this theory; the occurrence of aggression presupposes frustration. Doob and Sears (1939) supported this hypothesis by claiming that individuals who are asked to imagine frustrating and non-frustrating situations, they generally feel angry in the frustrating situations. According to this view, all aggression could be occurred by one or more prior frustrations, however it was not specified how this previous effect operates and neglecting the possibility that aggression can be learned instrumental behavior.

Berkowitz (1962) in a behaviorist/neo-associationist position discussed this view and claimed that people not always attack others because of the past, but because they think this action will bring them some other benefits and reformulated frustration-aggression hypothesis. This hypothesis expressed that anger is a mediating factor between frustration and aggression. That is, frustration induces anger that acts as a drive and increases the probability of aggressive behavior (Berkowitz, 1962). In the formulation of this hypothesis, Berkowitz (1962) used weapons as aggression cues for frustration and electric shock as a response to aggression. As a result, the rate of electric shocks was higher in the weapons condition, which is called the associative cue aggression effect (Power & Dalgleish, 2008).

In a more recent work, Berkowitz (1999) has provided a new framework for understanding anger by reformulating his first theory called as the neo-associationist model of anger. This model argues that an aversive event which makes someone feels bad for one reason or another leads to the generation of "negative affect". This negative affect increases two sets of reactions at the same time: bodily changes, feelings, ideas and memories related to escape from the unpleasant stimulation and includes bodily reactions, feelings, thoughts, and memories associated with aggression. These two response classes are determined by a variety of factors, which are genetic, learned and situational. According to Smith and Kirby (2004), this theory has been found as useful investigation in the role of physiological arousal, extraneous stimuli, and expressive motor reactions in the development of anger, however; there are potential problems with generalized appraisal of aversion and negative affect (Power & Dalgleish, 2008).

On the other hand, Novaco's cognitive-clinical approach to anger has been found as influential. In this model, events are cognitively processed which may lead to a state of emotional arousal. This arousal is a general physical response, which may be labeled differently by the individual depending on the contextual cues and his/her interpretation of the eliciting events. "When anger has been aroused, there are four behavioral reactions that may follow: physical or verbal antagonism; passive aggression; and/or avoidance withdrawal. These responses are mostly liable to develop is a function of how the event is viewed, as well as the individual's past experience and the predicted outcome" (Taylor and Novaco, 2005). To sum up, Novaco's model for anger provides a good descriptive framework for understanding the main processes involved in anger and this model is accepted as the most effective theoretical description of anger in the clinical domain (Power & Dalgleish, 2008).

Power and Dalgleish (2008) also expressed a model for anger, which is called *the SPAARS model of anger*. According to Digiusseppe and Tafrate (2007), this model is the most comprehensive cognitive theory of the emotions. SPAARS supports schematic, propositional, associative, analogue, representation systems, which represent the cognitive processes involved in appraisal before an emotion is aroused (Power & Dalgleish, 2008). Anger may be fully experienced following satisfaction of the core appraisal parameters alone when the cognitive system as a whole is placed under stress or load. More specifically, the resources necessary for the more elaborate, moral appraisal components involving deliberation and intent are unavailable. Individuals who are placed under a task load may be more likely to

experience the generation of anger on the basis of the core appraisal parameters alone. This approach differs from Berkowitz's and Novaco's model because SPAARS does not admit that the automatic route arouses a general negative affective state or a general undifferentiated physiological arousal. The automatic route arouses specific emotions. In addition, according to the SPAARS model, automatic associations can come along any type of learning process (Digiusseppe & Tafrate, 2007).

Briefly, all the models presented above have some similarities. They have in common with proposing a dual-pathway approach to anger arousal. According to these models, quick almost immediate associations arouse some anger. When this pathway is activated, higher-level appraisals may intensify, weaken, or change the anger arousal. The SPAARS model suggests that cognitive change at the schematic level that is repeated may disrupt and realign the associations at the direct, automatic-pathway level. This dual-pathway including quick and immediate associations and higher-level cognitive processes might be necessary to explain the complexities of human anger experiences. The first step to arousing anger is the perception of some type of threat, which emerges with some cognitive distortions (catastrophizing, condemnation, resentment, etc.) identified by A.T. Beck (1999).

Spielberger (1999) and Deffenbacher et al. (1996) worked on state-trait anger theory. In this theory, anger has been considered in two perspectives: state anger and trait anger. State anger is defined as "a bio-psychological condition that includes subjective feelings that vary in intensity from mild irritation to intense fury. State

anger is transitory by nature and is a response to an immediate stressor." That is, state anger is a reaction to a specific event and, therefore; changes based on intensity across time and different situations. On the other hand, trait anger is defined as "relatively stable dimension of personality. It also reflects individual differences in the tendency to perceive a wide range of stimuli as frustrating and by the tendency to respond to such stimuli with increased state anger." According to this theory, high trait-anger individuals are more likely to experience frequent and intense instances of state anger than those low in trait-anger (Spielberger, et al. 1988).

Deffenbacher et al. (1996) has explained state-trait theory in several hypotheses. First one is the elicitation hypothesis refers to the fact that individuals high in trait anger have more tendency to become angry easily. Second, the intensity hypothesis expresses that individuals with high trait-anger are more likely to react with greater intensity when provoked. Third hypothesis is called as negative expression that states that those high in trait anger have more tendency to poor coping skills against greater frequency and intensity of state anger. Fourth one is the negative consequence hypothesis which states that those with high trait anger tend to experience anger-related consequences more frequently and of greater severity than those low in trait anger. Lastly, the discrimination hypothesis states that trait anger as a personality dimension relates more powerfully to anger-related constructs than to constructs that are not related to anger.

Spielberger (1983) has been most explicit in noting the discontinuous/ reactive nature of traits. He was led to this conceptualization, at least in part, by a pattern of results in a study of the effects of anxiety on serial rote learning. According to Spielberger, the trait of manifest anxiety did not consist of a continuous level of emotion or drive but instead consisted of a stable proneness to react to stressful situations with a state of anxiety. On the other hand, Fridhandler (1986) claimed that states, as generally conceptualized, could be directly detected, whereas a trait, in its common conceptualization, might be inferred. The presence or activation of a state implies some tangible, perhaps observable, here-and-now referent. Traits are never here-and-now in the way states are, and one can term a state a *concrete* entity and a trait an *abstract* one. States are not typically momentary, as occurrences are. Moreover, states have sometimes been treated in dispositional terms (Fridhandler, 1986). Concerning the requirement to assign the intensity of emotional states and individual differences in personality traits into two different categories, the state-trait distinction was found as important. An expression like 'I have disturbing thoughts' which is an indicative of an insistent and frequent trait and some specific words with the connotation of anxiety and anger as transitory states with inconstant intensity (upset or furious) are clearly reflecting the state-trait distinction (Spielberger & Sharma, 1976). At the latter end, in this study, the exact definition of anger regarded as the most important expression is that; "anger is a psychobiological emotional state or condition marked by subjective feelings that vary in intensity from mild irritation or annoyance to intense fury and rage" (Spielberger, et. al. 1983; p. 16).

Consequently, considering all of these anger theories, it is important to note that cognition has a role in Berkowitz's theory, however; it is a secondary rather than a primary process. Therapy-derived theories of anger (Deffenbacher, 1999; Spielberger, 1988; Novaco, 1997) put for greater emphasis on cognitive processing, consistent with cognitive-behavioral therapeutic approaches. On the other hand, State-Trait Anger Theory of Spielberger paid greater focus on state anger, which is situational part of anger construct. Even though all these theories have different explanations about the nature of anger, investigating anger theories is important in order to understand what causes anger in reality. In this respect, researchers have often focused on whether there is something elicit or motivate anger or not. As it was mentioned above, researchers have often considered anger to be the result of physical or psychological restraint or of interference with goal-directed activity accompanied by cognitive process. For example, Neo-behaviorists claimed that the primary cause of emotions is the termination of pleasant or unpleasant events and stimulus omissions and interactions with individuals' resources, such as ability to cope with events. Depending on these ideas, angry emotions occur as a result of termination of a positive reinforce or the omission of an expected one (Gray, 1987; Lewis, 1993).

On the other hand, frustration-aggression model of anger proposed that aggression in which any unpleasant situation with pain, discomfort, frustration, or social stress triggers negative affect associated with fight-and-flight motivation (Berkowitz, 1989). In this regard, Lazarus (1991) claimed that anger is an adaptive reaction to threatening stimuli can motivate someone to take action against threat, yet; anger as an emotion is often difficult to control because of the intense

physiological reactions involved in the fight-or-flight response that is elicited to protect oneself against the instigating situation. According to this view, the individual's prior experiences including situational cues direct responses to the present events. When these cues provoke escape tendencies and motivation, then the flight system is activated and also the person prompts attack aggressive motivation by fear, then the person experiences mostly anger by the activation of fight system (Berkowitz, 1989). Besides, in appraisal approaches, anger was defined as "the elicitation of one or more aggression plans by the combination of threat appraisal and coping processes" (Rubin, 1986). Here, the term *threat appraisal* is explained as the cognitive process through which internal and external events are evaluated with regard to how much physical or psychological harm one anticipates and the term *coping processes* defined as the component which retrieves information from internal and environmental events for deduction and induction processing to produce coping plans (cognitive and behavioral efforts to master, tolerate or reduce the threat). Behaviorist and cognitive approaches differs in terms of the process by which one or the other emotion is supposedly evoked: in the behaviorist theory, it is linked more strongly to environmental events, yet; more strongly to subject-bound processing variables in appraisal theory.

On the contrary, Ellis (1973) and Beck (1976) claimed that anger is not elicited by something because our responses are not hard wired. In this sense, rational-emotive behavior therapy and cognitive therapy proposed that there is nothing in and of itself can make someone angry instead, one can construct one kind of reality and have one kind of emotional reaction like anger. Bandura (1973) agreed

with the idea of Ellis and Beck in some extent by expressing that there is something can make someone angry however, he asserted a claim that anger can occur in the absence of the specific eliciting situations by recalling the arousing events". For example, by thinking about past insulting treatment, one can feel a rage long after the emotional reactions have subsided. From a different viewpoint, Deffenbacher (1999) also claimed that anger is triggered by something and there are three classes of stimuli arouse anger. Firstly, specific *external events* including identifiable circumstances, behavior of others, objects, and one's own behavior and characteristics, sometimes may elicit anger. In other cases, anger is aroused by *a combination of external events and anger-related memories and images elicited* by them. Lastly, *internal stimuli, usually thoughts or emotions* may trigger anger.

In the debates related to the idea whether anger emerges by an elicitation or not, psychodynamic theorists bring forward a similar perspective and accept the existence of anger motivation. Freud (1959) accepted aggression as an instinctual drive which motivated anger and aggressive behavior because of the fact that when aggression cannot be directly expressed against external objects, it is turned back into the self, resulting in depression and other psychosomatic manifestations. According to this view, an individual gets information from basic emotions about the current plans and produce action tendencies appropriate to the provoking situations (Mackay, Barkham & Stiles, 1998).

1.3. Anger and Demographic Factors
1.3.1. Culture

Most of the studies related to anger showed that culture influences the experience of anger. In this point of view, Markus and Kitayama (1991) stated that some emotions, like anger, that derive from and promote an independent view of the self may be less prevalent among those with interdependent selves (p.225). Some empirical studies supported this statement and showed that independent cultures or individualistic cultures have experienced anger more predominantly than interdependent or collectivistic cultures (Roseman, Dhawan, Retteck, Naidu & Thapa, 1995; Bond & Smith, 1996; Grazzani-Gavazi & Oatley, 1999). In the study of Chon, Kim and Ryoo (2000) Korean college students were compared with American college students and American college students performed higher scores in state anger than Korean college students. Similarly, Roseman and his colleagues (1995) supported this view when Americans as an individualistic culture revealed a higher level of anger experience than collectivistic Indians. In the collectivistic cultures, people display their emotions toward in-group thus group cohesion and cooperation can be provided easily. Anger as a negative emotional state threatens in-group cohesion; for this reason, collectivistic cultures are more likely to hide their expression of anger in groups while individualistic cultures are associated with norms for greater angry expressions (Matsumoto, Yoo & Chung, 2010). In the studies on anger expression, there has been found different cultures ascribe different social roles to the emotion of anger, and therefore determine how anger is expressed, possibly how it is experienced by individuals, how they define anger and which situations it is acceptable. (Tanaka and Matsumi, 1995; Kassinove and Sukhodolsky,

1995).Nisbett (1993) found that citizens from the southern United States were more sensitive to provocation and have more likely to endorse violence as a means of protection or a response to insult than northern U.S. citizens. Race, culture, and ethnic background will result in different life experiences and perceptions of the social environment. For this reason, in many of the ethnic minorities, anger is originated from experiences of racism, discrimination, and oppression (Wainman, 2007). On the other hand, Solomon (1993) interpreted in his ethnographic study that the Utku society neither express nor experience anger. Russel (1994) also suggested that community of Utku Eskimos suppress interpersonal manifestations of anger; however, they experience it inside and express it indirectly like sulking or beating their dogs.

1.3.2. Social Status

In related literature, it was also shown that people with lower social status have expressed more angry feelings and people with lower socioeconomic positions have more tendencies to experience frustration in life show more aggressive and delinquent behaviors and commit violent crimes such as homicide (Berkowitz, 1989; Brownfield, 1986; Markus & Kitayama, 1991). This evidence suggests that anger expression is more prevalent among those of lower social status (Park, et.al, 2013). This finding mostly comes from the western cultures. In this sense, Park and his colleagues (2013) also conducted a research on social status and anger expression in the American and Japanese adults and indicated that lower social standing is associated with greater frustration originated from life adversities and blocked goals,

Americans with lower social status expressed more anger, with the relationship mediated by the extent of frustration. In contrast, higher social standing affords a privilege to display anger; Japanese with higher social status expressed more anger, with the relationship mediated by decision-making authority. In a different perspective, in the study of Rubin (1986), it was shown that if people are convinced as a result of the social pressure to try to suppress their actions, they are unlikely to be completely successful. When these high anger expressers find that they are unable to consistently heed the social pressure, they too, may be confronted with contingencies that reinforce helplessness. Those of higher status people are often prohibited their expression of angry feelings so that they may constitute a challenge to the social hierarchy. Children from the families in slave or caste societies are explicitly marked as low status; however, it also applies to children from working-class backgrounds. Although expressions of anger toward those of higher status may be limited, stereotypes of the working class (i.e. the United States) have often assumed that they are less in control of base emotions, including anger.

1.3.3. Education

Anger researches have also focused on the effects of education on anger expression. Schiemann (2000) stated that anger-provoking situations require the ability to think, symbolize, and select from a range of actions and interpretations. Higher education gives individual opportunity to have cognitive skills to utilize effective solutions with enhanced sense of control. The well-educated individuals are more likely to make an effort to change the situations triggering anger by thinking

differently about the anger-provoking case (Simon & Nath, 2004; Schieman, 2000). The well-educated person is much more likely to have flexible cognitive skills that help to see the alternatives about anger's course (Mirowsky & Ross, 2003; Tavris, 1989). Education may help individuals cultivate the competence to feel and communicate with others and to navigate complex emotional entanglements. Mirowsky and Ross (1995) indicated that possibility of 'yelling at someone' and 'losing one's temper' is significantly reduced by education. The lowest levels of feeling annoyed, angry, yelling and losing one's temper were observed among those with advanced education.

1.3.4. Gender

Many researchers agree with the idea that anger expression emerges in the first year of life and generally plays a significant negative role in parent-child interactions and peer relations. Children who cannot regulate their anger are at risk for externalizing psychopathology (Lemerise & Harper, 2010; Hubbard et al. 2002). Even though a few gender differences exists in the experience of anger, by 4 or 5 years of age, girls are more likely to mask anger, and to cry and are less likely to be physically aggressive than boys; this is mostly because of the biological necessity for girls when they being mother to protect themselves in order to raise their children so that they can pass their genes to the next generation (Scheiman, 1999).

However, many of the studies related to anger shows that men and women are mostly alike in experiencing and expressing anger. (Deffenbacher et al., 1999, 2000; Kassinove et al., 1995). Their difference has been occurred only in type of anger expression. According to many studies, women are less violent than men and use verbal aggression, harbor greater resentment, experience anger of greater duration and maintain grudges (Sharkin, 1996). Yet, men are more physically aggressive, have more impulse expressions of anger, use pressure more and more are motivated by revenge (Wainman, 2007). Stoney (2013) stated that generally females were more expressive of every emotion including anger than were males. However, as it is expected, women are more likely to express their anger in passive-aggressive ways such as sulking or gossiping (women's anger associated with tears) while men are more overt with their anger and so, associated with violence (Dittmann, 2003). Moreover, some of the studies on anger indicate that contrary to persistent myths and stereotypes, women and men both get angry in response to these types of situations. Indeed, in more conventional aspect anger is considered as a male emotion and women do not get angry, and if they do, they certainly do not show it. However, the recent literature on anger clearly demonstrates that differences in the experience and expression of anger have as much to do with other variables such as social context, status, and gender role as they do with gender (Kring, 2000). Consequently, the literature generally indicates that males and females experience similar levels of anger experience because there are a few studies found the gender difference is in a consistent direction; that is, males are more likely to be exposed great anger experience than females (Dave, Pekkala, Allen & Cummings, 2006).

Variety in the literature related to gender differences are mostly originated from assessment of anger, because self-reports are a form of expression and, thus, self-reports of experiential anger are always dependent to some degree on anger expression (Siegman and Smith, 2013). Because, self-reports mostly give weight to expression of anger and there is a need to develop assessment tools for anger experience.

1.4. Assessments of Anger

For years, anger was assessed by multiple methods in which there are observational, physiological, and self-report indices. Because wide range of different theoretical approaches has been occurred in definition and measurement of emotion and in particular anger, many researchers preferred to use different measurement techniques, which may tap into different aspects of anger.

1.4.1. Observational Measures

In some of the studies, it was used observational measures in order to get better information about the external expression of anger while physiological measures to assess the internal experience of anger. Mental states as fear, hope and anger are observed from whereas the activities like walking, talking, playing etc. can be observed from outside. In order to observe behaviors of an individual, it is useful to observe his overt acts, especially acts which involve the activity of the limbs, changes in the sense organs, the expression on the face and the like (Potegal, Stemmler & Spielberger, 2010). Understanding behavior depends upon two types of observation: observation from within by the subject himself or self-observation and

observation from without by others. For instance, in the study of Hubbard and his colleagues (2002), children's self-report of anger, their skin conductance reactivity, their heart rate reactivity, observations of their facial expressions and observations of their non-verbal angry behaviors were measured at multiple points during the game-playing.

Because natural observation of anger has difficulties in seizing the moment of one's experience anger and this method measures anger expression rather than experience, some researchers preferred to use different anger induction techniques and conduct semi-structured context to assess anger experience. For example, Stemmler, Heldmann, Pauls and Thomas (2001) examined psychophysiological responses to anger inductions during real-life and imagination. One of the real-life anger inductions includes a series of 15 items selected for high error rates from a test of general knowledge. If they do not know the answer, they had to say loudly 'I do not know'. There are similar manipulations while they answering the items. After the task ends, participants are told that they have only one-third correct answer. In the second period, a mental arithmetic task and participants were required to subtract 1,2,3, and so forth from 1,000 and the ongoing intermediate results silently and as quickly as possible. After one minutes participants were stopped to tell the current result and experimenter gave a comment on the poor performance and gave a new start number. After one minute, the subject was stopped and again, the result was claimed wrong. In the third period, an anagram task was presented on the monitor and after 6 of 12 words, the experimenter in an angry voice quarreled with the participant for moving around in her seat. Before and after the anger induction,

participants were required to complete an emotion self-report.

In real-life experience of an activity and its mental visualization has commonly very similar changes in the neurological processes (Driskel, Copper and Moran, 1994; Weiss, Hansen, Rost and Beyer 1994). According to cognitive and behavioral approach, when a person experiences an event, a serial number of mental images accompany with automatic thoughts and feelings. Imagination is often used in psychotherapy because negative feelings like anxiety, fear and anger originate from freeze images rather than automatic thoughts (Beck and Emery, 1985). It is obviously seen that similar to facing with an event in real-life, visualization of that event increases level of galvanic skin response, heart beatings and breathing (Miller, Levin, Kozak, Cook, Mclean and Lang, 1987). Stemmler and his colleagues (2001) used emotional imagery for anger induction. Participants performed two distinct, consecutive imagination tasks: reliving a personal emotional episode and recalling the real-life emotion induction (recalling bodily sensations). Participants then were asked to imagine that situation as vividly as possible and to leave their eyes open in one minute. Before and after the imagination, participants completed the emotion self-report for the most intensively recalled period and then scored the vividness of their imagery.

1.4.2. Physiological Measures

In some studies related to anger, physiological measures have been preferred for assessment of the internal experience of anger. For instance, Kassam and Mendes

(2013) used physiological measures like heart rate (HR) and pre-ejection period (PEP) which provide indications of sympathetic nervous system activation; cardiac output (CO, the total volume of blood pumped by the heart per minute) and total peripheral resistance (TPR) which provide distinctions between approach and withdrawal motivational states, and changes in cardiovascular reactivity during the digit span task in order to examine the question of whether the emotion induction, the report manipulation, or their interaction influenced physiological responses. In a considerable body of research on the physiological reactions of anger focused on blood pressure and examined individual blood pressure. Similarly, Herrald and Tomaka (2002) have also measured participants' cardiovascular responses during a difficult mental arithmetic task designed to elicit anger (a non self-conscious emotion). Because anger inductions have typically been related to increases in heart rate and CO, anger is evaluated associatively with larger increases in cardiac output and lower vascular resistance. In the concept of Hubbard and his colleagues (2002)' study related to game-playing, physiological reactivity was defined as changes in skin conductance levels or heart rate levels from one turn of the game to the next and increases in the levels represent higher levels of anger experience and expression.

1.4.3. Self-Report Measures

Similar to the variations in magnitude that are evaluated by physiological measures such as heart rate and blood pressure, self-report scales for assessing emotional states must be sensitive to evaluating variations in intensity. Even though, using a multi-method approach would allow researchers to tap more fully into

different aspects of individual's anger, most of the anger studies in the literature worked on self-report. Beginning in the 1950s, hostility was measured by a number of self-report psychometric scales. Buss (1961) conceptualized hostility as multidimensional and developed The Buss-Durkee (1957) Hostility Inventory (BDHI), which was regarded as the most carefully constructed early psychometric self-report measure of hostility. This scale is a 75-item logically derived, true–false scale comprised of eight subscales: Assault, Indirect Hostility, Verbal Hostility, Irritability, Negativism, Resentment, Suspicion, and Guilt. Even though, BDHI included seven factors assessed by BDHI subscales, Russell (1981) identified three significant factors named as Neuroticism, General Hostility and Expression of Anger.

After years, Novaco Provocation Inventory (NPI) was developed by Novaco (1977) which is a scale consisting of 90 potentially anger-provoking situations, and respondents rate on a five-point Likert scale the degree of anger arousal they would feel if they were placed in that situation. A revised 80-item version of the NPI was subsequently published (Novaco, 1977). Both versions have been shown to have excellent internal consistency estimates above .90 (Novaco, 1977).

Previous anger self-report measures were lacking systematically measured arousal features. The NAS arousal domain is operationalized by four dimensions: intensity, duration, tension, and irratibility. Novaco Anger Scale (NAS) has been developed by Novaco (1993) which is a two-part instrument (parts A and B). Part A consists of 48 items rated on three-point scales measuring the cognitive, arousal, and

behavioral domains of the anger construct. Cognitive subscale items focus on suspiciousness, attention toward anger cues, and hostile attitudes. Items on the Arousal subscale assess duration and intensity of angry feelings and feelings of tension or irritability. Behavioral subscale items focus on impulsive behavior, verbal and physical aggression, and general anger expression strategies. The 25-item Part B scale is essentially a shortened version of the original NPI (with four-point scales) that provides an index of the degree of responsiveness to a variety of anger-provoking situations across five subscales (Novaco, 1993).

Siegel (1986) has developed Multidimensional Anger Inventory (MAI) which is a 38-item scale that purposes to assess anger as a multidimensional construct. Items were rationally constructed by Siegel to assess the following dimensions of anger on a five-point Likert scale: frequency, duration, magnitude, mode of expression, hostile outlook, and range of anger-eliciting situations.

Up to here, all of the mentioned instruments assess multidimensional anger construct however, there was a common problem with existing measures of anger and hostility is that, the experience and expression of anger is confounded with situational determinants of angry reactions. Also, there was not any measures explicitly takes the state–trait distinction into account. Traits represent stabilities of behavior and beliefs about our dispositions; however, the variation over time of the person's 'state of mind' or 'transient internal conditions' must be considered as important for the assessment. In principle, states may refer to any reliably measurable characteristic, but, typically, state variables refer to conscious, verbally

reportable qualities such as moods. Trait-state models are important because they tell us something about how traits influence behavior. Trait effects on behavior are mediated by states; that is, states have a more direct effect on behavior than traits (Eysenck, 1982). Some of the items of BDHI include expressions of frequency in anger like 'I *sometimes* show my anger'; 'I *never* get mad enough to throw things' and implicitly assess individual differences in anger as a personality trait. Furthermore, most of the BDHI items represent hostile attitudes like resentment and negativism but not any angry feelings. For this reason, a psychometric measure that distinguishes between anger, hostility, and aggression as psychological concepts, by the state–trait distinction was needed.

In the light of state and trait theory, Trait Anger and Anger Expression Scale (TAAES) was developed by Spielberger, Jacobs, Russell, and Craine (1983) in order to determine anger levels expressed by people. After this study, Spielberger (1996) has developed the State-Trait Anger Expression Inventory (STAXI) that is the most widely used instrument for the measurement of the experience and expression of anger in research settings (Culhane and Morera, 2010). In addition to studies conducted in the United States, the STAXI manual has been adapted into different languages; German (Schwenkmezger, Hodapp, & Spielberger, 1992), Italian (Comunian, 1992), Norwegian (Håseth, 1996) and Dutch (van der Ploeg, van Buuren, and van Brummelen, 1988). Based on Spielberger's State-Trait Anger Theory, this instrument combines two versions, the State-Trait Anger Scale (STAS) (Spielberger, 1983), and the Anger Expression (AX) Scale (Spielberger et al., 1985). The STAXI, or selected STAXI scales, have been used extensively in research on

anger management interventions (Forgays, et al. 1998).

Spielberger (1999) also released the STAXI-2, which is a 57-item measure consisting of 42 of the 44 items from the original STAXI plus 15 additional items. The STAXI-2 differs from the STAXI in the following ways. First, the State Anger Scale (SAS) has been reorganized to include three subscales: feeling angry, feeling like expressing anger verbally, and feeling like expressing anger physically. After factor analytic analysis there is some degree of item overlap across the feeling angry and expressing anger verbally factors. Second, AX scales were revised in terms of the direction of both anger expression and anger control, resulting in four revised AX subscales: Anger Expression/Out, and Anger Expression/In, Anger Control/Out and Anger Control/In (Moscoso and Spielberger, 2012).

The MMPI-2 Anger Scale (ANG), developed by Butcher and his colleagues (1989), consists of 16 content-grouped items. Estimates of the ANG scale's stability were ranged from .82 to .85 (Butcher et al., 1989). This scale correlates more strongly with the Trait Anger Scale than measures of depression and anxiety, and appears to assess the outward expression of anger as opposed to anger internalization. The ANG would appear to be a very useful scale and is in need of using diverse participant samples (Eckhardt, Norlander and Deffenbacher, 2004).

1.5. Assessment of Anger in Turkey

For many years, some of the instruments' adaptation has been done in Turkey. Çivitçi (2007) preferred to adapt a new instrument called MSAI-R that is

revised from Multidimensional School Anger Inventory conducted by Furlong, Smith and Bates (2002). Çivitçi (2007) has adapted this instrument into Turkish and completed its reliability and validity.

Balkaya and Şahin (2001) has also developed Multidimensional Anger Scale (MAS) which is a new and original scale which can measure anger on a multidimensional level. MAS is a five-point likert scale used for self-report. The score of each item ranges from 1 to 5. MAS contains five dimensions called 'anger symptoms', 'anger eliciting situations', 'anger related cognitions', 'anger reactions' and 'interpersonal anger'. The dimensions of 'anger symptoms' and 'anger eliciting situations' were used in this study. *Anger Symptoms* included 14 items about how often anger symptoms appear. *Anger Eliciting Situations* included 41 situations that cause anger. The latter factor was composed of three subscales; namely, 'not to be taken seriously' (20 items), 'suffering from unfairness' (17 items) and 'to be criticized' (5 items). Cronbach Alpha Coefficients of the subscales ranged from 0.64 to 0.92 (Balkaya and Sahin, 2003).

Also, Tekinsav-Sütçü and Aydın (2008) has adapted short form of Novaco Anger Scale (NAS; Novaco, 1993) into Turkish. Novaco Anger Scale includes 90 items at total but Devilly (2002) adapted this scale into short form with 25 items. Tekinsav-Sütçü and Aydın (2008) has adapted this short form which assess state anger or provocation level of anger. This instrument includes 25 situations, which may lead to anger. Cronbach alpha of this study is found as high.

Up to here, all of the scales mentioned above assess individuals' disposition of anger but there is not any item to measure *state of anger* which is situational and change across time. However, it is need to measure anger at a specific time with specific response to a certain event. Researches on anger indicated that, the presence or activation of a state implies some tangible, perhaps observable, here-and-now referent. Traits are never *here-and-now* in the way states are, and one can term a state a concrete entity and a trait an abstract one (Spielberger, et al., 1988; Fridhandler, 1986). In the light of this view, Ozer (1994) translated and adapted Trait Anger and Anger Expression Scale (TAAES) of Spielberger into Turkish. The first 10 items of the scale measure trait anger, the other 24 items point out individuals' anger expression styles (i.e., anger- in, anger-out, and anger control). The scale is a 4-point Likert-type scale. The reliability and validity studies of this scale were successful and for years, this scale has been still the most preferable anger assessment tool. However, the original structure of Spielberger's psychometric tool named State-Trait Anger Expression Inventory has been widely used both of dimensions called *state* and *trait* in unity in the psychology area for years, and in Turkey there was a need to adapt State Anger Subscale into Turkish culture and complete the reliability and validity study of STAXI.

1.6. Purpose of the Study

The problem of the lack of psychometrically well-developed anger scales unearths the necessity of developing an adaptation of a State Anger Scale that can be used with Turkish population. For the sake of this purpose, a widely used scale called State Trait Anger Expression Inventory (STAXI; Spielberger, 1988) was selected. In

Turkey, Özer (1994) has adapted State-Trait Anger Inventory (STAXI) into Turkish culture, however; adaptation of State Anger Scale was not completed. In order to be able to assess anger completely with a state-trait distinction and complete the adaptation of STAXI, it was needed to adapt State Anger Scale into Turkish.

According to Hambleton and Patsula (1998), at least five reasons can be found for adapting tests. "Firstly, adapting a test is considerably cheaper and faster than constructing a new test in a second language. Secondly, when the purpose for the adapted test is cross-cultural or cross-national assessment (such as with many credentialing exams), an adapted test is the most effective way to produce an equivalent test in a second language. As the third reason, there may be a lack of expertise for developing a new test in a second language. Another reason can be that, there is a sense of security that is associated with an adapted test more so than a newly constructed test especially when the original test is well-known. Lastly, fairness to examinees often results from the presence of multiple language versions of a test" (Hambleton & Patsula, 1998, p. 155). In this case, the adaptation of the State Anger Scale was preferred over developing a new instrument because of a combination of the reasons mentioned above. Firstly, the current researcher has not done any instrument development, thus it seemed more plausible to work with a psychometrically sound instrument rather than developing a new instrument.

Conducting this study is important for the clinical assessment and research on emotions because, it will be possible to assess anger comprehensively with all dimensions including state anger, trait anger and anger expression. Furthermore,

studies conducted for anger management only focused on trait anger but there is a need to assess anger at a specific time with a specific response in clinical research and assessment. Another purpose of this study was to explore whether Turkish form of State Anger Scale is proper to assess intensity of anger at a specific time. Briefly, this study aimed to conduct an experiment and investigate reliability and validity of of State Anger Scale. To reach these purposes, the following research questions directed the study:

1. Is there a significant difference between genders in terms of anger measures (State Anger, Trait Anger, Anger Expression)?

2. Is there a positive correlation between State Trait Anger Expression Inventory and Novaco Anger Scale?

3. Is there a positive correlation among the measures; State Anger, Trait Anger and Anger Expression?

4. Is there a significant difference between situations before and after the anger induction in terms of state anger scores?

5. Does the Turkish State Anger Scale factor structure fit to the original structure of State Anger Scale?

1.7. Significance of the Study

All of the mentioned instruments in this study assess multidimensional anger construct however, there was a common problem with existing measures of anger and hostility is that, the experience and expression of anger is confounded with situational determinants of angry reactions. Also, there was not any measures explicitly takes the state–trait distinction into account. For this reason, a psychometric measure that distinguishes between anger, hostility, and aggression as

psychological concepts, by the state–trait distinction was needed. By means of this adaptation study, State-Trait Anger Expression Inventory (STAXI) can be used with its all dimensions in Turkish population. On the other hand, in Turkey, there is not any self-report measure to assess intensity of anger. This study provides researchers a culturally adapted and psychometrically reliable and valid assessment tool called State Anger Scale so that, they have an opportunity to assess intensity of anger before and after the experiments or treatments.

CHAPTER 2

METHOD

For the process of translation, adaptation and validation of the State Anger Scale (SAS), the most established methodological approaches are considered. First of all, transliteral equivalence was completed based on the translation procedures and adaptation methodology depending on the International Test Comission (ITC) Guidelines for Test Adaptation (Hambleton, 2005). After the completion of Turkish State Anger Scale (SAS), reliability of the SAS was checked by analysis of internal consistency. On the other hand, validity was investigated in terms of factor analysis, norm group comparisons, experimental study and convergent/concurrent validity.

2.1. Participants

For the reliability and validity of State Anger Scale, 211 undergraduate students (147 female, 69 % and 64 male, 30 %) whose ages ranging from 18 to 33 (M=21, SD=2.3) were recruited by convenience sampling method. Sample of the study was composed of students from the psychology and counseling departments. Two different universities located in İstanbul were used in the study. Participants were expected to complete Turkish adapted version of STAXI and short form of Novaco Anger Scale (NAS) with additional demographic information at the same

time in one hour.

Table 1. Demographic characteristics of the participants

Variable	N	%	M	SD	Range
Gender (Total)					
Female	147	69.7			
Male	64	30.3			
Age	211		21.1	2.3	18-33
Experimental Study (Groups)					
Experimental	30	14.2			
Male	15	7.1			
Female	15	7.1			
Control	30	14.2			
Male	15	7.1			
Female	15	7.1			

On the other hand, 60 undergraduates (30 female and 30 male) from this sample also participated voluntarily into the experiment of the current study (see Table 1). Average age of this group was approximately 22, ranged from 20 through 30. Participants of the experiment were expected to complete Turkish State Anger Scale before and after the experiment in addition to STAXI and NAS with demographic information form.

2.2. Instruments

Firstly, the newly adapted Turkish version of the State Anger Scale was used in this study. Trait Anger and Anger Expression Inventory (adapted into Turkish by Ozer; 1994), Novaco Anger Inventory (translated by Tekinsav-Sütçü and Aydın; 2008) and additional demographic form (consists of sex, age, education, etc.) were also used in this part of the study (An example of the test form of these scales is given in Appendixes A,B,C,D). The STAXI can be administered to individuals aged from 13 through adulthood and is at the fifth grade reading level. The author presents norms for adolescents, college students, adults, and special populations. The average respondent takes from 10 to 12 minutes to complete the test. Scoring can be completed in 4 minutes or less. There are two versions of the STAXI, a handscorable version and a machine-scored version.

2.3.1. Psychometric Properties of the Original Spielberger's State-Trait Anger Expression Inventory

The State-Trait Anger Expression Inventory (STAXI) is a 44-item inventory developed for two major purposes: first, to help assess components of anger that could be used in the assessment of normal and abnormal behavior, and second, to investigate the role of various components of anger to the development of medical conditions. Spielberger's construct of anger has two major components, state anger and trait anger. The STAXI consists of six scales and two subscales. The inventory has three parts: How I feel right now (10 items), How I generally feel (10 items), and When angry or furious (24 items). A 4-point Likert scale is utilized-not at all to very much so and almost never to almost always.

2.3.1.1. State Anger Scale

State anger was defined as "a psychobiological state or condition consisting of subjective feelings that vary in intensity, from mild irritation or annoyance to intense fury and rage, with concomitant activation or arousal of the autonomic nervous system" (Spielberger, 1988). It was further assumed that State anger would fluctuate over time as a function of perceived affronts, injustice, or frustration.

2.3.1.2. Trait Anger Scale

Trait anger was defined in terms of individual differences in the frequency that State anger was experienced over time, assuming that persons high in trait anger perceive a wider range of situations as anger provoking (e.g., annoying, irritating, frustrating) than those low in trait anger and more frequently experience elevations in state anger whenever such conditions are encountered.

2.3.1.3. Anger Expression Inventory

The Anger Expression (AX) scale was developed to measure the intensity of State Anger as well as the frequency of its expression or suppression. Spielberger et al. (1985) attempted to construct a scale to measure anger expression as unidimensional with anger-in and anger-out constructs. Anger-in was defined in terms of how often angry feelings were experienced but not expressed (suppressed). Anger-out was defined in terms of the frequency that angry feelings were expressed in verbally or physically aggressive behavior. The content of individual AX scale 24-items included descriptions of the suppression of angry feelings (AX/In) or the expression of anger in aggressive behavior (AX/Out). Rather than asking

respondents to indicate how they generally feel, they were instructed to report"…how often you generally react or behave in the manner described when you feel angry or furious". The following are examples of AX/In and AX/Out items: I boil inside, but I don't show it; I strike out at whatever infuriates me.

2.3.1.4. Reliability Data

STAXI have obtained adequate to high levels of internal consistency for each of the subscales. The internal consistency of State Anger scale was high (r=0.93), while Trait Anger scale was divided in two additional subscales - Angry Temperament, which describes the disposition to express anger and Angry Reaction, which describes anger responses. The item-remainder correlation alpha for the Trait-Anger/Temperament subscale ranged from 0.84 to 0.89 and for Trait-Anger/Reaction scale from 0.70 to 0.75 (Spielberger, 1988). The internal consistencies for the Anger Expression scales and subscales ranged from .73 to .85. Test-retest and inter-rater reliabilities were not available.

2.3.1.5. Validity Data

The items in the original 1988 edition of the STAXI were selected from a pool of items constructed by the test developers in accordance with the definitions of each scale and subscale construct. The pilot instrument was administered to various groups of adolescents and adults, and the items were checked by internal consistency and factor analysis. Based on the results of the pilot administration, items were added, deleted, or revised. Throughout the years, as different studies on the STAXI's reliability and validity were conducted, the instrument's structure and items

continued to undergo revision. The development of the STAXI-2 involved expanding the number of items in some scales, including the State Anger scale, and separating the Anger-Control scale into two subscales: Anger Control/In and Anger Control/Out. As evidence of construct /factor analytic validity, Fuqua et. al. (1991) carried out a principal-axis factor analysis with varimax rotation of the item intercorrelations for the 44-item STAXI with 455 undergraduates. Likewise, the construct validity of the STAXI was examined previously by Forgays and Forgays (1997). They conducted a factor analysis of the STAXI and identified factors corresponding with each of the STAXI subscales. Specifically, the researchers also identified the presence of two state anger factors corresponding to the state anger subscales: Feeling Angry and Feel like Expressing Anger. They also revealed two trait anger subscales named: Angry Temperament and Angry Reaction. As an evidence of convergent and concurrent validity, correlations between the STAXI trait anger and the Cook and Madley (1954) Hostility Scale ranged from .43 to .59, and those between the STAXI with the Buss-Durkee Hostility (BDHI) total score ranged from .66 to .73. Cornell et al. (1999) reported positive inter-correlations between all of the STAXI subscales (except STAXI Anger Control). Cornell et al. (1999) also reported positive correlations between all of the NAS and the STAXI scales as follows: STAXI State Anger (.39), STAXI Trait Anger (.90), STAXI Anger-In (.43), STAXI Anger-Out (.76), as well as positive correlations with the Novaco PI (Provocation Inventory) as follows: STAXI State Anger (.30), STAXI Trait Anger (.63), STAXI Anger-In (.26), and STAXI Anger-Out (.49), respectively.

2.3.2. Psychometric Properties of the Turkish forms of Instruments

In this part of the study, instruments, used for the validity-based evidence of this adaptation, will be presented. These instruments are called as Trait Anger and Anger Expression Scale (TAAES), and Novaco Anger Scale (NAS). Additionally, for the experimental part of the study, the newly adapted State Anger Scale (SAS) was used which will be presented in the next chapter.

2.3.2.1. Trait Anger and Anger Expression Scale

The Turkish adaptation of Trait Anger and Anger Expression Scale (TAAES) was adapted by Ozer (1994) from the original STAXI of Spielberger (1988). The TAAES consists of 34 items including 10-item trait anger and 24-item anger expression styles (i.e., anger- in, anger-out, and anger control). The scale is a 4-point Likert-type scale. This scale assesses general tendency and expression of angry feelings. The internal consistency coefficients of the scale were found to be .79 for trait anger dimension, .84 for anger control, .78 for anger-out and .62 for anger control. Higher scores on trait anger indicate higher anger levels; higher scores on the anger-in subscale indicate higher levels of suppressed anger; higher scores on the anger-out subscale indicate easier anger expression, and higher scores on the anger-control subscale indicate better anger control (Ozer, 1994). In this study, this scale was used for the evidence of validity (Factor structure, convergent validity and gender differences).

2.3.2.2. Novaco Anger Scale

Also, Tekinsav-Sütçü and Aydın (2008) has adapted short form of Novaco Anger Scale (NAS) which has been developed by Novaco (1993) into Turkish. Novaco Anger Scale includes 90 items at total but Devilly (2002) adapted this scale into short form with 25 items. Tekinsav-Sütçü and Aydın (2008) has adapted this short form which assess general anger disposition or provocation level of anger. This instrument includes 25 different anger-provoking situations. Cronbach alphas of this study are found as higher (=93). In order to assess concurrent validity of State Anger Scale, short version of 25-item Novaco Anger Scale (Provocation Inventory) was used for concurrent validity of Turkish form of State Anger Scale in this study.

2.4. Procedure

After necessary approval was obtained from Bahcesehir University Ethical Committee, data collection procedure was started. First of all, Turkish translation of the original State Anger Scale was provided depending on the standard procedures. After completing the translation period, data for reliability and validity study was collected from university students. For the purpose of reliability analysis of the Turkish form of State Anger Scale (SAS) levels of internal consistency for each of the State Anger scale was investigated. The item-remainder correlation alpha for the State-Anger Scale was also explored. In order to investigate Construct-Related Evidence of validity for the Turkish SAS, Factor analysis, group differences and experimental study were conducted respectively. Also, to explore the criterion-related evidence of validity (concurrent validity), correlations between the Novaco Anger Scale and the STAXI scales were explored.

41

2.4.1. Translation

In accordance with recommended standard procedures (Sousa and Rojjanasrirat, 2011) the original version of the State Anger Scale was translated and cross-culturally adapted into Turkish.

In the first step of the study, forward translation in which translation of the original instrument (State-Anger Subscale of STAXI; Spielberger, 1983) into the target language was done. The original State Anger Subscale consists of 10 items related to feelings when experience anger such as being furious, feeling irritated or feeling like breaking things. Ten monolingual translators who have written and taught in English and their mother tongue is Turkish were attended to this part. Five of these translators were expert in psychology and the other five translators were not familiar with the terms in psychology but knowledgeable about linguistic nuances (lecturer at a private university). These ten translators translated State Anger Subscale items and instruction statement of the scale into Turkish.

In the second step, a third independent translator who has advance level of English, have written and taught in English and also familiar terms in psychology compared ten of the translated (Turkish) instruments each other and with original instrument. There were various translations most of which are different from each other, thus; a multiple-choice test of translated items was prepared including all of state-anger items with different translation options collected from ten different translation forms.

After this step, five different professionals consist of psychology instructors knowledgeable about psychological terminology and have written and taught in English answered this multiple-choice test for the most proper translation of items and instruction statement of the scale.

In the last step, two translators whose mother language is English and their level of Turkish is advance and one of them is knowledgeable about psychology and other one is knowledgeable about the cultural and linguistic nuances of Turkish has completed back-translation of the translated (Turkish) instrument into English. A multidisciplinary committee composed of one methodologist, one psychologist who has advance level of English and Turkish and developer of this study evaluated similarity of the instructions, items and response format regarding wording, sentence structure, meaning and relevance by comparing with the original scale. Because there is not any item found as unclear and no need for revision, the preparation of the Turkish form of State Anger Scale was completed.

2.4.2. Experimental Study

In order to provide construct validity of the study, an experimental design was planned. In this phase of study, thirty participants assigned for the experimental manipulation (experimental group), and the other thirty participants assigned for a neutral manipulation (control group).

In order to induce an angry mood, it was preferred to use imagination technique for the assessment of state-anger, because previous studies suggest that

natural observation of anger has difficulties in seizing the moment of one's anger experience and imagination technique has commonly very similar effect with the real-life experience in the neurological processes (Driskel, Copper and Moran, 1994; Beck and Emery, 1985). Both experimental and control group members were required to complete Demographic Information Form, State-Trait Anger Expression Inventory and Novaco Anger Inventory and then, they were instructed to close their eyes and recall the most angering event in their memory. Instructions headed individuals towards feelings, which are very close to the real sensations, as if they were an observer watching the remembered event or experiencing event as a protagonist. This induction procedure was expected to show to induce a specific state of anger with considerable effectiveness, while not inducing other negative mood states. Participants were given instructions to imagine the events in a total of 10 minutes. The instructions for the experimental group was remembering an event which provoked anger of participants in the past (the most angering event in their memory) and imaging that event in detail, on the other hand, for the control group were imaging an event which is not anger-provoking but neutral (imagination of campus environment). Two times, before and after anger induction they were administered the State Anger Scale. For the second phase of the study, when they are required to complete State Anger Scale again, the instructions given to participants emphasized that they should respond in terms of how angry they had felt during the interaction.

Before conducting this experimental study, a trial of the study was conducted with 20 university students. At the end of this trial study, it was discovered that after anger induction, angry mood of individuals remains the same even after the experiment ends up. In order to minimize the negative effect of the study on subjects, reduce angry feelings a safety plan was required. After the individuals filled out post-test, a safe place exercise by using again imagination technique was done. At the end of the study, subjects reported that this technique helped them to reduce their angry feelings.

Additionally, only for experimental and control groups, after the post-test completed, three additional questions are required to answer about their perception of the color, movement and perspective of visualization in the experiment (see Appendix E for State Anger Post Test and experiment questions).

CHAPTER 3

RESULTS

This chapter includes the findings of statistical analysis of the reliability and validity studies namely; establishing the reliability of the Turkish State Anger Scale in terms of its internal consistency; its validity as examined by the concurrent and convergent validity, experimental study, and factorial composition of the Turkish form of the State Anger Scale.

3.1. Reliability

In order to analyze the reliability, item analyses were conducted on the 10 items State Anger Scale. Initially, each of the 10 items was correlated with the total score for State Anger. Alpha reliability of the Turkish form of the State-Anger Subscale was high. Corrected item-total correlations of the Turkish form ranged between .63 and .78 with all of the items having item-total correlations above .50 with an average value of .71.

Table 2: Corrected Item-Total Correlations of the Turkish State-Anger Subscale.

Items	Corrected item total correlation
1. Furious	.70*
2. Irritated	.67*
3. Angry	.76*
4. Feel like yelling	.75*
5. Feel like breaking	.74*
6. Mad	.78*
7. Feel like banging	.72*
8. Feel like hitting	.63*
9. Burned up	.70*
10. Feel like swearing	.65*
Scale Alpha	.92*

*$p < .05$

Value of Cronbach's Alpha if item deleted showed that coefficient alphas had no rise if any item of the scale eliminated. Based on these results, coefficient alpha for this scale was found to be .92 (r=.92, p< .01) (see Table 2).

3.2. Construct Validity Evidence

3.2.1. Factor Analysis

In order to determine if the Turkish State Anger Scale factor structure would fit to the original structure a confirmatory factor analysis (CFAs) was ran. Because the inter-item correlations are extremely high, measurement error is high. For this reason, CFAs suggested a somewhat poor fit of the original Turkish State Anger Scale factor structure in a Turkish sample, that is; poor fit indicates that the hypothesized measurement model is inconsistent with observed data, and it is

interpreted as evidence against the adequacy of the model. Because of this poor fit, an exploratory factor analysis was conducted in this sample. This was done for the purpose of looking for the most general understanding of state anger for Turkish samples. The 10 items of the State Anger Scale (SAS) was subjected to Factor Analysis (FA) with maximum likelihood estimation. Prior to performing FA, the suitability of the data for factor analysis was assessed. Inspection of the correlation matrix revealed the presence of many coefficients of .3 and above. The Kaiser-Meyer-Olkin measure of sampling adequacy was (.88) indicating that the degree of common variance among the variables is "meritorious" that is, if a factor analysis is conducted, the factors extracted will account for fare amount of variance but not a substantial amount. Bartlett's test of sphericity was significant ($\chi^2 (45) = 1474,59$, $p<$ .05), indicating that there are correlations in the data set that are appropriate for factor analysis.

Maximum likelihood analysis revealed the presence of the two components with eigenvalues exceeding 1, explaining 59.8 % and 11.2 % of the variance respectively (see Table 3). An inspection of the scree plot revealed a clear break after the first component.

Because of the insufficient number of primary loadings and difficulty of interpreting the second factor and subsequent factors, it was preferred one factor solution with eigenvalues of 5.9.

Table 3. Principal Axis Factor Analysis of State Anger Subscale Summary: Two Factors Rotated Matrix Loadings

	Factors	
	1	2
Eigenvalues	5.98	1.12
Percent of Variance	59.7	11.2
Items		
1. Furious	.75	**.37**
2. Irritated	.72	**.49**
3. Angry	.80	**.44**
4. Feel like yelling	.80	**.18**
5. Feel like breaking	**.79**	-.04
6. Mad	**.84**	-.24
7. Feel like banging	**.79**	-.43
8. Feel like hitting	**.71**	-.45
9. Burned up	**.77**	-.20
10. Feel like swearing	**.72**	-.10

* *Following Spielberger et al. (1983,1988), abbreviations of the items were used to*

protect the copyright.

The rotation solution, as shown in the Table 4, yielded one interpretable factor, "state anger". The one-component solution explained a total of 59.8 % of the item variance. To aid in the interpretation of this component, oblique rotation was performed. The rotated solution revealed the presence of simple structure.

Table 4. Principal Axis Factor Analysis of State Anger Subscale Summary: One Factor Rotated Matrix Loadings

	Factor 1
Eigenvalues	5.9
Percent of Variance	59.7
Items	
1. Furious	.71
2. Irritated	.67
3. Angry	.76
4. Feel like yelling	.77
5. Feel like breaking	.77
6. Mad	.84
7. Feel like banging	.79
8. Feel like hitting	.69
9. Burned up	.75
10. Feel like swearing	.68

*Following Spielberger et al. (1983,1988), abbreviations of the items were used to protect the copyright.

3.2.2. Gender Differences on State Trait Anger Expression Inventory

In this study, it was questioned that whether there is a significant difference between genders in terms of State Anger, Trait Anger, Anger Expression. In order to examine gender differences in the scores of STAXI subscales, a group comparison was conducted with independent samples t-test. Means and standard deviations of state anger, trait anger and anger expression in terms of gender differences were indicated in Table 5. Accordingly, the results indicated that state anger performance

of male and female individuals are significantly different $t(209)= 2.16$, $p< .01$ and males ($M= 14.6$, $SD= 6.4$) reported higher levels of state anger than females ($M= 12.9$, $SD= 4.5$). However, in this study, trait anger scores and anger expression scores have no significant difference in terms of gender (see Table 5).

Table 5. Mean, Standard Deviation, t and p values in terms of gender differences in Anger Measures

Variables	Female	(n=147)	Male	(n=64)	t
	X	S	X	S	
State Anger	12.9	4.5	14.6	6.4	2.15*
Trait Anger	20.9	4.7	22.3	5.6	1.90
Anger Expression	51.8	6.7	53.4	7.3	1.59

$p<.01$

3.2.3. Experimental Study

As a construct validity evidence of the Turkish State-Anger Scale, a 2 X 2 Mixed Design ANOVA was conducted with group (control, experimental) as the between subjects factor and time (pre-and-post test) as the within subjects factor. While, experimental group was exposed to an anger induction via imagination technique, control group was expected to imagine a neutral event. Before and after the experiment, State Anger Scale was administrated to these groups.

The results showed a significant main effect for support, $F (1,58)=43,99$, $p<.01$, partial $\eta^2 = .56$. Control group (M = 10.50, SD = 2.68) reported significantly less state anger than experimental group (M = 23.27, SD = 8.68).

In this phase of the analysis, there was also a significant state anger X time interaction, Greenhouse-Geisser adjusted $F (1,58)=76,7$, $p<.01$ partial $\eta^2 = .56$. Simple effects analyses were conducted for state anger at each level of time and for time at each level of state anger. Results indicated that experimental group reported less state anger than control group before the anger induction which is not statistically significant $t(58)= -.16$, $p<.05$, however, after the anger induction, control group reported significantly less state anger than experimental group $t(58) = 7.51$, $p< .05$. Means and standard deviations for control and experimental group before, and after the experiment are given in Table 6.

Table 6. Means and Standard Deviations for State Anger Scores (Pre-Post Test Scores)

Time	Control ($n = 30$)	Experimental ($n = 30$)
	M (SD)	M (SD)
Before	12,3 (14.90)	12,2(13.98)
After	10,8 (7.32)	23,3 (6.22)

3.3. Convergent and Concurrent Validity Evidence

As evidence of convergent/concurrent validity, a Pearson correlation analysis was conducted with the scores of the subjects on the Turkish adapted State-Trait

Anger Expression Scale (STAX-I), and their scores on the Novaco Anger Scale (NAS). In phase of the study, NAS was used for concurrent validity of STAXI because both of the scales assess anger with a multidimensional model. The higher the score of STAX-I, the higher the score of NAS was hypothesized in this study. The Pearson Correlation indicated a coefficient of .87 between the Turkish STAX-I and the NAS that is significantly and positively correlated (r=.45; p<.01).

In order to investigate whether there is a significant relation among major study variables, namely state anger, trait anger, anger expression and anger disposition, Pearson correlation coefficients among these variables were computed. As evidence of convergent validity of Turkish State Anger Scale, the significant positive correlations among variables were indicated in the table 7.

Table 7. Bivariate Correlations among STAXI subscales and NAS scores: State Anger, Trait Anger, Anger Expression, Anger Disposition (NAS scores)

Variables (Scales)	State Anger	Trait Anger	Anger Expression	Anger Disposition
State Anger	--	.39*	.21*	.21*
Trait Anger		--	-.38*	.57*
Anger Expression			--	.24*
Anger Disposition				--

p< .01

Results indicated that there are positive correlations among State Anger, Trait Anger, Anger Expression and Anger Disposition (Novaco Anger Scale) which means that these positive correlations give evidence for criterion-related validity of State Anger Scale.

CHAPTER 4

DISCUSSION

The purpose of the study was to investigate the reliability and validity of the Turkish version of the State Anger Subscale of State-Trait Anger Expression Inventory (STAXI) for the Turkish individuals. Factor analysis was conducted to compare the factor structure of the Turkish form with the original form. Internal consistency was examined in order to check whether Turkish form of State Anger Scale is reliable or not. The validity of this scale was investigated by exploring sex differences, the relations of the subscales with general anger disposition and examining experimental design was planned. In this phase, an experimental study was conducted by using anger induction via imagination.

4.1. Reliability

The results of the present study revealed that the internal reliability of the State Anger Scale was found as high and consistent with the original scale (Spielberger, et. al. 1983) as well as with the adaptation studies conducted in China (Bishop & Quah, 1998) , Italy (Comunian, 1992), Russia (Kassiove, Sukhodolsky, Eckhardt, & Tsytsare, 1997), and India (Ghosh & Sharma, 2006). These results

suggest that the items in total subscale have been perceived as a homogenous unit by the Turkish sample. In this study, alpha coefficients for the 10-item STAXI State Anger Scale were .92 for Turkish undergraduate university students, indicating a high degree of internal consistency for the State Anger Scale close to the findings of original state anger subscale of STAXI (.90 or higher alpha coefficients) (Spielberger, 1988).

4.2. Validity
4.2.1. Factor Structure of the State Anger Scale

One of the purposes of this study was to explore the factor structure of State Anger Scale and determine if the Turkish State Anger Scale factor structure would fit to the original structure. For this purpose, a confirmatory factor analysis (CFAs) and exploratory factor analysis (EFAs) were conducted. Results of CFAs suggested a somewhat poor fit of the original Turkish State Anger Scale for two-factor model and Factor Analysis (FA) indicated one-factor solution for State Anger Scale.

In the previous factor analyses studies, it was shown that the State Anger Scale may be divided into two coherent subscales, one *feeling angry* describing the experience of angry feelings (e.g., angry, furious, mad, irritated) and another *feeling like expressing anger* involving descriptions of verbal or motor responses refer to the expression of anger (e.g., 'feel like hitting someone,' 'feel like yelling') (Fuqua et al. 1991; Van der Ploeg, 1988; Forgays, Forgays, & Spielberger, 1997).

However, this study suggested one-factor structures for the State-Anger, items which are consistent with the studies conducted by Spielberger (1988), and similar to the findings reported by Schwenkmezger, Hodapp and Spielberger (1992) for the German adaptation of the STAXI. In this study, 10-item State Anger subscale assesses a wide range of angry feelings and provides a well-defined measure of state anger with a high degree of internal consistency. Identifying two State Anger factors is difficult in the situations including not much anger-provocation because, while "feeling anger" items are more sensitive to lower levels of anger intensity, the "feeling like expressing anger" items may require greater anger provocation to be activated. For this reason, in this study, state anger subscale with one-factor structure was accepted to be more effective to assess the intensity of angry feelings experienced "right now, at this moment," or at a designated time (Spielberger et al., 1988; Spielberger& Sydeman, 1994).

In conclusion, the results of this study support the use of the SAS as a separate scale in Turkish, as suggested by the scale author (Spielberger, 1988).

4.2.2. Gender Differences on the State Trait Anger Expression Inventory

This study also aimed to investigate whether there is a significant difference between genders in terms of state anger, trait anger and anger expression. For this aim, analysis of independent samples t-test was conducted. Results showed that both state anger performances of male and female individuals are significantly different, where males reported higher levels of state anger than females. This study also found out that, there is no significant gender difference for Trait Anger and Anger

Expression scales. The result related to State Anger Scale is consistent with literature as many studies suggested "a gender difference in terms of both state anger and anger expression, women are less violent than men and use verbal aggression, harbor greater resentment, experience anger of greater duration and maintain grudges" (Sharkin, 1996; Schieman, 1999). However, men are more physically aggressive, have more impulse expressions of anger, use pressure more and more are motivated by revenge (Wainman, 2007). These statements support the result of this study because State Anger Scale includes verbal and physical anger expression items. However, in this study, for the Trait Anger and Anger Expression scales, it was found that there are no gender differences. Similarly, in the extensive studies of Spielberger (1988) American males and females were equally likely to experience anger, and males indicated a stronger tendency to express their anger. Results of this study are consistent with the Spielberger (1983) in terms of Trait Anger scores; however, in Turkish sample, there has not been found a gender difference in terms of anger expression. It might mostly stem from assessment of anger, because self-reports are a form of expression and, thus, self-reports of anger experience are always dependent to some degree on anger expression (Siegman and Smith, 2013). However, the recent literature on anger clearly demonstrates that differences in the experience and expression of anger have as much to do with other variables such as social context, status, and gender role as they do with gender (Kring, 2000).

On the other hand, the most proper explanation for non-significant results for trait anger and anger expression in terms of gender could be education level of the population. It is presented in the literature of anger that the well-educated people

have higher tendency to have flexible cognitive skills that help to see the alternatives about anger's course (Mirowsky & Ross, 2003; Tavris, 1989). In this study, the sample was composed of third grade psychology and counseling undergraduates. It was indicated that possibility of "yelling at someone" and "losing one's temper" is significantly reduced by education. The lowest levels of feeling annoyed, angry, yelling, and losing one's temper were observed among those with advanced education (Mirowsky and Ross, 1995). In addition to this, both male and female sample of this study is knowledgeable about psychology and they might have ability to control their temper. For these reasons, it was possible for this study to find out insignificant results for gender differences. Otherwise, the state anger level of males and females were significantly different. In this study, male participants' trait anger level was higher than females but not statistically significant. In this study, equal variances assumed but there is not significance in homogeneity of gender (147 female/ 64 male). This gender inequality might be another reason for insignificant results. Even though, trait anger and anger expression scores are not significantly different, male participants have a tendency to get higher scores on state anger scale, because this result is situational and depends on the time of test administration. For this reason, state anger level of both genders could be significantly different.

Consequently, depending on the different assumptions on gender difference related to anger experience and expression in the literature, there is no agreement on the notion that there should be significant difference between genders. For this reason, while some studies support this study results, others are not consistent with this study because of some reasons mentioned above. Results of males indicated

significantly more state anger than females in this study. According to Spielberger (1988), individuals high in trait anger have more tendency to have high state anger. According to this view, it was expected that males have also higher trait anger scores in this study. Actually, results show that trait anger and anger expression means of male participants are higher than males as it was expected; however, this result is not statistically significant probably because of insignificance of homogeneity for gender group.

4.2.3. Experimental Study

One of the purposes of this study was to provide validity for State Anger Scale for this reason, as a construct validity evidence of the Turkish State-Anger Subscale, a 2 X 2 Mixed Design ANOVA on state anger was conducted with group (control, experimental) as the between subjects factor and time (pre-and-post test) as the within subjects factor. Anger induction was applied to experimental group and a neutral imagination was also expected for control group. State Anger Scale was administrated to both of these groups, before and after the experiment. It was aimed to investigate whether there is a significant difference between experimental and control group and results indicated that there is a significant difference between two groups and mean of experimental group state anger scale was higher than control group after the experiment.

In applying state-trait theory to measures of anger, state anger is expected to fluctuate over time as a function of frustration, perceived injustice, or other provocations in a given situation (Spielberger, 1998). For this reason, in this study,

the validity of state anger was conducted by using anger-provocation. In many of the studies investigating validity of STAXI used different anger-provoking techniques. For instance, Haseth (1992) conducted Norwegian adaptation study of STAXI and used imagination technique with an anger-provoking situation, similar to the technique used by Spielberger (1983) in developing STAXI. In Norwegian adaptation, students imagined themselves to be in an anger-provoking situation like waiting in a line when someone passes you without giving any excuse. Unlike the studies of Spielberger (1983) and Haseth (1992), in this study, participants were expected to imagine an anger-provoking experience from the past and it was expected that after anger induction, individuals report higher levels of state anger. As it was expected, experimental group reported significantly more state anger than control group after the imagination of anger-provoking/neutral situation. This result means that this test adaptation psychometrically applicable and has a strong construct validity evidence so that, Turkish state anger items represent and assess intensity of anger concept.

4.3. Convergent and Concurrent Validity Evidence

In order to validate state anger adaptation, convergent validity was investigated by correlations among the STAXI subscales. Deffenbacher, Demm and Brandon (1986) claimed that individuals high in trait anger would be expected to experience more lengthy states of anger, stronger general tendencies to express and suppress anger and less anger control. In this study, it was found that trait anger has a significant positive correlation with state anger and anger expression. This result was consistent with the result of the original STAXI subscale correlations (Spielberger, 1988).

Because of the lack of an assessment tool for state anger, concurrent validity of state anger subscale was conducted by using a state-trait anger expression and general anger disposition by Novaco Anger Provocation Inventory (NAS) measure. It was hypothesized in this study that the higher the level of state-trait anger expression, the higher the level of general anger disposition would be in this sample. Results indicated that STAXI was found as positively correlated with general anger disposition (.45). In the original structure of STAXI, Spielberger et al. (1983), the total score of The Buss-Durkee, assessment tool of hostility was found as highly correlated with Trait Anger scale and State Anger scores have been shown to change reliably in the expected direction in response to acute behavioral challenges (Kamarck, Manuck, & Jennings, 1990). Similar to the study of Cornell, Peterson and Richards (1999) which investigated the validity of two standard self-report anger scales (NAS and STAXI) and examined how the anger measures correlated with each other and how they compared in their predictive accuracy, this study found positively correlated findings between these two scales.

4.4. Strengths and Limitations of the Study, and Recommendation for Future Research

The most important strength of the study was that the International Test Commission (ITC) Guidelines for Test Adaptation were followed and most of the important standards were applied for this study. For instance, according to the ITC standards, test developers/publishers should insure that the adaptation process takes full account of linguistic and cultural differences among the populations for whom adapted versions of the test or instrument are intended. In this study, multiple

translators who are expert in linguistics and psychology were supported adaptation of the test and they regarded cultural sensitivity as important. On the other hands, ITC standards propose that test developers and administrators should try to anticipate the types of problems that can be expected, and take appropriate actions to remedy these problems through the preparation of appropriate materials and instructions. Also, they should be sensitive to a number of factors related to the stimulus materials, administration procedures, and response modes that can moderate the validity of the inferences drawn from the scores. In this study, the aversive effects of experimental study were explored by a pilot study and using safe place exercise minimized the effect of anger stimulus on experiment subjects. In general, almost all of the test development and adaptation, administration and documentation/score interpretation guidelines were provided in this study and results of this study was perfectly consistent with properties of the original scale.

Another important strength of the present study was the use of multi-method approach to measure the constructs of the study. Lafreniere et. al. (2002) states that the comparability of a scale across cultures is more reliable when the validity of the scale is evaluated with other instruments, which measure the same construct. In the present study, Novaco Anger Scale assessing general anger disposition was used to validate the state-anger subscale. This concurrent validity was not enough for state anger measure because Novaco Anger Scale or any other existing scales did not consider state-trait distinction and they include not a specific measure for state anger but trait anger measure. For this difficulty, in this study, an experimental study was conducted for construct validity of state anger. Apart from inducing a specific anger-

provoking situation to the participants, imagination of the most anger-provoking experience was used for the experimental group. Because experience of emotions is subjective, using this method provided effective results.

Even though most of the standards for test adaptation were taken into account, there were some missing steps in this study. According to the ITC standards, "The administrator should be unobtrusive and the administrator-examinee interaction should be minimized. Explicit rules that are described in the manual for administration should be followed". In this study, rules for administration were clearly described on the test material; however, in the experimental part of the study, administrator and study developer was the same person and the undergraduates knew her. Because she was research assistant of their department, students were familiar to her. The administrator-examinee interaction could not be minimized and probability of response bias was higher in this study. According to another ITC standard, "test administration instructions should be in the source and target languages to minimize the influence of unwanted sources of variation across populations". In this study, after translation procedures have completed, test administration instructions were only in the target language and original test in the source language was not included.

In the primary validation studies conducted for the STAXI used nonclinical, nonforensic populations and primarily volunteer undergraduate psychology students. Undergraduate samples not only represent a limited range of ages, they also include very few racial or ethnic minority participants and ignore low educated individuals. The limits the degree to which these studies can be generalized to the population of

Turkey. Before the STAXI can be used with confidence as a screening tool or for outcome assessment in treatment settings, it is necessary to assess the degree to which the self-report nature of this instrument may compromise its concurrent validity in relation to independently observed problems with anger management both with voluntary and non-voluntary clients in a clinical setting. In addition, in this study, gender difference was expected for trait anger and anger expression; however, sample composed of psychology and counseling students has capability to manage their anger and education has a significant effect on anger expression. For this reason, it is important to explore the influence of client variables including race, age, educational level, and referral source, in coming studies.

Consequently, in this study, because of the limited sample size, the factor structure of the 44-item STAXI in Turkish sample could not be investigated. For future studies, it can be recommended to explore the factor structure of the complete Turkish STAXI. By means of this factor study, the STAXI with its all subscales can be applicable in Turkey.

4.5. Clinical Implications of the Study

Individuals high in trait anger frequently experience intense state anger in a number of situations and in many parts of their lives (Deffenbacher, Demm & Brandon, 1986). In clinical settings, a person, chronically experiences higher levels of anxiety, is mostly diagnosed as generalized anxiety disorder, or chronically moderately depressed person was diagnosed asdysthymia, however; moderately angry individuals are difficult to diagnose because there is no clear DSM category for the chronically angry person. However, according to Kring (2000) such persons

exist in large numbers. In applied psychology, there is a need to formulate a general anger syndrome for individual's chronically high levels in anger and recognition of misunderstood emotion as a meaningful, diagnosable and treatable emotional disorder (Averill, 1983; Hazaleus & Deffenbacher, 1986). Because of the need to conceptualize and understand anger, State Anger Subscale within the STAXI appears to be a significant contribution to clinical assessment in Turkey. The STAXI, or selected STAXI subscales, have been used extensively in research on anger management interventions (e.g., Chemtob, Novaco, Hamada, & Gross, 1997; Deffenbacher & Stark, 1992; Deffenbacher, Story, Stark, Hogg, & Brandon, 1987).

In many of the clinical researches, measure of state anger is needed. For example, DiGiuseppe and Froh (2002) investigated some other constructs like self-efficacy and self-esteem when a person is angry and the relationship between these constructs by using state anger scale. In another study, Harmon-Jones and Sigelman (2001) conducted an experiment and tested whether state-induced anger is associated with relative left-prefrontal activity. In these studies, a state anger measure was needed and used effectively. Also, in therapies when anger management is worked with the client, before and after the treatment, state anger scale can be used to check effectiveness of therapy or understanding the situation of the client. Because there is a need to assess anger at a specific time with a specific response, adaptation of state anger would be useful in Turkey. Futhermore, in the scientific research area of anger, especially in the experiments, physiological measures are mostly used for intensity of anger (i.e. blood pressure, skin conductance levels); however, a self-report assessment tool for state anger was needed because of its advantages in

66

administration. By this study, researchers and psychologists have an opportunity to assess intensity of anger of examinees or clients and use *State Anger Scale* as a pre-test/post-test material for the experiment or treatment.

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APPENDIX A

Araştırma Katılımı ile İlgili Bilgilendirilmiş Onam

Proje adı: Spielberger'in Durumluk Öfke Ölçeği'nin Türkçe'ye Uyarlaması, Geçerlik ve Güvenirlik Çalışması

Araştırmacı: Tuba KALAY

Çalışmanın yapılacağı yer: Bahçeşehir Üniversitesi, Boğaziçi Üniversitesi ve Okan Üniversitesi'ndeki Farklı Mekanlar

Tanıtım/Amaç: Bir araştırmaya katılma daveti yapmak istiyoruz.Bu araştırmaBahçeşehir Üniversitesi Klinik Psikoloji Yüksek Lisans bölümünde eğitim almakta olan Tuba Kalay tarafından Doç.Dr. Nur Serap ÖZER'in danışmanlığı ile gerçekleştirilmektedir. Çalışmanın amacı Spielberger'in Durumluk Öfke Ölçeği'nin Türkçe'ye uyarlaması, geçerlik ve güvenirlik çalışmasını yapmak olacaktır. Bu araştırmadan çıkacak bulguların Türkiye'de yapılacak öfke araştırmalarına psikoloji alanının daha iyi yanıt verebilmesine yardımcı olacağını ümid ediyoruz.Burada toplanan verileri kişsel bilgilerinizi kullanmadan yüksek lisans tezimde, bilimsel makalelerde ve sunumlarda kullanacağım.

Gizlilik: Bilgilerin gizliliğinin korunması için imzanızın yer aldığı bu bilgilendirilmiş onam formu ile anketler ayrı olarak saklanacaktır. Anketlerde kendinizi kişisel olarak tanıtan hiç bir bilgi sorulmamaktadır.

Bu çalışmaya katılımız tamamen gönüllülük ilkesine dayanır.Hiç bir olumsuz sonuç, önyargı veya hakkınız olan yarar kaybı yaşamadan, istediğiniz anda katılımdan vazgeçebilirsiniz.Eğer araştırmaya katılmaktan vazgeçersenizaraştırmacı ile temasa geçerek kararınızı bildirmenizi rica ederiz.

Temas kişileri/Sorular: Eğer araştırma ile ilgili şu anda veya ilerde herhangi bir noktada sorunuz olursa araştırmacı *Tuba Kalay'a* tuba.kalay@gmail.com*adresinden veya 0555 696 23 53* nolu telefondan ulaşabilirsiniz.

ONAM:

"Yukarda araştırma ile ilgili bilgileri okudum ve anladım. Araştırmanın yararları ve olası riskleri konusunda bilgilendirildim ve beni tatmin edecek düzeyde sorularım yanıtlandı. Ayrıca, daha fazla sorum olursa araştırmacı tarafından yanıtlanacağı konusunda güvence aldım. Kendi isteğimle bu araştırmaya katılmayı kabul ediyorum.

Bu formu imzalayarak yasal haklarımdan feragat etmemekteyim.
Bu bilgilendirilmiş onam formunun bir kopyası bana verilecektir.
Katılımcının adı   :...................   Katılımcının İmzası:...............
Tarih:........................

Kaç Yaşındasınız? ……..........
Cinsiyetiniz nedir?   Erkek – Kadın
Şu anda nerede yaşamaktasınız? …………………………..
Eğitim Durumunuz: İlkokul   (0-5 yıl)
                           Ortaokul   (6-8 yıl)
                           Lise   (9-11 yıl)
                           Yüksek öğrenim (11 yıldan fazla)

Durumluk Öfke Ölçeği

İnsanların kendilerini tanımlamak için kullandıkları bazı ifadeler aşağıda verilmiştir. Her bir ifadeyi okuyup *şu anda* nasıl hissettiğinizi belirten seçeneğin üzerine (x) işareti koyun.   Unutmayın ki, hiç bir ifade için kesin doğru veya kesin yanlış cevaplar yoktur. Herhangi bir ifade üzerinde çok zaman harcamayınız, ancak mevcut duygularınızı en iyi tanımlar görünen cevabı seçiniz.

	İFADELER	Hiç (1)	Biraz (2)	Oldukça (3)	Çok (4)
1	Çok öfkeliyim	( )	( )	( )	( )
2	Sinirim bozuldu	( )	( )	( )	( )
3	Kızgınım	( )	( )	( )	( )
4	Birine bağırasım var	( )	( )	( )	( )
5	Bir şeyleri kırasım var	( )	( )	( )	( )
6	Deliye döndüm	( )	( )	( )	( )
7	Masayı yumruklayasım var	( )	( )	( )	( )
8	Birine vurasım var	( )	( )	( )	( )
9	Burnumdan soluyorum	( )	( )	( )	( )
10	Küfür edesim var	( )	( )	( )	( )

Sürekli Öfke Ölçeği

Aşağıda kişilerin kendilerine ait duygularını anlatırken kullandıkları bir takım ifadeler verilmiştir. Her ifadeyi okuyun. Sonra genel olarak nasıl hissettiğinizi düşünün ve ifadelerin sağ tarafındaki sayılar arasında sizi en iyi tanımlayan seçerek üzerine (x) işareti koyun. Doğru ya da yanlış cevap yoktur. Herhangi bir ifadenin üzerinde fazla zaman sarf etmeksizin, *genel olarak* nasıl hissettiğinizi gösteren cevabı işaretleyin. Aşağıdaki ifadeler sizi ne kadar tanımlıyor?

	İFADELER	Hiç (1)	Biraz (2)	Oldukça (3)	Tümüyle (4)
1	Çabuk parlarım.	( )	( )	( )	( )
2	Kızgın mizaçlıyımdır.	( )	( )	( )	( )
3	Öfkesi burnunda birisiyim.	( )	( )	( )	( )
4	Başkalarının hataları yaptığım işi yavaşlatınca kızarım.	( )	( )	( )	( )
5	Yaptığım iyi bir işten sonra takdir edilmemek canımı sıkar.	( )	( )	( )	( )
6	Öfkelenince kontrolümü kaybederim.	( )	( )	( )	( )
7	Öfkelendiğimde ağzıma geleni söylerim.	( )	( )	( )	( )
8	Başkalarının önünde eleştirilmek beni çok hiddetlendirir.	( )	( )	( )	( )
9	Engellediğimde içimden birilerine vurmak gelir.	( )	( )	( )	( )
10	Yaptığım iyi bir iş kötü değerlendirildiğinde çılgına dönerim.	( )	( )	( )	( )
11	Öfkemi kontrol ederim.	( )	( )	( )	( )
12	Kızgınlığımı gösteririm.	( )	( )	( )	( )
13	Öfkemi içime atarım.	( )	( )	( )	( )
14	Başkalarına karşı sabırlıyımdır.	( )	( )	( )	( )
15	Somurturum ya da surat asarım.	( )	( )	( )	( )
16	İnsanlardan uzak dururum.	( )	( )	( )	( )
17	Başkalarına iğneli sözler söylerim.	( )	( )	( )	( )
18	Soğukkanlılığımı korurum.	( )	( )	( )	( )
19	Kapıları çarpmak gibi şeyler yaparım.	( )	( )	( )	( )
20	İçin için köpürürüm ama göstermem.	( )	( )	( )	( )
21	Davranışlarımı kontrol ederim.	( )	( )	( )	( )
22	Başkalarıyla tartışırım.	( )	( )	( )	( )
23	İçimde kimseye söylemediğim kinler beslerim.	( )	( )	( )	( )
24	Beni çileden çıkaran her neyse saldırırım.	( )	( )	( )	( )

25	Öfkem kontrolden çıkmadan kendimi durdurabilirim.	( )	( )	( )	( )
26	Gizliden gizliye insanları epeyce eleştiririm.	( )	( )	( )	( )
27	Belli ettiğimden daha öfkeliyimdir.	( )	( )	( )	( )
28	Çoğu kimseye kıyasla daha çabuk sakinleşirim.	( )	( )	( )	( )
29	Kötü şeyler söylerim.	( )	( )	( )	( )
30	Hoş görülü ve anlayışlı olamaya çalışırım.	( )	( )	( )	( )
31	İçimden insanların fark ettiğinden daha fazla sinirlenirim.	( )	( )	( )	( )
32	Sinirlerime hâkim olamam.	( )	( )	( )	( )
33	Beni sinirlendirene ne hissettiğimi söyleyemem.	( )	( )	( )	( )
34	Kızgınlık duygularımı kontrol ederim.	( )	( )	( )	( )

Novaco Öfke Envanteri

Aşağıda tarif edilen potansiyel olarak sıkıntı verici 25 durumun listesini okuyun. Her olaydan sonra bırakılan boşluğa, bu basit derecelendirme ölçeğini kullanarak, olayın sizi ne derece kızdıracağıyla ilgili tahmininizi yazın.

	İFADELER	Hiç rahatsızlık hissetmezsiniz (0)	Biraz huzursuzluk hissedersiniz (1)	Orta derecede sinirli hissedersiniz (2)	Oldukça kızgın hissedersiniz (3)	Çok kızgın hissedersiniz (4)
1	Yeni aldığınız bir aleti açıyorsunuz fişe takıyorsunuz ve çalışmadığını fark ediyorsunuz.	( )	( )	( )	( )	( )
2	Bir tamirci sizden çok fazla para istiyor.	( )	( )	( )	( )	( )
3	Diğerlerinin yaptıkları fark edilmezken, bir tek sizin hatalarınız göze batıyor.	( )	( )	( )	( )	( )
4	Arabanız çamura ya da kara saplanıyor.	( )	( )	( )	( )	( )
5	Birileriyle konuşuyorsunuz ve size yanıt vermiyor.	( )	( )	( )	( )	( )
6	Birileri kendilerini farklı göstermeye çalışıyor.	( )	( )	( )	( )	( )
7	Kafeteryadaki masanıza dört fincan kahve taşımaya çabalarken, biri size çarpıyor ve kahveler dökülüyor.	( )	( )	( )	( )	( )
8	Giysilerinizi astınız; fakat, geçenler onları yere düşürüyor ve kaldırmıyor.	( )	( )	( )	( )	( )
9	Mağazaya girdiğiniz andan itibaren bir satıcı tarafından inceleniyorsunuz.	( )	( )	( )	( )	( )

10	Biriyle bir yerlere gitmek için randevulaştınız. Bu kişi son dakikada vazgeçiyor ve sizi ortada bırakıyor.	( )	( )	( )	( )	( )
11	Size şaka yapılıyor ya da sizinle alay ediliyor.	( )	( )	( )	( )	( )
12	Trafik ışığında arabanız stop ediyor.	( )	( )	( )	( )	( )
13	Park yerinde yanlışlıkla hatalı bir dönüş yapıyorsunuz. Arabanızdan çıktığınızda birileri size 'Araba kullanmayı nerede öğrendin' diye bağırmaya başlıyor.	( )	( )	( )	( )	( )
14	Biri bir hata yapıyor ve suçu sizin üzerinize atıyor.	( )	( )	( )	( )	( )
15	Konsantre olmaya çalışıyorsunuz; fakat, yanınızda bir kişi ayaklarını yere vuruyor	( )	( )	( )	( )	( )
16	Birine önemli bir kitap ya da bir alet ödünç verdiniz; fakat, geri vermedi.	( )	( )	( )	( )	( )
17	Çok yoğun bir gün geçirdiniz ve birlikte yaşadığınız kişi önceden anlaştığınız bir şey yapmayı unuttuğunuz için şikayet etmeye başlıyor.	( )	( )	( )	( )	( )
18	Arkadaşınızla ya da sevgilinizle önemli bir şeyi tartışmaya çalışıyorsunuz; fakat, o kişi sizi dinlemiyor.	( )	( )	( )	( )	( )

19	O konu hakkında çok az fikri olmasına rağmen, ısrar eden kişilerle tartışıyorsunuz.	( )	( )	( )	( )	( )
20	Biri, sizle başka biri arasındaki tartışmaya burnunu sokuyor.	( )	( )	( )	( )	( )
21	Acele olarak bir yere yetişmelisiniz; fakat, önünüzdeki araç 90 km hızla gidilecek bir yerde 30 km hızla gidiyor ve onu geçemiyorsunuz.	( )	( )	( )	( )	( )
22	Bir sakızın üstüne bastınız.	( )	( )	( )	( )	( )
23	Yanlarından geçerken bir grup insan sizinle alay ediyor.	( )	( )	( )	( )	( )
24	Bir yere yetişme telaşıyla, iyi bir pantolonu sivri bir yere takarak yırtıyorsunuz.	( )	( )	( )	( )	( )
25	Son jetonunuzu bir telefon konuşması yapmak için kullanıyorsunuz; fakat, daha çevirmeniz bitmeden hat kopuyor ve jeton boşa gidiyor.	( )	( )	( )	( )	( )

Durumluk Öfke Ölçeği (Son Test)

İnsanların kendilerini tanımlamak için kullandıkları bazı ifadeler aşağıda verilmiştir. Her bir ifadeyi okuyup *şu anda* nasıl hissettiğinizi belirten seçeneğin üzerine (x) işareti koyun. Unutmayın ki, hiç bir ifade için kesin doğru veya kesin yanlış cevaplar yoktur. Herhangi bir ifade üzerinde çok zaman harcamayınız, ancak mevcut duygularınızı en iyi tanımlar görünen cevabı seçiniz.

	İFADELER	Hiç (1)	Biraz (2)	Oldukça (3)	Çok (4)
1	Çok öfkeliyim	( )	( )	( )	( )
2	Sinirim bozuldu	( )	( )	( )	( )
3	Kızgınım	( )	( )	( )	( )
4	Birine bağırasım var	( )	( )	( )	( )
5	Bir şeyleri kırasım var	( )	( )	( )	( )
6	Deliye döndüm	( )	( )	( )	( )
7	Masayı yumruklayasım var	( )	( )	( )	( )
8	Birine vurasım var	( )	( )	( )	( )
9	Burnumdan soluyorum	( )	( )	( )	( )
10	Küfür edesim var	( )	( )	( )	( )

Katılımınız için teşekkürler.