

**EXAMINATION OF METACOGNITIVE FACTORS IN RELATION TO
ANXIETY AND DEPRESSIVE SYMPTOMS:
A CROSS-CULTURAL STUDY**

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ABSTRACT**EXAMINATION OF METACOGNITIVE FACTORS IN RELATION TO
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A CROSS-CULTURAL STUDY**

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The aim of this thesis was to examine the validity of the main concepts of metacognitive theory in a Turkish sample and set the stage for metacognitive research in Turkey from the clinical psychology perspective. In addition to this, research attention was focused on two important topics remained to be empirically validated in the metacognition literature: (1) the unique contributions of “cognitive content” versus “metacognition” to the prediction of anxiety and depression symptoms, and (2) the vulnerability function of metacognitions in the development of anxiety and depression symptoms. To achieve these generic aims of the study, a two-step research plan each of which has its own specific objectives was followed. Data for cross-sectional and prospective parts of the study were collected from Turkish and British non-clinical samples. In the cross-sectional part, mainly the independent contribution of metacognitions to pathological worry, obsessive-compulsive symptomatology, and anxiety and depressive symptoms above and beyond the contribution of cognitive content was evaluated. By doing so, also the relationship patterns between metacognitions and psychological symptomatology were revealed in the Turkish sample. Consistent with the recent burgeoning of research, the association between increased levels of metacognitions and increased levels of anxiety and depression was shown in the Turkish sample, as well. Moreover, metacognitive factors were found to be associated with the symptoms of anxiety and depression independently of the relevant cognitive content. In most

analyses, metacognitions emerged as slightly stronger predictors of a given symptom dimension compared to the relevant cognitive content. In the prospective part, the causal role of metacognitions following stress in the development of anxiety and depression symptoms was examined. In the Turkish sample, higher levels of negative beliefs about worry predicted augmentation in anxiety and depression symptoms from Time 1 to Time 2. Besides, higher levels of lack of cognitive confidence interacted with higher levels of daily hassles to predict intensification of the anxiety scores. However, the British data did not support the causal role of metacognitions in the development of anxiety and depression symptoms. The statistical comparisons between Turkish and British samples indicated that the Turkish sample has a tendency to score significantly higher than the British sample on the metacognitive variables. Moreover, for all but one metacognitive factor, the interactions with cultural group (Turkish vs. British) were not significant in predicting psychopathology, indicating generalization of metacognitive theory to both the Turkish and British samples. Findings of this study were well in line with the metacognitive theory and discussed in the light of the relevant literature.

Keywords: Metacognition, Anxiety, Depression, Cross-Cultural Study, Prospective Study

ÖZ**ÜSTBİLİŞSEL FAKTÖRLERİN KAYGI VE DEPRESYON SEMPTOMLARI
AÇISINDAN İNCELENMESİ:
KÜLTÜRLERARASI BİR ÇALIŞMA**

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Bu tezin amacı üstbilişsel kuramın temel kavramlarının Türk örneklemindeki geçerliğini incelemek ve ülkemizde klinik psikoloji bakış açısından yürütülecek üstbilişsel araştırmalara zemin hazırlamaktır. Buna ek olarak, üstbiliş literatüründe görgül olarak geçerlenmeyi bekleyen iki önemli konu üzerine odaklanılmıştır: (1) “bilişsel içerik” ve “üstbiliş” lerin kaygı ve depresyon belirtilerinin yordanmasına birbirinden bağımsız olarak yaptığı katkı ve (2) üstbilişlerin kaygı ve depresyon belirtilerinin gelişmesine yatkınlık oluşturma işlevi. Çalışmanın bu genel amaçlarına ulaşmak için, her biri kendine özgü alt amaçlara sahip iki aşamalı bir araştırma planı izlenmiştir. Çalışmanın enlemesine kesitsel ve boylamsal kısımları için veriler, klinik olmayan Türk ve İngiliz örneklemlerinden toplanmıştır. Enlemesine kesitsel kısımda, temel olarak üstbilişlerin patolojik endişe, obsesif-kompulsif semptomatoloji ve kaygı ve depresyon belirtilerine bilişsel içeriğin yaptığı katkının üzerinde ve ötesinde olan bağımsız katkısı değerlendirilmiştir. Böylelikle, Türk örneklemindeki üstbiliş ve psikolojik semptomatoloji arasındaki ilişki örüntüleri de açığa çıkarılmıştır. Son dönemde hızla birikmekte olan araştırma sonuçlarıyla tutarlı olarak, üstbilişsel düzeylerdeki artış ile kaygı ve depresyon düzeylerindeki artış arasındaki bağlantı Türk örnekleminde de gösterilmiştir. Ayrıca, üstbilişsel faktörler ilgili bilişsel içerikten bağımsız olarak kaygı ve depresyon belirtileri ile ilişkili bulunmuştur. Çoğu analizde, üstbilişler bilişsel içeriğe kıyasla ilgili semptom boyutunun biraz daha güçlü bir yordayıcısı olmuştur. Boylamsal kısımda, üstbilişin stresi takiben kaygı ve

depresyon belirtilerinin gelişmesinde oynadığı nedensel rol incelenmiştir. Türk örneklemindeki boylamsal analizler, endişe hakkındaki olumsuz inançlardaki artışın kaygı ve depresyon belirtilerinde iki ölçüm zamanı arasında gözlenen artışı yordadığını ortaya koymuştur. Ayrıca, bilişsel güvensizlikteki artış yüksek düzeyde gündelik sıkıntılar yaşama ile etkileşime girerek kaygı puanlarındaki artışı yordamaktadır. Buna karşılık, İngiliz örnekleminde toplanan veriler üstbilişlerin kaygı ve depresyon belirtilerinin gelişimindeki nedensel rolünü desteklememiştir. Türk ve İngiliz örneklemi arasında yapılan istatistikî karşılaştırmalar, Türk örnekleminin üstbiliş puanlarının İngiliz örnekleminde anlamlı olarak daha yüksek olma eğiliminde olduğunu göstermiştir. Bunun yanısıra, biri hariç tüm diğer üstbilişsel faktörlerin kültür grubu (Türk ve İngiliz) ile etkileşimlerinin psikopatolojiyi yordamada anlamsız oldukları bulunmuş ve bu bulgunun üstbilişsel kuramın Türk ve İngiliz örneklemi arasındaki genellenebilirliğine işaret ediyor olabileceği düşünülmüştür. Araştırma sonuçları üstbilişsel kuramla tutarlıdır ve ilgili literatür ışığında tartışılmıştır.

Anahtar Kelimeler: Üstbiliş, Kaygı, Depresyon, Kültürlerarası Çalışma, Boylamsal Çalışma

To My Parents
and
My Brother

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CHAPTER I

INTRODUCTION: FROM COGNITIVE to METACOGNITIVE THEORIES of EMOTIONAL DISORDERS

Within the last century, considerable improvements have taken place in understanding the mechanisms responsible for the development, maintenance, and treatment of emotional disorders. However, the answer to the question “how do our emotions, beliefs, and behaviours change?” still remains largely unknown. Currently, one of the main theoretical concerns of clinical psychology is to explore the process of change in emotion, cognition, and behaviour which are manifest in psychological disorders.

In fact, the aim of all theories of psychopathology is the same: to understand the continuum that leads from normality to abnormality. However, the focus of different theories of clinical psychology varies. Some stress the role of emotion, while others focus on cognition or behaviour, to explain the development and maintenance of psychopathology, and to offer solutions to treatment. However, many empirical studies in the last five decades have shown that there is an interdependent relationship between emotion, cognition, and behaviour. Therefore, any attempt at explaining change in one of these components must consider the other two.

Theories the basic theme of which is the proposition that cognitions are antecedents of emotions are known as appraisal theories. One of the earliest examples of this approach came from Schachter and Singer's (1962) experimental studies. Since the times when the first appraisal approaches to emotion emerged, various forms of appraisal and cognitive theories have been developed including rational-emotive therapy (Ellis, 1962, 1991), stress and coping theory (Lazarus, 1966), and cognitive/schemata theory (Beck, 1967, 1976). Recently, Wells' (1997, 2000) metacognitive theory has successfully adapted the multiple levels of cognition to the conceptualization and treatment of a diverse set of clinical disorders, and has taken its position among these markedly influential theories and therapy rationales of psychological disorders.

1. Appraisal Theories

1.1. Schachter and Singer's Two-Factor Theory

Schachter and Singer's (1962) two-factor theory, which is linked with the current cognitive appraisal approaches to psychopathology, is one of the earliest theories of emotion focusing on the role of cognitive interpretation of environmental events in explaining the experience of emotion. This theory suggests that "cognitive" factors are major determinants of "emotional" labels applied to a common state of sympathetic arousal. In other words, events in the environment trigger not only physiological arousal but also cognitive appraisal in order to cause the experience of emotion. As reviewed in detail by Reisenzein (1983), the main proposal of this theory is that emotional state is caused by the interaction between physiological arousal and cognition about the situation creating this arousal. Although both of these components (physiological arousal and cognition) are necessary, the mere existence of them (either together or on their own) is not sufficient for the occurrence of an emotional state. Instead, an interaction between these two is necessary. That is, the arousal should be "labeled" or causally attributed to the emotional source. In view of that, the process of emotion generation can take place in two different ways. First, in everyday life, experience of an emotion entails "appraisal" of the eliciting stimuli, perception of arousal, and attribution of arousal to the eliciting conditions. Second, if there is a state of arousal for which no immediate or sufficient causal explanation is available, an attributional search process including "reappraisal" of situation to understand and label the state of arousal is employed until a reasonable explanation for the arousal is found. If an emotional reason for the arousal is identified, a corresponding emotion will be the outcome.

This theory is empirically supported by the classic experiment that was designed to test principle propositions of the theory (Schachter & Singer, 1962). As one of the first basic experiments of the field, it is worth remembering. In this experiment subjects were injected with either epinephrine (adrenalin) or placebo. Following the injection, subjects in the experimental group were either informed about the real side effects of the injection or not being told what those side effects are, or were misinformed. Then, all subjects were assigned to either of two different conditions which were designed to produce an emotion inducing cognition. In one condition, the subject was placed with a confederate who displayed a euphoric

manner, whereas in the other condition the confederate acted in an angry way. The emotional state of the subjects was measured using both standardized observation of subject's behaviour in this condition and several self-report measures of the affect experienced by the subject. Results supported the theoretical proposition that the way of evaluation of arousal have an effect on emotions. Following the injection of adrenalin, subjects who had no explanation for the psychological consequences of this injection behaved and reported their feeling states in either a euphoric or angry way which is a different emotional state than produced by adrenaline. In other words, they labeled their emotional state in terms of the cognitions available to them. As complementary to this proposition, self-reports and behaviours of subjects who were accurately given the information concerning the cause of their bodily symptoms were not affected by the manipulated cognitions. The results have demonstrated that formulations which explain emotional states as a result of autonomic arousal are not completely adequate and cognitive factors are indispensable components in any formulation of emotions.

It should be noted that Schachter theory has been subject to many criticisms since it is elaborated (Reisenzein, 1983). Nevertheless, this theory has been one of the foremost that includes the concept of "cognition" as referring to an "emotional appraisal" of a situation or event, and thereby, has given rise to the elaboration of many other influential appraisal theories of emotion.

1.2. Lazarus's Stress and Coping Theory

The motion in the appraisal approach to emotional response is subsequently sustained by Lazarus' stress and coping theory (1966). One of Lazarus' strong convictions that lie behind this theory is again the importance of cognition for understanding emotion. According to Lazarus (1991), a theory of emotion is, in fact, represents a theory of how cognitions produce emotions. He consistently articulated the ideas that thought is a necessary as well as sufficient condition of emotion, and the appraisal process evokes an emotion with greater or lesser intensity depending on the evaluation of the relevant circumstances with respect to the person's well-being (Lazarus, 1982, 1991). That is appraisal mediates the relationship between the person and environment (Folkman, Lazarus, Dunkel-Schetter, DeLongis, Gruen, 1986; Lazarus, 1982, 1991).

The stress and coping theory developed by Lazarus and his colleagues (Lazarus, 1966) describes two main processes as cognitive appraisal and coping, which are seen as critical mediators between stressful person and environment relations (Folkman et al., 1986). Two kinds of appraisals are relevant to these processes. The *primary appraisal* involves the initial impression of the situation and evaluation of whether this encounter has anything threatening (holding prospects for harm or loss) for the person. The *secondary appraisal* involves the evaluation of the nature of the threat, and what kind of coping resources the person has to overcome or prevent harm or to improve the possibility of benefit.

To sum, appraisal theories, the foremost being that of Lazarus (1966), see emotion as influencing the subsequent thoughts and emotions. In addition, emotion always includes cognition. However, because some of the cognitions are not personal, the proposition that cognition also contains emotion does not always follow. Importantly, Lazarus (1991) has also emphasized that cognition is a very broad concept, and thus, all kinds of cognition that are relevant to emotion should be considered.

2. Cognitive Theories

2.1. Ellis' Rational-Emotive Theory

Ellis (1962, 1991) is one of the pioneer theorists who have expressed the basic clinical concepts of the current cognitive theories. Within the comprehensive framework of rational-emotive theory (RET), which he put forth over a number of years, Ellis emphasized the proposition that emotional disorder is related to irrational beliefs. In particular, an activating event (A) contributes to emotional and behavioural consequences (C) because they are coupled with beliefs (B) about this activating event (A). According to this theory, irrational beliefs or positive and negative thoughts cause unpleasant emotions and dysfunctional behaviour. That is, again, beliefs have a causal role in emotion and well-being, and emotion is a certain kind of thinking (1991). Also, this theory put forward the concept of secondary disturbance symptoms to describe how people transform their consequences (C's) into new activating events (As) and create *emotional problems about emotional problems*. In essence, the main therapy objective should be restructuring cognitions by training the patient to identify and change his/her irrational beliefs.

2.2. Beck's Cognitive/Schemata Theory

Beck's cognitive theory (1967, 1976) was initially developed for depression, and subsequently elaborated to clarify the development and maintenance of a broad range of emotional disorders. Thus, different cognitive-behavioural models have been formulated for specific disorders and they are now among the most popular and empirically validated forms of psychological treatment. These different models have arisen on the basic assumption that specific beliefs and appraisals have important role in characterizing particular disorders. According to the content-specificity hypothesis (Beck, 1967, 1976), whilst appraisals in anxiety involve themes of anticipated threat or danger, the characteristic content of thoughts and images in depression is viewed as themes of past personal loss or failure. There is a large amount of empirical support for the propositions of this influential approach to psychological disorder (e.g., Beck & Emery, & Greenberg, 1985; Beck, Rush, Shaw, & Emery, 1979).

Cognitive theory (Beck, 1976; Kovacs & Beck, 1978) suggests that emotions and behaviours are influenced by cognitions or perceptions about a particular situation. In other words, the way in which people interpret an event or situation determines the subsequent mood and behaviour. Particularly, negative automatic thoughts and distortions in interpretations emerging from the activation of dysfunctional schemata are viewed as linked with emotional disorders. Schema concept represents information stored in the memory and includes core beliefs, as well as intermediate beliefs such as attitudes, rules, and assumptions. The schemas are accepted as specific to the disorder. For example, while schemas concerning themes of danger are seen important in anxiety disorders, themes of loss, vulnerability, failure about the self, future, and others are important in depression. It is this schematic information which influences the content and nature of processing by directing attention to the schemata congruent information. Negative automatic thoughts arise as a manifestation of the existence and activation of dysfunctional schemata. Based on this formulization, the main aim of the cognitive therapy is to identify, evaluate, and modify negative thoughts and intermediate and core beliefs, and thereby, to change associated problematic mood and behaviour.

3. Metacognitive Theory

3.1. Introduction to Metacognitive Theory: Understanding its Basics

The central idea to the metacognitive theory of psychological disorders is that dysfunctional beliefs about cognitions are the basis for the development and maintenance of clinical problems (Wells, 2000; Wells & Matthews, 1994). Following this proposition, the metacognitive approach focuses not only on cognitive activities but also on metacognitive dimensions of thinking. In particular, beliefs about one's own cognition (metacognitive knowledge) and specific cognitive-regulatory processes (metacognitive regulation) are believed to play a significant role in psychopathology (Wells & Matthews, 1994).

In order to understand the metacognitive theory comprehensively, first, it is necessary to review studies on metacognition from a conceptual point of view. The significance of metacognition in clinical psychology and metacognitive formulations of emotional disorders shall be considered in detail in the later sections shortly to be presented, following the presentation of the conceptual definitions of metacognition in a more general sense.

3.1.1. What is metacognition?

Although metacognition is a basic aspect of human cognition, it has long been ignored as a valid subject of scientific analysis (Lories, Dardenne, & Yzerbyt, 1998). In the past several years, however, the topic of metacognition has come to occupy in psychology, and psychologist including cognitive, social, and clinical have become increasingly aware that metacognitive dimensions of thinking as well as cognitive ones should be understood in order to explain human behaviour.

Historically, the term "metacognition" was first introduced by Flavell (1979) in the context of developmental psychology. Then, theory and research in metacognition have spread to other areas of psychology such as cognitive psychology, cognitive neuropsychology, and social psychology (Nelson, Stuart, Howard, & Crowley, 1999; Wells, 2007). Recently, metacognitive conceptualization has provided basis for understanding and treating psychological disorders in clinical psychology field.

Even though metacognition as a concept simply refers to beliefs and appraisals held about cognition, it is not easy to make an inclusive operational definition of metacognition within a single conceptualization. This difficulty arises

from the multidimensional nature of metacognition. To date, several definitions of metacognition, some of which are similar to each other have been suggested. A review of these definitions may provide an introduction to conceptual aspects of research on metacognition.

Metacognition in a more general sense has been defined as “cognitions about one’s own cognition” (Flavell, 1979). That is, we not only have cognitive activities but also they can apply to themselves (Lories, Dardenne, & Yzerbyt, 1998).

Metacognition, from this point of view, is possible to be conceived as “ordinary cognition applied to its own products in a standard cognitive architecture” (Lories et al., 1998, p. 13). In the clinical psychology context, metacognition can be defined as “the psychological structures, knowledge, events, and processes that are involved in the control, modification and interpretation of thinking itself” (Wells & Cartwright-Hatton, 2004, p. 385). In other words, metacognition refers to “the aspect of the information processing system that monitors, interprets, evaluates, controls, and regulates the contents and processes of its own organization” (Wells, 2000; Wells & Purdon, 1999). Another definition of metacognition can be made as “stable knowledge or beliefs about one’s cognitive system and knowledge about factors that affect the functioning of the system; the regulation and awareness of the current state of cognition, and appraisal of the significance of thoughts and memories” (Wells, 1995, p. 302). In brief, any piece of knowledge and/or processes involved in appraisal, monitoring, and control of cognition can be accepted as metacognition. When we compare cognition vs. metacognition from a conceptual viewpoint, whilst cognition is acquired knowledge, metacognition refers to one’s awareness and understanding of that knowledge (Vadhan & Stander, 1993).

From these definitions, it can be conceived that cognitive activities are normally accompanied by a “supervisor” or “metacognition” that monitors and controls various aspects of these cognitive activities (Koriat, 1998). First of all, metacognition requires an evaluation or *monitoring* of one’s own cognitive processes. From this assessment, it must follow *control* of one’s own thoughts and future processing. In this vein, metacognition entails monitoring of what is stored in memory and control of future processing (Wells, 2000).

As a formulation of metacognitive monitoring and control mechanisms which are two fundamental aspects of metacognition, Nelson and Narens (1990) have

suggested three abstract principles of metacognition one of which is that cognitive processes function on two interrelated levels: the meta-level and the object-level (see Figure 1.1). The second principle is that the meta-level contains a dynamic model (e.g., a mental simulation) of the object-level. The third principle claims that depending on the direction of the flow of information between these levels, two relations which are called monitoring and control can be identified. Information flowing from the object-level to the meta-level is named monitoring, and thereby, the meta-level is informed by the object-level about its current state, changing the state of meta-level's model of the situation (Nelson & Narens, 1990; Nelson et al., 1999). Information flowing from the meta-level to object-level is named control, and thereby, the meta-level notifies the object-level what to do next (Nelson & Narens, 1990; Nelson et al., 1999). Thus, metacognition is directed by a meta-level system which monitors information at the object level and, depending on the information emerged from this monitoring, controls information processing (Shinamura, 2000). In other words, metacognition is accepted as the dynamic interplay between object- and meta-level information flow (Nelson et al., 1999; Shinamura, 2000).

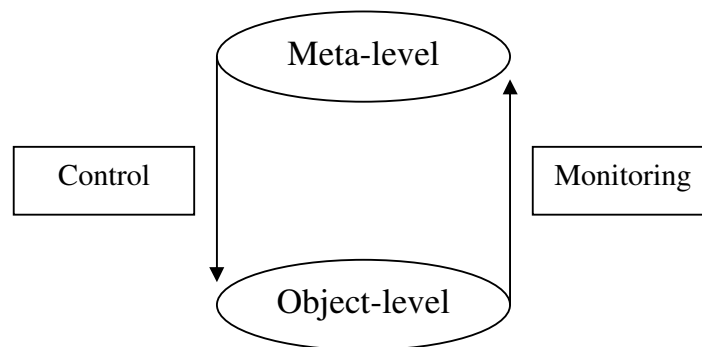


Figure 1.1 Two-level model of metacognition (Nelson & Narens, 1990).

Nelson (1992, p. 233) has stated that “if the metacognitive system exerted no control over any aspects of cognition, then information about metacognitive monitoring would be of use only for knowing what people believe about their own cognitions and would have little other use. However, people can control many aspects of their own cognitions and, therefore, the results of their metacognitive

monitoring serve as important input for metacognitive control”. This meta-level input involving a combination of those two fundamental aspects of metacognition, monitoring and control processes, is required in all thinking (Wells, 2000).

Importantly, these two-level of metacognitive operations can contribute to understanding cognition in psychopathology (Nelson et al., 1999; Wells, 2000). Monitoring can be accepted as the input process for regulating self-relevant information and is largely depend on the *subjective* report of the individual (Koriat, 1998; Nelson & Narens, 1990; Nelson et al., 1999; Wells, 2000). Thus, any errors or distortions in monitoring give rise to psychological disturbance (Wells, 2000). In the same way, control processes have a role in changing the object level by means of initiating a new action, maintaining or discontinuing an ongoing action, or terminating a previous action (Nelson & Narens, 1990; Nelson et al., 1999; Wells, 2000). Hence, any disturbances or biases in control, such as selection of inappropriate coping strategies, may also lead to psychological dysfunction (Wells, 2000).

3.1.2. Types of metacognition

A closer inquiry of the components involved in the definitions of metacognition indicates that metacognition, by nature, is a multifaceted concept. When we use the term metacognition we actually refer to metacognitive knowledge (beliefs), and metacognitive processes and strategies that appraise, monitor or control cognition (Flavell, 1979; Wells, 2000). The multidimensional nature of the concept has brought about a distinction between three basic aspects of metacognition as metacognitive knowledge, metacognitive experience, and metacognitive regulation (Flavell, 1979; Wells, 2000).

Metacognitive knowledge has been described as “that segment . . . of stored world knowledge that has to do with people as cognitive creatures and with their diverse cognitive tasks, goals, actions and experiences. An example would be a child’s acquired belief that unlike many of her friends, she is better at arithmetic than at spelling.” (Flavell, 1979, p. 906). Flavell also emphasizes that “metacognitive knowledge consists primarily of knowledge or beliefs about what factors or variables act and interact in what ways to affect the course and outcome of cognitive enterprises” (p. 907). In other words, metacognitive knowledge refers to the information, beliefs, and theories that individuals have about their own cognition and

about learning strategies and task factors that affect it (Wells, 2000). Even more simply, and of more interest, metacognitive knowledge is beliefs that one has about one's own cognitions. To illustrate, beliefs about the meaning of particular types of thoughts such as negative intrusive thoughts -worry, obsession, and rumination-, and beliefs in relation to the efficiency of memory and cognitive control can be accepted as metacognitive knowledge about cognitions (Wells, 2000). In that sense, metacognitive knowledge refers to "cognitions about cognitions". Metacognitive knowledge itself has been further subcategorized into *explicit (declarative)* and *implicit (procedural)* metacognitive knowledge (Wells, 2000). While explicit metacognitive knowledge includes conscious and verbally expressible beliefs, implicit metacognitive knowledge is unconscious in nature and cannot be verbally expressed. The beliefs such as "Worrying is dangerous for me", "Worrying helps me to solve problems" that are held and expressed by individuals with generalized anxiety disorder (GAD) might be given to exemplify explicit or declarative metacognitive knowledge. On the other hand, the rules or plans that direct information processing, such as allocation of attention, memory search and use of biases in forming judgments can be the examples of implicit or procedural metacognitive knowledge.

Flavell (1979) has also argued that metacognitive knowledge is not different from other kinds of knowledge stored in the memory. Like any other types of knowledge, it might be accurate or inaccurate and can be activated deliberately (consciously) or unintentionally (automatically) by retrieval cues. Once triggered, metacognitive knowledge may influence the course of thought processes. In addition, metacognitive control and monitoring processes interact with metacognitive knowledge (Wells & Purdon, 1999).

As for metacognitive experience, it has been described as "any conscious cognitive or affective experiences that accompany and pertain to any intellectual enterprise. An example would be the sudden feeling that you do not understand something another person just said" (Flavell, 1979, p. 906). The metacognitive experience uses the information ensued from the metacognitive monitoring operations (Koriat, 1998; Wells, 2000). The "feeling of knowing (FOK)" experience, which is a subjective sense that one knows a certain item of information when s/he has been unable to recall it, can be another example of metacognitive experience.

This subjective sense often stimulates efforts to recall information that has been encoded in memory. Also, it has been claimed that the FOK is activated by all questions to assist strategy selection, not just those for which answers are not retrievable (Nhouyvanisvong & Reder, 1998). Another frequent metacognitive experience of this kind is the “tip-of-the-tongue (TOT)” feeling, in which people experience a sense that the information is stored in memory but currently cannot be recalled. Although the metacognitive experiences of FOK and TOT are similar to each other, the FOK does not occur spontaneously and it is not as strong as TOT (Lories et al., 1998). Wells (2000) has emphasized that metacognitive experiences comprise appraisals about the meaning of thoughts, metacognitive feelings themselves, and the status of cognition. These metacognitive appraisals are accepted as conscious interpretations of cognitive experiences. Metacognitive experiences play significant roles in emotional disorders characterized by uncontrollable thought intrusions. For example, negative and catastrophic metacognitive appraisals and judgments of intrusive thoughts may give rise to development of obsessive-compulsive (o-c) symptoms. Of particular interest, these metacognitive appraisals and judgments are based on the information emerging from feelings. That is, feeling provides metacognitive information in psychological disorder (Wells & Matthews, 1994). For example, the stop signal for patients with obsessive-compulsive disorder (OCD) can be a “feeling” of certainty that the ritual has been completed properly (Wells, 2000). In addition, metacognitive experiences have an affect on metacognitive knowledge base by adding to it, deleting from it, and revising it (Flavell, 1979).

As a matter of fact, metacognitive knowledge and metacognitive experiences overlaps to some extent (Flavell, 1979). Some metacognitive experiences can be explained as segments of metacognitive knowledge that have entered consciousness. For example, while struggling with a problem, one suddenly remember another problem similar to it that is solved thus and so. However, some metacognitive experiences do not include metacognitive knowledge. For example, the feeling that one is still far from solving a problem is not in itself an item of metacognitive knowledge. On the other hand, what you do about that feeling is guided by metacognitive knowledge.

Apart from metacognitive knowledge and metacognitive experience, the other category suggested as a variety of metacognition is metacognitive regulation (Wells, 1995; 2000). It refers to a number of executive functions that operate cognitive system. Planning, attentional allocation (i.e., selective attention), monitoring, control or checking, and error detection are examples of metacognitive regulation strategies (Wells, 2000).

As a type of metacognitive regulation strategy, metacognitive control strategies refer to cognitive responses directed at controlling the activities of cognitive system (Wells, 2000). These strategies might intensify, change, or suppress thinking and monitoring processes. Strategies used as memory aids for encoding and recalling such as mnemonic techniques, rehearsal of material to be remembered, and cueing are some examples of metacognitive control strategies. In addition, individuals have their own strategies that can be used to control unwanted and distressing thoughts. In psychological disorders, certain types of metacognitive control strategies such as suppressing particular thoughts, trying to think in special ways or sustained monitoring for threat can be problematic, counterproductive, and deleterious for mental and emotional self-control under some circumstances (Wells, 2000). Reappraisal, punishment, social control, worry, and distraction are identified as metacognitive thought control strategies as measured by the Thought Control Questionnaire (TCQ; Wells & Davies, 1994). These strategies, especially worry and punishment, have been demonstrated as important negative and positive health markers for different psychopathologies under different circumstances (Reynolds & Wells, 1999; Wells & Davies, 1994).

To summarize, metacognition is a multifaceted concept which is composed of metacognitive knowledge including conscious and unconscious beliefs, and information stored about cognition. In addition, metacognitive regulatory system completes the picture by referring to a broad spectrum of executive functions such as monitoring, planning, control the operation of cognitive system. Moreover, metacognitive experience includes affective experiences that accompany metacognitive knowledge, meaning of thoughts, and the status of cognition.

3.2. Metacognitive Theory: Understanding its Theoretical Background

Incorporating the above mentioned metacognitive aspects of thinking into the area of clinical psychology, several markedly influential metacognitive models and

therapy rationales applicable for a broad range of psychological disorders have been articulated by Wells (1997; 2000). Since the metacognitive model of psychopathology is grounded in an earlier theoretical framework called Self-Regulatory Executive Function (S-REF; Wells & Matthews, 1994, 1996) model, it is necessary to briefly outline this model first in order to figure out the main principles of the metacognitive theory.

3.2.1. The Self-Regulatory Executive Functions Model

The S-REF model accounts for mechanisms of problematic information processing which eventually brings about emotional disorders. According to this model, emotional disorders are based on a multilevel cognitive processing system composed of three interacting levels: (1) automatic and reflexively driven processing, (2) a level of voluntary, controlled processing demanding attentional resources, and (3) a level of stored self-beliefs. The first low level automatic process comprises of stimulus-driven information which is processed outside of conscious awareness. However, the products of this level may pervade into consciousness, which induces unwanted negative automatic thoughts (intrusions) and activates the S-REF. Processing at this level requires minimal cognitive resources, and is predominantly reflexive. The second level of on-line processing includes voluntary and conscious appraisal of events, and voluntary and conscious monitoring and control of action and thought. The execution of on-line level of processing requires attentional resources which by nature are restricted. The third level involves beliefs about the self that are stored in long-term memory (LTM; Wells, 2000). The on-line processing is guided by self-beliefs in LTM. Two types of self-beliefs are described by the S-REF model: (1) declarative and (2) procedural. Declarative beliefs consist of explicit statements such as “I am a failure”, “It is bad to think certain thoughts”. In addition, they represent knowledge about the meaning of thoughts. Procedural beliefs are plans that guide the execution of the controlled processing and have a metacognitive function. In other words, while proceduralized beliefs direct and determine cognition, declarative beliefs are the products of running particular plans.

The S-REF model identifies two modes of processing which have important implications for modifying beliefs: (1) object mode and (2) metacognitive mode. In object mode, people experience their thoughts as representing facts of reality without evaluating them. Thoughts are considered as true reflections of threat and necessary

to be acted on. Thus, threat is subjective and something that should be eliminated. On the other hand, in metacognitive mode of processing, the individual is detached from thought, and thoughts are taken as events in the mind, they do not necessarily reflect the reality, and can be evaluated before accepted as accurate. Thus, threat is objective in metacognitive mode and modification of beliefs is more likely.

The S-REF model asserts that vulnerability to and maintenance of all psychological disorders are causally linked to the tendency to and activation of a specific pattern of cognition which is referred to as Cognitive Attentional Syndrome (CAS). The CAS consists of intensified self-focused attention in the form of active and repetitive thinking styles of worry or rumination, diminished cognitive functioning, activation of dysfunctional self-beliefs, sustained attention allocation to internal or external sources of threat, and use of maladaptive coping strategies that impede modification of dysfunctional beliefs. This syndrome is independent of the content of cognition and caused by the activation of metacognitive knowledge (beliefs and information stored in the LTM) about worry/rumination and attention. As explained before, such metacognitive beliefs themselves contain knowledge that affects both the content of appraisal and the strategies used such as worry and rumination. In addition, these metacognitive beliefs are implicit plans which guide thought processing and interpretations. However, much of the metacognitive knowledge includes explicit (declarative/propositional) beliefs about thinking (e.g., “Certain thoughts are bad and must be controlled”), as well as plans that guide processing (e.g., I must mentally plan the future in order to cope”). That is, even though the metacognitive plan may operate outside of conscious awareness, the general purpose of the plan may still be known and used consciously (Wells, 2005). For example, a patient with an anxiety disorder may not be aware of the metacognitive plan that serves to sustain selective attention to threat, but the main goal of the plan would still be amenable to consciousness. Attentional biases to threat contribute to locking the individual into self-processing, which intensifies the problem. At the same time, coping behaviours (such as avoidance of feared stimuli) that fail to provide adaptive learning experiences may prevent exposure to information that disconfirm fears, which has counterproductive effects of perpetuating psychopathology. If the metacognitive plan operates in the object mode

in which the thoughts are taken as facts and the aim is to escape threat, then restructuring of dysfunctional knowledge is less expected.

To summarize, the S-REF model explains not only the generation of appraisals of the external events and internal experiences but also the metacognitive beliefs and processes concerning the personal significance of particular types of thoughts, beliefs about other cognitive phenomena (such as memory and judgment), and guiding subsequent attention allocation and cognitive processing. In this way, the architecture of S-REF model integrates information processing research with Beck's schema theory (1967) and eliminates the limitations of schemata approach to understand the mechanisms leading to the maintenance and modification of dysfunctional beliefs. According to the S-REF model, the maintenance of psychological disorders is provided by selection and execution of maladaptive coping strategies, such as perseverative negative thinking (e.g. worry, obsession, and rumination), attention allocation to threat monitoring, and thought suppression. Coping strategies of this kind not only fail to modify dysfunctional self-beliefs, but also increase the accessibility of negative information about the self, which consequently brings about a cognitive attentional syndrome (CAS). Activation of CAS in problematic situations drives processing based on the metacognitive knowledge hold by the individual. As being such a generic framework, it is not unexpected that the S-REF model has influenced the development of a broad number of disorder-specific metacognitive models and treatment protocols.

4. Metacognitive Models of Emotional Disorders

Being derived from the S-REF model, the metacognitive theory is accepted as a dynamic and multilevel information processing theory. In the metacognitive approach, metacognition, which is composed of beliefs about one's own cognition and specific cognitive-regulatory mechanisms, is proposed as a generic factor underlying vulnerability to and maintenance of a broad range of emotional disorders (Wells, 1997, 2000). Although there are different metacognitive models as specific to the relevant psychological disorder, the central theme cutting across all the metacognitive conceptualizations for these emotional disturbances is the emphasis on the beliefs and knowledge that individuals have about their own thinking patterns in relation to the specific psychological disorder and metacognitive processes and plans are central to self-regulation. In particular, disorder is seen as associated with a non-

specific thinking style called cognitive-attentional syndrome (CAS). As mentioned above, this syndrome includes heightened self-focused attention, perseverative styles of thinking in the form of worry/rumination, attentional allocation to threat monitoring, decreased cognitive functioning, and use of maladaptive coping responses that fail to modify negative beliefs. Since the processing is seen as depending on metacognitive knowledge (beliefs), the activation and maintenance of the CAS is also seen as depending on maladaptive metacognitive knowledge (Wells, 2007). In the metacognitive conceptualization, apart from metacognitive knowledge and regulation mechanisms, the usage of maladaptive thought control strategies such as thought suppression is another pertinent mechanism in the development and maintenance of disorder.

The metacognitive theory gives central importance to worry as a general factor contributing to emotional disorders. Worry can be considered as an element of most types of disorder because the metacognitions underlying it are nonspecific, basic pathological mechanisms and processes (Wells, 2007). According to the theory, certain types of metacognitions such as metacognitive knowledge consisting of positive and negative beliefs about thinking (e.g. "I must worry in order to be prepared"; "I cannot control my thoughts") and metacognitive regulation mechanisms such as selective attention to internal cognitive events function as general purpose plans that guide information processing and maintain maladaptive processing routines. For example, whilst a patient with hypochondriasis believes "I must pay close attention to my hearth in order to stay safe"; a PTSD patient believes "I must pay attention to danger in order to be prepared". In this model metacognitions provides the basis to the formation of dysfunctional appraisals and negative cognitive content (Wells, 1997, 2000; Wells & Matthews, 1994).

In a nutshell, the metacognitive model assigns a central role to metacognitive beliefs and processes involved in appraisal, monitor, and control of cognition, and to thought control strategies. Holding these theoretical assumptions constant, Wells and his colleagues have successfully applied this theory to a diverse set of clinical disorders. In this way, metacognitive approach assists in refining the cognitive dimensions of a broad range of emotional disorders. In recent years, the metacognitive approach has been found as influential in problems as diverse as generalized anxiety disorder (Wells, 1995, 1999), obsessive-compulsive disorder

(Fisher & Wells, 2005; Emmelkamp & Aardema, 1999; Gwilliam, Wells, & Cartwright-Hatton, 2004; Hermans, Martens, De Cort, Pieters, & Eelen, 2003; Myers & Wells, 2005; Purdon & Clark, 1999; Wells & Cartwright-Hatton, 2004; Wells & Papageorgiou, 1998), ruminations in major depression (Papageorgiou & Wells, 1999; Papageorgiou & Wells, 2003), predisposition to auditory hallucinations (Lobban, Haddock, Kinderman, & Wells, 2002), post traumatic stress disorder (Holeva, Tarrier, & Wells, 2001; Wells & Sembi, 2004), hypochondriasis (Bouman & Meijer, 1999), and test-anxiety (Matthews, Hillyard, & Campbell, 1999). Some other studies have focused on between-group comparisons to determine whether there are significant differences between certain psychopathology groups in terms of metacognitive beliefs (García-Montes, Pérez-Álvarez, Balbuena, Garcelán, & Cangas, 2006; Morrison & Wells, 2000, 2003). In light of these studies, it might be stated that the main advantage of the metacognitive theory is that the principles of metacognitive theory are applicable to a broad range of psychological disorders.

In particular, metacognition has a unique importance to disorders characterized by uncontrollable thought intrusions such as obsession characteristic of OCD and rumination characteristic of depression, and disorders related with chronic worry such as GAD. The common feature of all these disorders is the central role in which negative beliefs about the meaning and significance of thoughts play (Wells, 2006). Of particular interest of this thesis, metacognitive models of GAD, OCD, and depression will be explained in the following sections. Also, empirical evidence for and clinical implications of each of these metacognitive models will be illustrated with reference to these disorders. Before examining the metacognitive conceptualizations of these disorders, however, the cognitive nature of these disorders which are characterized by intrusive thoughts should be examined first to better understand the rationale of metacognitive approach to these disorders.

4.1. Cognitive components of GAD, OCD, and Depression: Intrusive thoughts

4.1.1. Worry

Current theoretical accounts suggest that worry represents the cognitive component of anxiety (Borkovec, 1985; Mathews, 1990; Wells & Matthews, 1994). Although worry is a common experience in non-clinical samples (Mathews, 1990; Davey, 1994), it can lead to significant impairment in normal functioning in its more

malign forms. Particularly, the experience of chronic, excessive, and generalized worry which is perceived as uncontrollable is represented as a fundamental characteristic of GAD in DSM-IV (American Psychiatric Association (APA), 1994). Not being confined to GAD, worry has been verified as a common cognitive activity present to some extent in nearly all anxiety disorders such as panic disorder, social phobia, specific phobia, and OCD (APA, 1994; Barlow, 1988; Brown, Antony, & Barlow, 1992).

Worry was initially defined as “a chain of thoughts and images, negatively affect-laden and relatively uncontrollable; it represents an attempt to engage in mental problem-solving on an issue whose outcome is uncertain but contains the possibility of one or more negative outcomes; consequently, worry relates closely to the fear process” (Borkovec, Robinson, Pruzinsky, & DePree, 1983, p. 10). This definition was later elaborated in terms of two aspects. First, it was indicated that worry contains mostly thoughts, rather than images- so it is verbal rather than imaginal (Borkovec, 1994) and second, the negative affect elicited by worry involves aspects of not only anxious but also depressive processes (Andrews & Borkovec, 1988). That is, worry could not be confined to only anxiety. Instead, it is suggested as a common thought process accompanied with general anxiety symptoms and mood symptomatology. In particular, previous accumulation of research gives the idea that even though the degree of worry might be the same (Andrews & Borkovec, 1988; Starcevic, 1995), the content of worry is different across various anxiety and mood disorders (Papageorgiou, 2006; Turner, Beidel, & Stanley, 1992; Wells & Morrison, 1994; Wells & Papageorgiou, 1998).

According to cognitive avoidance theory of worry (Borkovec, Alcaine, & Behar, 2004, cited in Sibrava & Borkovec, 2006), this cognitive process functions as a mental problem solving activity which represents itself in the form of a cognitive avoidance response. In particular, worrying in response to threat perception allows individuals to avoid from aversive images, thereby from somatic reactions of anxiety since worry as possessing a thought-based nature is less connected to efferent command into affect, physiology, and behaviour than imagery (Borkovec & Inz, 1990; Sibrava & Borkovec, 2006). That is, the function of worry is to distract attention from more distressing images and therefore it is maintained by negative reinforcement mechanisms. This avoidance also escalates the anxiety by interfering

with emotional processing which is necessary for the extinction of anxiety. In other words, worry block emotional processing by diverting attention from distressing images. Emotional processing means ameliorations in distressing emotions such as anxiety and fear, so that other experiences and behaviour can proceed without disruption caused from these negative emotions (Rachman, 1980; cited in Wells, 2000). Worry serves as an *avoidance* function because of two reasons: (1) as a verbal processing of worrisome thought, it prevents emotional processing (Borkovec, Ray, & Stöber, 1998), (2) due to its verbal nature, the content of worry is abstract rather than concrete that provided by imagery (Matthews & Funke, 2006).

The metacognitive formulation of worry uses an information processing framework, and suggests metacognitive beliefs and processes as important factors responsible for the selection of worry as a processing strategy and transforming normal worry into pathological forms (Wells, 1995; 1997). Wells and Matthews (1994) stated that there are at least two varieties of worry: adaptive and maladaptive worry. Whilst adaptive worry serves as a problem-solving function and produces problem-focused behaviour, the maladaptive variety causes negative outcomes. An important clinical feature of worry is that its content often refers to worry itself; experiencing intrusive thoughts may itself be a focus for worry (Wells, 2000). More specifically, worry becomes problematic when it prevents emotional processing of other thoughts by diverting attention from spontaneous images and thoughts, when it is consciously monitored, and when it is attempted to be controlled (Wells & Papageorgiou, 1995). According to Wells and Papageorgiou (1995), two mechanisms co-jointly lead to the augmentation of intrusive images following exposure to threat: (1) worry, which is a verbal rather than imaginal cognitive activity, blocks emotional processing, and (2) worry may cause a “tagging” of threat related material stored in the memory leading to retrieval of cues for threat-related intrusions. The authors experimentally compared five groups among which the post-stress processing strategies were manipulated to examine the effects of post-event processing on intrusive images following exposure to threat. This study showed that even short periods of verbal worrying (4 min) following exposure to the stressful stimulus (film) resulted in significantly more intrusive images about the stressor (within the subsequent 3 days) than a settle-down condition. Strategies of imaging about the stressor, distraction, and worrying about usual concerns showed an incremental

pattern of frequency of intrusions consistent with the dual-mechanism in which emotional processing and tagging function co-jointly in moderating the occurrence of intrusions.

4.1.2. Obsession

Obsession is the salient cognitive characteristic of obsessive-compulsive disorder. In the DSM-IV (APA, 1994) obsessions are defined as recurrent and persistent thoughts, impulses, or images that are experienced as intrusive and inappropriate and that evoke anxiety or distress. Obsessions are “not simply excessive worries about everyday life problems”, but are alien or inappropriate (ego-dystonic) intrusions persisting no matter the individual recognizes that they are irrational, unrealistic, or untrue. The individual tries to ignore or suppress these thoughts, impulses, or images or to neutralize them with some other thought or action. In addition, the individual recognizes that these obsessions are a product of his or her own mind.

4.1.3. Rumination

Rumination is accepted as the key cognitive symptomatic feature typically seen in dysphoria and major depressive disorder (Nolen-Hoeksema, 1991, 2004; Papageorgiou & Wells, 2001b, 2004a, 2004b). Several definitions of depressive rumination from various perspectives exist in the literature. From one perspective, rumination is seen as a generic thought structure that refers to the entire class of thought that is recurrent in nature (Martin & Tesser, 1989, cited in Papageorgiou & Wells, 2004a, 2004b). According to response styles theory of depression (Nolen-Hoeksema, 1991, 2004), rumination is a repetitive and passive focus on one’s symptoms of depression and the possible causes and consequences of these symptoms. That is, rumination is a type of reaction to negative emotions experienced during a depressive mood. Another approach conceptualizes rumination as a tendency to ruminate about negative inferences following stressful life events and uses the term of “stress-reactive rumination” (Robinson & Alloy, 2003; Spasojevic, Alloy, Abramson, Maccoun, & Robinson, 2004). With this respect, rumination occurs before the onset of depressive mood. According to the S-REF model (Wells & Matthews, 1994, 1996) and metacognitive theory of depression (Papageorgiou & Wells, 2003), rumination, like worry, is accepted as a coping strategy, resulting from activation of metacognitive beliefs. As argued by Papageorgiou and Wells (2004a,

2004b), different theorists conceptualize rumination differently and a range of subcomponents of rumination exist in the literature.

4.1.4. Overlapping and distinguishing features among worry, obsession, and rumination

The cognitive events of worry, obsession, and rumination share a number of similarities. As such, there are also some differences. The most salient resemblance among these thought structures are that they all can be categorized as intrusive thoughts and are employed by individuals as a way of coping strategy with internally distressing stimuli. Although each of those thoughts is viewed as a cardinal cognition of a specific disorder (i.e., worry is specific to GAD, obsession to OCD, and rumination to depression), they are transient in nature and can be a feature of various anxiety and mood disorders. To illustrate, rumination can be observed not only in depression but also in anxiety states including OCD. Therefore, the distinguishing characteristics of these thought structures have attracted an increasing interest and are usually articulated in terms of content, process, and metacognitive dimensions. Considering inconsistencies in the definitions of these concepts, especially for rumination, it should be noted that the way of conceptualization of worry, obsession, and rumination may effect the conclusions reached by studies of this kind.

Worry vs. obsession. Both worry and obsessions can be observed in non-clinical samples, as well as clinical samples, and thus, can be studied in normal community samples as analogues to clinical samples (Purdon & Clark, 1999; Rachman & De Silva, 1978; Wells & Morrison, 1994). According to DSM-IV (APA, 1994), one of the features that distinguish excessive worry from the obsessional thoughts is their content. As mentioned above, the content of worry involves real-life concerns, whilst obsessional thoughts are ego-dystonic which is perceived as inappropriate by the individual. The examples of the content of typical obsessions include sexual, aggressive, religious, and contamination themes. Some researchers (Freeston & Ladouceur, 1999; Wells & Papageorgiou, 1998) have argued that this content discrepancy criterion is not inclusive enough that some obsessions such as fears of contamination is not necessarily inappropriate, may be based in real life, and may overlap with worry concerns such as those related with health. Similarly, some worries are not necessarily about everyday or real-life problems.

As differentiating characteristics of worry and obsessions, Turner et al. (1992) have suggested that (1) worries typically relate more to daily experiences whereas obsessions are related to themes of dirt, contamination, etc; (2) the majority of people suffering from GAD are more aware of internal and external triggers of worry whereas the majority of people with OCD are not aware of triggers; (3) worries are usually experienced in the form of verbal thought whereas obsessions occur in the forms of thoughts, images, or impulses; (4) worries do not appear to be resistant as strongly as obsessions and is perceived less intrusive than obsessions; (5) the content of clinical worry is perceived as acceptable and more in agreement with the belief system (ego-syntonic) whereas clinical obsessions is perceived as unacceptable, irrational, unrealistic (ego-dystonic).

The process characteristics of normal worry and normal obsessions were compared in a non-clinical sample using a thought diary (Wells & Morrison, 1994). Results indicated that worry and obsessions were significantly different on a number of dimensions. In particular, worry was found to be longer in duration than obsessions. In addition, worry was reported as consisting of greater verbal content rather than being imagery. Moreover, in comparison to obsessions, worry was found to be more realistic, less involuntary, and associated with a greater compulsion to act. On the other hand, worry and obsessions did not differ significantly in terms of the degree of their intrusiveness, controllability, dismissability, the extent they were resisted and how distressing or distracting they were. Clark and Claybourn (1997) compared measures of various cognitive, emotional, and behavioural processes of non-clinical worry and obsessions obtained from a college student sample using self-report questionnaires. In this study, worry was found to be more focused on consequences of negative events, more distressing, caused more worry about feeling distressed, more likely to produce effective solutions for everyday problems, more likely to be related with checking, and caused more interference in daily living in comparison to obsessions.

Because of the overlapping problem in the measures of pathological worry and obsessive-compulsive symptoms, Wells and Papageorgiou (1998) proposed to control this overlap when studying on the metacognitive predictors of pathological worry and o-c symptoms. As emphasized by Wells (2000), relationships of

pathological worry and o-c symptoms with metacognitive factors remain significant when the overlap between worry and o-c symptoms controlled.

Worry vs. rumination. The distinction between worry and rumination is made in terms of their content, time orientation, and problem solving capacity. The content of worry and rumination is likely to differ from each other in that worry involves with anticipated future threat (Beck, 1976; Borkovec et al., 1983), while rumination is characterized by past personal loss or failure (Beck, 1976). Papageorgiou and Wells (1999) studied on a non-clinical sample to compare the process and metacognitive dimensions of worry and rumination. This study was grounded on the diary records of the participants. Their results revealed that in comparison with rumination, worry was found to be associated with significantly more effort in problem solving. Moreover, rumination was found to be significantly more past-oriented than worry. To summarize, it can be stated that whilst worry is directed towards future, rumination is past oriented. Additionally, rumination is suggested as poorer in problem-solving than worry.

4.2. Metacognitive Model of Generalized Anxiety Disorder

The theoretical framework suggested by the metacognitive model was initially elaborated to clarify the development and maintenance of pathological worry in GAD (Wells, 1995, 1997). The metacognitive model of GAD has shed light on the mechanisms that give rise to the excessive generalized and uncontrollable worry which is the fundamental characteristic of GAD, and thereby, has contributed to improvement in therapeutic interventions. As different from the other models of GAD, metacognitive model postulates that instead of the content of worry such as maladaptive beliefs about the world as a dangerous place, metacognitive dimensions and the process of worry are central to the development of problematic worrying. An implicit aspect of this model is that worry experienced by the individual with GAD is not only a cognitive symptom of anxiety, but it is a style of appraisal and coping arising from the individual's beliefs (Wells, 1999, 2000).

According to this model (Wells, 1997, 2000), most people experience worry to some degree as a relatively normal cognitive process. However, some go on to develop GAD because of their dichotomous metacognitive knowledge consisting of positive and negative beliefs about worry processes. More specifically, in the metacognitive model of GAD, a distinction is made between worrying and the

negative interpretation of worrying. These two types of worry have been labeled Type 1 and Type 2 worry respectively. Type 1 worry concerns the usefulness of engaging in worry as a coping strategy with anticipated threat concerned with external events and internally bodily symptoms (e.g. worry about relationships; health; competence at work). Beliefs of this type about the efficacy of worry as a coping strategy have also been emphasized by Borkovec and Roemer (1995). On the other hand, Type 2 worry concerns appraisals of cognition itself. More specifically, it is closely linked to the negative beliefs about the danger and uncontrollability of worry since the experience of Type 2 worry depends on the activation of negative beliefs about worry (Wells & Carter, 2001). Thus, Type 2 worry can be described as worry about worry and is also known as meta-worry because it refers to metacognitive processes of monitoring and appraising one's own thoughts (Wells, 1999).

The central components of the model are shown in Figure 1.2. Although different factors can act as triggers of Type 1 worry (worry as a coping mechanism), they are typically intrusive thoughts that may commonly happen in the form of "what if" questions (e.g., "What if I fail?") or a negative image such as an image of being involved in an accident. External factors such as news items can become triggers for these initial intrusions themselves. This trigger activates positive metacognitive beliefs about the usefulness of worrying as a coping strategy and conceptual plans for coping with anticipated dangers and threats to the self and personal world portrayed in the intrusion. The beliefs held by individuals such as "Worrying helps me cope"; "I need to worry in order to remain organized"; "Worrying helps me to solve problems" represent examples of positive beliefs about worry. Beliefs of this kind can be considered as relatively common and not specific to GAD. However, individuals with GAD "strongly" believe the advantages of using worry, and therefore use it excessively as a main mode of coping. That is, positive metacognitive beliefs are responsible for the maintenance of Type 1 worrying which consists of chains of catastrophes focusing on external events and non-cognitive internal events, and potential strategies for dealing with threat. The process of the sustained use of Type 1 worrying is connected with emotions as demonstrated by the bi-directional dotted line in Figure 1.2. The appraisal of threat typically results in the activation of anxiety and its associated cognitive and behavioral symptoms. However, when the goal of Type 1 worrying (i.e., generating acceptable coping responses and achieving

a sense that one can cope) is met, anxious affect and accompanying symptoms reduce. It is this reduction in anxiety which is responsible for the reinforcement of the subsequent usage of worry as a coping strategy (Wells, 1999). On the other hand, when the goal of Type 1 worrying is not reached, person becomes more anxious. In other words, Type 1 worrying usually continues until he or she interprets that it would be possible to achieve the goal of worrying. Internal cues such as a “felt sense” that he or she will be able to deal with, or an appraisal that all important possibilities for negative outcomes have been considered are employed as stop signals indicating that it is safe to terminate the worry process. Apart from these internal stop signals, worrying may also stop as a result of the distracting demands determined by the situation (Wells, 2006).

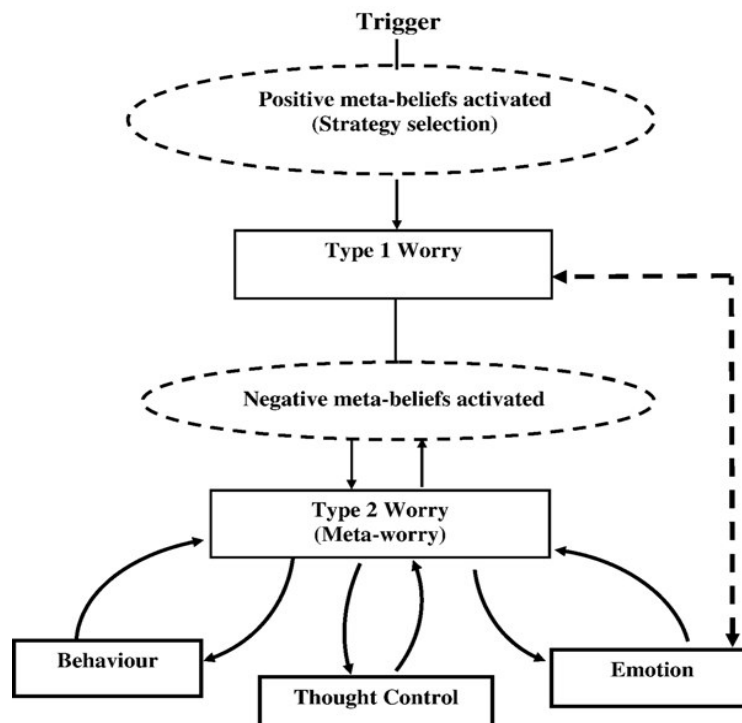


Figure 1.2. Metacognitive model of GAD (Wells, 1997).

Activation of not only positive beliefs but also negative beliefs about worry during a worry episode contribute centrally to the development of pathological worry characteristics of GAD. Because of the personal learning experiences, common myths about the harmful consequences of stress and worry, and the effects of

repeated Type 1 worrying (Wells, 1995, 2002), people prone to GAD acquire also negative metacognitive beliefs about the nature, function and consequences of worrying. The content of these negative beliefs focus on two domains: (1) uncontrollability and (2) danger. In other words, people believe that worrying is uncontrollable and potentially harmful and dangerous for physical, psychological, and/or social well-being. Examples of negative beliefs are “My worrying could make me go mad”; “When I start worrying, I cannot stop”; “I could make myself sick with worrying “. In GAD, establishment of these negative beliefs leads to negative appraisals of worry process during a worry episode. Such appraisals termed as Type 2 worry or meta-worry gives rise to an escalation of the sense of threat and emotional responses. When people interpret worrying as uncontrollable and dangerous, the result can be a rapid increase in anxiety. Under such circumstances, anxiety symptoms can themselves be misinterpreted as a sign of upcoming catastrophe, culminating in panic attacks (Wells, 2000, 2004). As can be seen in Figure 1.2, the association between Type 2 worry and emotion forms a vicious cycle in which cognitive and somatic symptoms of anxiety might be evaluated as evidence of uncontrollable and harmful nature of worrying. Because of the intensification of anxiety, it is difficult for the individual to achieve an internal sense signaling that it is safe to stop worrying. Anxious responses may also be interpreted as a sign of a failure to cope that contributes to a refreshed need to continue Type 1 worrying in order to feel the individual is able to cope, causing the prolongation and generalization of worrying (Wells, 1999, 2000, 2002).

Two further strategies motivated by Type 2 worry to reduce appraised danger play role in the escalation and persistence of pathological worry and GAD. These are depicted as “behaviour” and “thought control” in Figure 1.2. In order to deal with the self-regulatory conflict arising from the dissonance between positive and negative beliefs about worry, individuals with GAD may engage in subtle forms of behaviours such as avoidance, reassurance seeking, and information search. Avoidance of particular situations or stimuli that may trigger worrying may displace the need to worry in the first place or terminate worry sequences temporarily. Reassurance seeking in an attempt to decide whether there is really something to worry about without taking responsibility for the control of worrying is another behavioural strategy. Wells (2007) also suggests information search as another behavioural

strategy which includes reading books and/or surfing the Internet to detect information that may avert worrying. However, these strategies are usually counterproductive and generate their own problems in several aspects. To illustrate, avoidance or reassurance seeking protect individual from discovering that the negative beliefs concerning uncontrollability of worry are unrealistic and worrying can be subject to voluntary control. Also, by removing the triggers of worrying, individuals do not encounter evidence that challenge beliefs concerning the dangers of worrying. In addition, reassurance seeking and information search can naturally give rise to the range of worry triggers experienced because of the variable and possibly conflicting responses and information coming from different people and/or sources.

The other relevant mechanism involved in the persistence of pathological worry and GAD manifests itself in the form of thought control. Strategies of this kind include efforts to suppress or remove thoughts that may trigger worry. The metacognitive model of GAD distinguishes between the attempts to control Type 1 and Type 2 worry. Whilst people do not make an important effort to interrupt the worry process when Type 1 worry is activated; they may try to not to think about worrying thoughts when meta-worry is activated. The problems with suppression attempts to control thoughts are that they are frequently ineffective and paradoxically increase the occurrence of unwanted intrusive thoughts (Purdon, 1999; Wegner, Schneider, Carter, & White, 1987). Thought control may also cause a greater need to worry by increasing the range of worry triggers. These effects may be taken as evidences of a general inability to control thoughts in a desired way, which in turn reinforces negative beliefs concerning uncontrollability of worrying.

In summary, metacognitive model of GAD emphasizes the role of metacognitive dimensions and the process of worry rather than the content of worry. Normal worry, which can be considered as common, turns into a problem when Type 1 worry is overused as a predominant coping mechanism and negative beliefs about ongoing worry, that is, Type 2 worry (meta-worry), take place. For GAD to develop fully, the opposing and therefore conflicting influences of positive and negative beliefs on thinking processes have to coexist. That is, people with GAD believe that worrying is both beneficial but also potentially uncontrollable and harmful. Both types of worrying are linked to emotional responses. Type 1 worry can produce an

initial intensification in anxiety until the goals of worrying are met. Activation of type 2 worrying produce an escalation of anxiety, and these symptoms can themselves be interpreted in a catastrophic way, leading to panic attacks in some instances. This explanation provides answer for the overlap between GAD and panic attracts. Once negative beliefs are established, two additional mechanisms as behavioural responses and thought control strategies contribute to an increased frequency and generality of worrying, and to the persistence of pathological worry characteristics of GAD. These mechanisms deprive the individual of practicing and discovering alternative strategies for appraisal and coping. Thus, negative beliefs concerning uncontrollability fail to be disconfirmed.

4.2.1. Empirical support for the metacognitive model of GAD

Empirical evidence for the model supports many central predictions in the model. In many studies, it has been shown that both positive and negative metacognitions are strongly and positively associated with pathological worry (Cartwright-Hatton & Wells, 1997; Davis & Valentiner, 2000; Papageorgiou & Wells, 1999; Wells & Carter, 1999; Wells & Papageorgiou, 1998). Supportingly, correlational studies focused on specific aspects of metacognition have also demonstrated the association of negative beliefs concerning uncontrollability and danger with worry (de Bruin, Muris, & Rassin, 2007).

In support of the prediction relevant to positive beliefs about worry, Borkovec and Roemer (1995) found that individuals scoring high in worry and meeting criteria for GAD reported positive reasons for worrying, and their ratings for positive reasons for worrying were higher than non-anxious controls. Wells and Papageorgiou (1998) examined the association of metacognitive factors with pathological worry while controlling for the possible overlap between pathological worry and obsessive-compulsive symptoms in a non-clinical sample. Both positive and negative beliefs about worry were found as significant associates of pathological worry.

In many of these studies, negative beliefs about worry and associated Type 2 worry appear to be a better predictor of pathological worry than positive beliefs about worry and associated Type 1 worry. Using a non-patient population, Wells and Carter (1999) examined the relative contribution of Type 1 and Type 2 worry to pathological worry as measured by the Penn State Worry Questionnaire (PSWQ; a measure of pathological worry like that found in GAD). The results indicated that

Type 2 worry is a better associate of pathological worry than Type 1 worry, as proposed by the metacognitive model of GAD. In Papageorgiou and Wells' study (1999) it was demonstrated that negative metacognitive beliefs concerning worry, as well as rumination, were associated with anxiety and depression (as measured by Beck Anxiety Inventory and Beck Depression Inventory, respectively) when the overlap between depression and anxiety was controlled. This finding provided support to the idea that anxious individuals have negative beliefs about their thinking processes and this phenomenon is independent on depression.

Cartwright-Hatton and Wells (1997) also compared GAD patients with other anxiety disorders, depressive disorders, OCD patients, and non-patient controls. Results indicated that patients with GAD and OCD showed significantly higher levels of negative beliefs about worry than the other groups. Similarly, in Wells and Carter's study (2001), patients with GAD had significantly higher levels of negative beliefs about worry and meta-worry than patients with panic disorder, social phobia, or non-patient controls. In addition to this, when the effect of Type 1 worry was partialled out, the differences observed between patient groups remained significant. On the other hand, the level of positive beliefs about worry was found as equivalent across these patient groups. In Wells and Papageorgiou's study (1998), negative and positive beliefs about worry emerged as a significant associate of pathological worry, after the common variance with obsessive-compulsive symptoms were controlled. In another test of the model, Nassif (1999) found using a Lebanese sample that the individual contribution of Type 2 worry to the variance in pathological worry was significant, even after controlling for the level of trait anxiety and Type 1 worry. Also Davis and Valentiner's study (2000) provided support for the model by demonstrating that patients with GAD reported significantly higher scores of positive and negative beliefs about worry than non-anxious and nonworried-anxious groups.

Some of these studies provide evidence for the specificity of negative beliefs about worry to pathological worry, and to GAD patients. However, positive beliefs about worry do not seem to appear specific to GAD and do not distinguish GAD patients from other patients and controls (Wells & Carter, 2001). Rather, they are more generally linked with worrying, supporting the idea that treatment of GAD should focus on the alteration of negative beliefs about worry instead of just challenging the content of Type 1 worries (Wells, 1997, 1999).

It should be noted that these data do not give answer to the questions of the causal status of metacognitive factors in the development of GAD and there is not a large amount of evidence supporting the causal role of Type 2 worry. The only study examining the causal metacognitive predictors of GAD was conducted by Nassif (1999). In her prospective study, the presence of GAD among the participants was predicted using logistic regression. A non-patient student sample was tested at Time 1 and Time 2, 12-15 weeks apart. The results revealed that Type 2 worry was related with GAD status at Time 2, even after GAD status measured at Time 1 was controlled.

In addition to positive and negative beliefs, lack of cognitive confidence was found to be the other unique predictor of worry while controlling for trait anxiety and covariance of other metacognitive variables (Davis & Valentiner, 2000; Cartwright-Hatton & Wells, 1997). According to the S-REF model people with emotional disorders are “locked-into” repeated cycles of dysfunctional self-processing, which consequently results in loss of coping resources and impaired control over processing (Wells & Matthews, 1994, 1996, Wells, 2000). The array of these factors leads to meta-appraisals of lowered cognitive confidence, which may reflect accurate metacognitive appraisals of actual impairment, as well as inaccurate metacognitive judgments (Wells, 2000). Also, some emotional disorders are associated more with the appraisals of cognitive efficiency, depending on the different levels of chronicity of the state of “locked-in” among disorders (Wells, 2000). Wells and Papageorgiou (1998) showed that although lack of cognitive confidence was significantly and positively associated with pathological worry, it did not appear as an independent predictor of worry when the overlap between worry and o-c symptoms and all other metacognitive factors were controlled. Authors concluded that the significant association of other metacognitive variables with pathological worry suggests that these metacognitive factors mediate the relationship between cognitive confidence and pathological worry.

4.2.2. Clinical implications of the metacognitive model of GAD

The metacognitive model of GAD has come into sight first among the other metacognitive models of emotional disorders since the cognitive-behavioural therapies (CBT) for GAD, which mainly focus on challenging and restructuring worry content of dysfunctional cognitions (Type 1 worry) and maladaptive schemata,

have been demonstrated as producing poor treatment efficacy and only half of the GAD patients achieved high functioning following CBT (Durham & Allan, 1993; Fisher & Durham, 1999). In order to improve the response rate in CBT interventions, metacognitive model of GAD suggest that not only positive beliefs about worry but also negative appraisals and beliefs about it should be targeted for modification. This model also proposes alternative non-worry based strategies for processing and coping with threat. Wells (2000) suggests a particular sequence during treatment: (1) socialization of the patient should be targeted by providing education about the model and aims of the treatment, (2) negative appraisals and beliefs about the uncontrollability of worry should be determined and targeted for change, (3) negative appraisals and beliefs about the dangers of worrying should be elicited and modified, (4) formulation and challenging of positive beliefs about worry, (5) alternative strategies for appraising and processing threat should be introduced, and finally (6) relapse prevention should be addressed. Focusing on negative beliefs before dealing with positive ones about worry has some advantages (Wells, 2000). First of all, negative beliefs are more associated with acute anxiety than positive ones. Also, challenging negative beliefs about uncontrollability of worry first increases compliance with subsequent behavioural experiments used for encouraging patients to lose control worry to challenge beliefs about the dangerousness of worrying. To elicit metacognitive beliefs, advantages/disadvantages strategy (whilst advantages reflect positive beliefs, disadvantages indicate negative beliefs about worrying), and questioning about the consequences of worry, as well as self-report measures such as Meta-Cognitions Questionnaire-30 (MCQ-30) can be used. Verbal challenging and reattribution such as evidence-counterevidence, mismatch strategies, and behavioural experiments such as thought suppression and worry postponement experiments as means of challenging and modifying negative and positive metacognitive beliefs can be used. Particularly, in worry postponement experiments, patient is asked to detect the onset of worry and postpone worrying until a specified time later in the day. Patient is free to decide either worry or not to worry when the specified time arrives. In addition to these, the strategy of positive endings for “what if” thoughts is used for developing alternative strategies about threat. The details for the treatment protocol and strategies to be used for the implementation of the metacognitive therapy for GAD can be found in Wells (1997, 2000). This metacognitive therapy protocol has

been shown as an effective way of treatment for GAD patients by a single case study (Wells, 1995) and an open trial study (Wells & King, 2006).

4.3. Metacognitive Model of Obsessive-Compulsive Disorder

The metacognitive model of OCD was initially forwarded by Wells and Matthews (1994) based on the S-REF model, and subsequently refined by Wells (1997, 2000). This model postulates that the negative interpretations of obsessional thoughts as a form of intrusive thought are the result of metacognitive beliefs about the meaning and/or dangerous consequences of having this thought. This model puts emphasis on two domains of belief: (1) beliefs about the meaning/importance of intrusive thoughts and (2) beliefs about perform rituals (e.g. need to control thoughts).

According to metacognitive model of OCD, an intrusive thought or doubt, or feeling can act as a trigger for metacognitive beliefs concerning the meaning of this particular trigger. Metacognitive beliefs about intrusions can fuse the boundaries between thoughts and actions, thoughts and events, and thought and objects. Consequently, metacognitions about obsessive thoughts are broadly divided into three categories: (1) thought action fusion (TAF; Rachman, 1993) which refers the belief that having a particular thought will make an action actually occur (TAF-Likelihood) and having an intrusive thought is morally equivalent to doing a prohibited action (TAF-Morality), (2) thought event fusion (TEF; Wells, 1997) which refers to the belief that having a thought can cause that an event is happening or must have happened already, and (3) thought object fusion (TOF; Wells, 2000) which refers to the belief that thoughts, feelings, or memories can be transferred to other people or objects. This last category has been offered as associated with a subgroup of contamination obsessions (Wells, 2000). In an OCD patient, one or more of these three domains may be present.

In the metacognitive formulization, not only beliefs about intrusive thoughts, but also the meaning of impulses and “feelings” has an important influence on the development and persistence of o-c symptomatology. Many OCD patients believe that negative impulses or emotions will become unbearable, dangerous, or enduring if compensatory actions are not taken. That is, apart from the beliefs about intrusive thoughts, obsessional individuals hold beliefs about rituals and behavioural responses. Beliefs of this kind divided into positive and negative beliefs about rituals

and behavioural responses. The examples of positive beliefs include “If I wash without thinking a bad thought, bad things won’t happen”, “I must perform my ritual or else the feeling will never end”; and of negative beliefs include “My rituals are out of control”, “My mental rituals could damage my body”. Positive and negative beliefs about available responses affect the selection and execution of behaviours, and affect the strength of short term emotional responses.

In addition to fusion related metacognitive beliefs about intrusions and beliefs about need to control thoughts and rituals, the model also highlights other categories of metacognitive beliefs such as an intensified cognitive self-consciousness. Excessive attention to thought processes augments the possibility of detecting unwanted thoughts, and may trigger intrusions. As for the cognitive component that contribute to checking compulsions is the tendency to focus on internal events such as doubts and fantasies related with the consequences of not performing an action (Wells & Matthews, 1994). Since this tendency decreases confidence in memory for actions/events, it may lead to checking behaviour. In addition to this tendency, beliefs about the advantages of checking may contribute to checking behaviours, as well. The usage of dysfunctional internal criteria for guiding cognition and behaviour is also salient in the termination and persistence processes of rituals. Internal criteria, such as “perfect” memories of events, or “felt senses”, such as “feelings of certainty” may act as stop signals for overt and covert rituals.

Two further mechanisms contribute to the development and maintenance of o-c symptoms: (1) emotional and (2) behavioural responses to these appraisals of intrusive thoughts, feelings, and rituals. These negative emotions and behavioural reactions themselves maybe misinterpreted as a sign of loss of control or a sign of other sources of dangers with respect to intrusions, strengthening misappraisals and dysfunctional beliefs about intrusions and rituals. Moreover, both kinds of responses may further increase the range of intrusions. For example, emotional reactions may decrease the thresholds for the detection of obsessional stimuli. Behavioural responses enhance unwanted thoughts by means of three mechanisms. First, efforts to suppress thoughts can lead to an intensified awareness of intrusive thoughts. Second, efforts to focus on intrusions or trying to mentally neutralize them may sustain preoccupation with thoughts, increasing the likelihood of intrusions. Third, performing rituals such as cleaning and checking in a continuous basis creates

associative connections between a broad range of stimuli and intrusions, broadening the range of stimuli that can trigger intrusions.

The metacognitive model of OCD might be seen as similar to approaches such as Salkovskis' (1985, 1989) and Rachman's (1997, 1998) appraisal based cognitive models of OCD which emphasize the critical role of an individual's appraisal of obsessional thoughts and responses to such thoughts. Actually, metacognitive beliefs and processes have been implicitly included in these cognitive models of OCD (Cohen & Calamari, 2004; Purdon & Clark, 1999; Wells, 2000). On the other hand, these theories give emphasis to different types of beliefs and thus, the content of the appraisals differs across models (Gwilliam et al., 2004; Myers & Wells, 2005). For example, "inflated responsibility appraisals" is the chief cognitive focus in Salkovskis' OCD model. According to Salkovskis, obsessional individuals have a tendency to appraise intrusions in a negative way. To illustrate, they feel responsible for the harmful consequences of the intrusion(s). Particular beliefs entitled as TAF as mentioned above (e.g., "Having a thought about an action is equivalent to performing the action") are suggested as responsible for the emergence of such kinds of responsibilities for the intrusion(s). Although it seems that this approach implicitly includes metacognitive beliefs, the metacognitive factors have not been explored explicitly and in detail. On the other hand, in the metacognitive formulation of OCD, responsibility is viewed as a by-product of metacognitions, and this proposition is empirically supported by several studies (Gwilliam et al., 2004; Myers & Wells, 2005). In these studies, it was demonstrated that although responsibility is an associate of o-c symptoms, it was not an independent predictor of o-c symptomatology when metacognitive variables were controlled for but metacognitions positively related with o-c symptoms independently of responsibility.

As mentioned before, metacognitive beliefs and processes have an important role in activating coping strategies with perceived threat (Wells, 2000). In the context of OCD, such strategies include thought suppression, neutralizing, and checking. The nature of the appraisal activated by the intrusive thought determines the specific strategy to be selected. If the thought is appraised as indicating a future threat, the selected strategy will be neutralizing, whereas checking will be used as a coping strategy if the thought is appraised as indicating a threat that has already happened.

4.3.1. Empirical support for the metacognitive model of OCD

Empirical support for the metacognitive model of OCD comes from evidence that elevated metacognitive beliefs are associated with elevated o-c symptoms, irrespective of the level of overlapping worry (Wells & Papageorgiou, 1998). In different studies, different dimensions of metacognitions have been demonstrated as associates of o-c symptoms. In Myers and Wells' study (2005) which examines the relative contributions of responsibility and metacognitions to o-c symptoms, metacognitive variables of need to control thoughts and beliefs about uncontrollability and danger are accepted as central markers of the metacognitive beliefs implicated by the metacognitive model. In particular, the need to control thoughts was accepted as a marker for the component of the model concerning beliefs about rituals. In many studies these two cognitive constructs were found to be positively associated with o-c symptoms (Gwilliam et al., 2004; Myers & Wells, 2005; Hermans et al., 2003; Wells & Papageorgiou, 1998).

Emmelkamp and Aardema (1999) conducted a study on the inhabitants of a city in the Northern part of the Netherlands to examine whether specific cognitive domains are associated with specific obsessive-compulsive symptoms. They found that although specific domains of obsessional beliefs are related with specific obsessive-compulsive behaviours, metacognitive beliefs of inverse inference which is a belief similar to TEF, and thought-action fusion appeared as substantially important for all kinds of obsessive-compulsive behaviours, after controlling for depression. Similarly, de Bruin et al. (2007) used a community sample drawn from Netherlands to investigate the specific metacognitions associated with symptoms of worry and obsessional thoughts. As metacognitive variables, they focused on meta-worry representing the negative appraisal of intrusive thought, cognitive self-consciousness, and thought suppression as a variant of metacognition. Their results showed that meta-worry emerged as the independent predictor of both worry and o-c symptoms. However, thought suppression and cognitive self-consciousness were shown as unique predictors of only one of these symptom categories that the former was found to be relevant in predicting worry, whilst the latter found to be an associate of o-c symptoms. Moreover, this study supported the notion that meta-worry related significantly stronger with symptoms of worry and obsessive symptoms than did the cognitive self-consciousness and thought suppression.

In the OCD literature, metacognitive dimension of cognitive self-consciousness, which refers to the tendency to monitor one's own thoughts and focus attention inwards, has received increasing attention. This growth in interest has focused on the role of cognitive self-consciousness in distinguishing OCD patients from the other clinical groups including never hallucinated patients and recovered hallucinators with schizophrenia (Garcia-Montes et al., 2006), patients with GAD (Cartwright-Hatton & Wells, 1997), other anxiety disorders (Janeck, Calamari, Riemann, & Heffelfinger, 2002), and non-clinical controls (Cohen & Calamari, 2004; Garcia-Montes et al., 2006; Hermans et al., 2003; Janeck et al., 2002). In all of these studies, patients with OCD scored significantly higher than other groups on cognitive self-consciousness. Furthermore, the cognitive self-consciousness scores of OCD patients significantly differed from the other anxiety disorders group and from non-clinical controls even after controlling for general anxiety and depression; and after controlling for the effects of other relevant cognitions such as appraisals/interpretations of intrusive thoughts and OCD related beliefs or cognitive content (Janeck et al., 2002). Cohen and Calamari (2004) examined the relationship between cognitive self-consciousness and o-c symptoms in a large non-clinical sample. Their results showed that cognitive self-consciousness was a significant associate of o-c symptoms after the effect of trait anxiety and appraisals about intrusive thoughts were partialled out. Intrusive thought appraisals also predicted OCD symptoms after controlling for trait anxiety and cognitive self-consciousness, indicating that both cognitive self-consciousness and appraisals of intrusive thoughts were unique associates of o-c symptomatology. Cohen and Calamari (2004) has concluded that cognitive self-consciousness seems to be distinguishable from appraisals of intrusions and it may have a role in the process of turning normal intrusions to abnormal obsessions.

Taken together all of these findings indicating a distinct and independent relationship pattern between cognitive self-consciousness and o-c symptoms (Cartwright-Hatton & Wells, 1997; Cohen & Calamari, 2004; de Bruin et al., 2007; Garcia-Montes et al., 2006; Hermans et al., 2003; Janeck et al., 2002), it might be stated that among the other metacognitive components, the tendency to be excessively aware of thinking could be the most salient and empirically supported metacognitive characteristic of OCD patients.

Apart from cognitive self-consciousness, cognitive efficiency was also empirically demonstrated as linked to o-c symptomatology. For example, Wells and Papageorgiou (1998) showed that lack of cognitive confidence was positively associated with o-c symptoms of checking, washing, dressing, impulses and obsessional thoughts. However, as mentioned in section 4.2.1 for worry, cognitive confidence was also not a unique predictor of these o-c symptoms when the variance explained by worry and other metacognitive factors was partialled out. In fact, studies focusing on actual cognitive/memory deficit in OCD patients or individuals prone to o-c symptoms especially in terms of obsessional checking have produced inconclusive results. It has been emphasized that rather than an actual memory deficit, it is metacognitive appraisals of cognitive efficiency and control that should have more relevance to o-c symptomatology or specifically to checking obsessions (Wells & Matthews, 1994; Wells, 2000). Supporting this notion, Hermans and his colleagues (2003) showed that OCD patients differed from non-anxious control group with respect to lack of cognitive confidence.

In Cartwright-Hatton and Wells' study (1997), the other dimension that OCD patients differed significantly from all other groups (emotional disorders other than GAD and OCD and normal controls) was negative beliefs concerning uncontrollability and danger dimension. As also mentioned in section 4.2.1, the only group from which OCD patients did not differ significantly on negative beliefs about worry was GAD patients. Hermans et al. (2003) also demonstrated that apart from cognitive self-consciousness and lack of cognitive confidence, OCD patients differed from non-anxious control group with respect to negative beliefs about worry. However, there was not a significant difference between OCD patients and control group in positive beliefs about worry, as consistent with the assumptions of metacognitive theory.

Based on the metacognitive model of OCD, Fisher and Wells (2005) proposed that the anxiety level and the urge to engage in neutralizing behaviours (compulsions) seen in OCD patients would decrease as a result of modifying metacognitive beliefs about intrusions. To test this prediction, they challenged OCD patients' metacognitive beliefs using a brief (5 min) exposure to obsessional stimuli (intrusive thoughts) and response prevention experiment (ERP-E) designed to test the validity of metacognitive beliefs seen in the form of thought-fusion beliefs (TAF,

TEF, and TOF). In this procedure, response prevention helps patient to attribute the non-existence of imagined catastrophe to the incorrectness of the metacognitive belief rather than to the performance of a ritual (Wells, 2000). This behavioural experiment (ERP-E) was compared with a brief traditional ERP based on the habituation rationale. The traditional ERP is different from the ERP-E in terms of the lack of an explicit framework that enables patient to metacognitive processing of the validity of beliefs about intrusions. Each subject received each of these experimental conditions. In the ERP-E condition, the session began by eliciting the patient's main metacognitive beliefs about their intrusions by asking the patient about the meaning and dangers of his/her intrusions (Wells, 2000). Supporting metacognitive theory of OCD, the results indicated that ERP-E accompanied by a metacognitive rationale was significantly more effective than ERP accompanied by a habituation rationale in reducing conviction in metacognitive beliefs, anxiety, and the urge to neutralize.

4.3.2. Clinical implications of the metacognitive model of OCD

The metacognitive model improves our understanding of OCD in two critical ways (Purdon & Clark, 1999). First, the conceptualization of beliefs about thoughts elucidates the "source" of many types of negative and dysfunctional appraisals of obsessions suggested by the other cognitive formulations of OCD. Second, the conceptualization that people may actively select their coping strategies on the basis of their beliefs about the consequences of these strategies give us a widened perspective of why obsessions are so resistant to change. As Purdon and Clark (1999) argued, changes in such metacognitive beliefs and processes may indirectly occur as an implicit result of strategies used in the existing treatment protocols, such as exposure and response prevention. However, an explicit and direct focus on identifying and modifying metacognitive beliefs about cognitive functioning and coping strategies may increase the effectiveness of treatment (Purdon & Clark, 1999; Wells, 1997, 2000). In addition to focusing on metacognitive beliefs about the obsession itself (including domains of TAF, TEF, and TOF), beliefs about the need to control thoughts or perform rituals should also be targeted for clinical interventions (Wells, 1997, 2000). In other words, all levels of beliefs in relation to obsessions should be taken into account and specific interventions that target the metacognitive beliefs and processes, rather than just content, should be used in the treatment protocols (Purdon & Clark, 1999; Wells, 1997, 2000).

Since OCD patients accept their appraisals about the meaning of intrusions as representing facts of reality without evaluating them (i.e., they are in object mode), the first step in implementing metacognition-focused treatment should be to change the processing mode of patients from object to metacognitive mode so that OCD patients learn that intrusive thoughts and feelings are inconsequential and people can experience them without the need to actively process and act on them. As a useful strategy for facilitating this training process, guided discovery can be applied. Since reducing the frequency of obsessions is an early treatment aim, advantages/ disadvantages analysis and worry postponement experiments can be used for this purpose. In addition to these, “detached mindfulness” and attention training (ATT) may be the other specific techniques which would be useful for interrupting perseverative processing and gaining distance from intrusive obsessions by activating the metacognitive mode of processing. Detached mindfulness (DM) is a mental state in which the person is cognitively de-centered and disengaged from thoughts and appraisals in order to accept them just as events or objects in the mind that are not necessarily representing reality (Wells & Matthews, 1994; Wells, 2005). At this juncture, DM can be accepted as the opposite of CAS since it includes a meta-awareness of thoughts, metacognitive mode of processing, flexible attention or “attentional detachment”, a diminished analysis -interpretation and assessment- of thoughts, and finally a low goal oriented coping behaviours aiming to reduce or avoid threat (Wells, 2005).

One of the main treatment goals of the metacognitive-focused therapy is to elicit and challenge or “cognitive de-fusion” of thought-fusion beliefs and appraisals about intrusions, rather than a goal of stopping intrusions, which gives an impression to the patient that obsessions need to be acted on. In the metacognitive treatment, following the socialization of the patient to the treatment, verbal strategies, behavioural experiments and exposure to thoughts and response prevention are used as means of testing metacognitive beliefs and processes about obsessional thoughts. Moreover, the worry raised by the negative appraisals of the obsessive thoughts should also be reduced (Purdon & Clark, 1999; Wells, 1997, 2000). Since OCD patients use maladaptive internal criteria to initiate, maintain, and terminate rituals, eliciting and modification of these internal criteria should be targeted. Usually, a dysfunctional memory-based criterion, such as failure to remember particular events

as an evidence of committing unwanted behaviours, guides these rituals. A hypervigilant attention to threat related cues such as an increased self-consciousness and monitoring for mental events might be the other internal criterion for self-regulation. As a means of modification of attentional priorities, patients' plan should be replaced with an alternative plan for attention and processing. It would be better if this alternative plan is the opposite of the plan normally used by patients. Within treatment memory tests and techniques that make the action "stand out" in memory can be useful to deal with the appraised reduction in memory function.

4.4. Metacognitive Model of Depression

Like the other metacognitive models mentioned above, the metacognitive model of depression was also recently developed by Papageorgiou and Wells (2003) on the basis of the S-REF model (Wells & Matthews, 1994). In particular, the S-REF model accepts rumination as a cognitive process that is common to a range of emotional disorders (Matthews & Wells, 2004; Wells & Matthews, 1994, 1996). As stated in section 3.2.1, the S-REF model suggested perseverative negative thinking, in the form of rumination or worry, as one of the important factors playing role in the development and maintenance of emotional disorders. In this model, the information processing mechanisms that are involved in initiation and persistence of rumination are proposed as the knowledge base or beliefs that predispose individuals to select and engage in rumination. In other words, in case of depression, the cognitive attentional syndrome (CAS) takes place in the form of rumination, and lead to chronic, intensified, and inflexible self-focused attention, activation of dysfunctional beliefs about the self, decreased cognitive functioning, and attentional biases. All levels of information processing is guided by metacognitive beliefs that affects both the content of appraisals and the coping strategies (such as rumination) selected by the individual. Negative automatic thoughts experienced in depression may be products of the low level of automatic processing. Interacting with the self-relevant knowledge, supervisory executive detects the discrepancies between the current state and personal goals, and selects the coping strategy which is appraised by individual as useful. Therefore, rumination can be a product of both automatic and controlled levels of processing. The S-REF processing terminates if the selected coping strategy is successful in eliminating the self-discrepancy. If the coping strategy is appraised as failed to solve the problem, the self-discrepancy remains, which gives rise to

ruminations, sadness, and depression. Note that, coping strategies directed to inwards may be counterproductive since they increase self-focused attention and awareness of the self-discrepancy. In addition, coping strategies in the form of thought control may paradoxically rebound the accessibility of negative self-beliefs. Based on these theoretical accounts, rumination is defined from the S-REF's perspective as "repetitive thoughts generated by attempts to cope with self-discrepancy that are directed primarily toward processing the content of self-referent information and not toward immediate goal-directed action" (Matthews & Wells, 2004, p.131-132).

Rumination derives in part from metacognitive beliefs about the usefulness and consequences of rumination as a coping strategy and self-regulation (Matthews & Wells, 2004). These metacognitive beliefs can be explicit and verbally declarative, as well as implicit plans that guide self-regulation. The explicit metacognitive beliefs about ruminations can be either positive or negative in nature. Papageorgiou and Wells (2001a) examined the occurrence and content of metacognitive beliefs in recurrent major depression patients without comorbid Axis I disorders. Their data collected using semi-structured interviews provided us with a range of positive and negative metacognitive beliefs, supporting the idea that patients with depression hold positive and negative beliefs about rumination. The main theme of positive beliefs revealed that rumination is used as a coping strategy. Examples of positive beliefs about rumination includes "Ruminating about my problems helps me to focus on the most important things", "I need to ruminate about my problems to find answers to my depression", "Ruminating about the past helps me to prevent future mistakes and failures". It can be seen that positive metacognitive beliefs about rumination is consistent with Nolen-Hoeksema's (1991) definition of rumination as a repetitive and passive focus on one's symptoms of depression and the possible causes and consequences of these symptoms. The main theme of the negative beliefs about rumination divided into two categories as negative beliefs concerning the uncontrollability and harm of rumination (e.g., "I cannot stop myself from ruminating", "Ruminating could make me harm myself") and the interpersonal and social consequences of rumination (e.g., "Everyone would desert me if they knew how much I ruminate about myself", "People will reject me if I ruminate"). The metacognitive beliefs determined in this study were subsequently used to construct

positive beliefs about rumination scale (PBRS; Papageorgiou & Wells, 2001b) and negative beliefs about rumination scale (NBRS; Papageorgiou, Wells, & Meina, in preparation).

According to metacognitive model of depression (Papageorgiou & Wells, 2003; Wells, 2000), individuals who have positive beliefs about rumination engage in rumination as a coping strategy. That is, positive beliefs increase the motivation to engage in persistent rumination as a response to depressed mood. As a result of the negative consequences of this processing style, negative beliefs and appraisals about rumination are activated. Mediating the relationship between rumination and depressive symptoms, negative beliefs contribute to the experience of depression. The content of the negative beliefs about rumination focus on two domains: (1) uncontrollability and dangerousness of rumination (negative beliefs 1), (2) detrimental interpersonal and social consequences of rumination (negative beliefs 2). In other words, dichotomous metacognitive knowledge consisting of positive and negative beliefs about rumination processes is responsible for the development and maintenance of depression.

Another metacognitive construct that is suggested as potentially contributing to the development and maintenance mechanisms of depression is cognitive confidence (Papageorgiou & Wells, 2003). Authors argued that lower levels of cognitive confidence contributes to negative beliefs about interpersonal and social consequences of rumination and provides basis for the maintenance of positive beliefs about rumination in order to facilitate effective coping.

4.4.1. Empirical support for the metacognitive model of depression

Empirical evidence for the role of metacognition in depression is steadily accumulating, supporting the many central predictions in the model. In Papageorgiou and Wells' studies (2001b, 2003) conducted on non-clinical samples, positive beliefs about rumination as measured by the PBRS were found to be significantly and positively correlated with rumination and severity of depression. This result was also confirmed in depression patients (Papageorgiou & Wells, 2001a, 2001b, 2003; Watkins & Moulds, 2005). Whilst cognitive confidence was found to be positively correlated with depression in the clinical sample, this result did not support such a relationship pattern in the non-clinical sample. Papageorgiou and Wells' study

(1999) showed that negative metacognitive beliefs concerning rumination, as well as worry, were associated with depression and anxiety (as measured by Beck Depression Inventory and Beck Anxiety Inventory, respectively) when the overlap between depression and anxiety was controlled. This finding provided support to the idea that depressive individuals negatively appraise their thinking processes and this is independent on anxiety. Negative beliefs concerning uncontrollability and danger of rumination (NBRS1) and concerning interpersonal and social consequences of rumination (NBRS2) were also demonstrated as positively and significantly associated with rumination and depression severity in both non-clinical and clinical samples (Papageorgiou & Wells, 2003). In addition, the results of the Papageorgiou and Wells' study (2001b) supported the mediator role of rumination between positive beliefs and state and trait depression. The authors have also focused on between-group comparisons and determined that both positive and negative beliefs about rumination distinguished patients with major depressive disorder (MDD) from patients with panic disorder with agoraphobia and patients with social phobia, and non-clinical controls.

Papageorgiou and Wells (2003) tested the statistical fit of the metacognitive model of depression using structural equation modeling. As a result of this analysis, a good model fit indicating the validity of metacognitive model of depression was obtained in clinically depressed patients. That is, positive beliefs were found to be associated with ruminations in response to depressed mood, whilst negative beliefs mediated the relationship between rumination and depressive symptoms. In addition to these, lack of cognitive confidence seemed to be a by-product of depression and of positive and negative metacognitive beliefs about rumination. On the other hand, the fit of the suggested model was not good in the non-clinical sample and the results obtained from this sample were evaluated as indicating a structurally somewhat different model (Papageorgiou & Wells, 2003).

In general, data evidencing the occurrence of positive and negative beliefs in patients with depression seems to support the idea that the beliefs hold by depressed patients may be similar to the beliefs that patients with GAD hold about worry (Papageorgiou & Wells, 2001a). From this viewpoint, the authors argued that some common underlying metacognitions shared by GAD and MDD patients may explain the substantial comorbidity between these disorders.

4.4.2. Clinical implications of the metacognitive model of depression

In the light of the empirical findings reviewed above, it can be stated that interventions designed for treatment of depression should also focus on the assessment and modification of positive and negative beliefs about rumination, rather than just content of ruminative thinking in depression (Papageorgiou & Wells, 2001b, 2003, 2004). Particularly, strategies such as cost-benefit analyses of positive beliefs about rumination and verbal reattribution of negative beliefs about rumination may be useful in order to modify positive and negative beliefs about rumination. Furthermore, strategies directed towards increasing metacognitive control or flexibility may improve effectiveness of the treatment and be beneficial in the prevention of recurrence of depression (Wells & Matthews, 1994). Attention Training Treatment (ATT; Wells, 1990, 2000) was particularly developed to prevent or interrupt self-focused attention and the other non-specific processes associated with CAS, and to increase the control over attention and metacognition. Therefore, this technique does not require tailoring to specific disorders and is useful in disturbing the activation of problematic styles of thinking and processing associated with particular disorders. In this way, it would be beneficial in facilitating the development of new knowledge for directed functional processing. The effectiveness of ATT in treatment of patients with recurrent major depressive disorder was examined using a single-case series design (Papageorgiou & Wells, 2000). After no-treatment baselines were determined, the ATT was implemented to the patients with recurrent major depression. Following ATT, clinically significant improvements in the measures of metacognition (negative beliefs about worry and cognitive self-consciousness), rumination, and symptoms of depression and anxiety were achieved for all patients. Follow-up assessments taken place 3, 6, and 12-month apart demonstrated that there were not any significant increases in these measurement units and the effects of ATT were maintained.

5. Differences between Meta-Cognitive and Cognitive Theories

Rather than being a totally different approach from cognitive theory, metacognitive theory can be accepted as a specific form of it. Several similar and overlapping aspects of both appear to exist, as well as the different ones. The main similarity between metacognitive and cognitive theories is that both of them suggest that emotional disorders develop on the basis of self-relevant beliefs (Wells, 2000).

In particular, metacognitive theory has been developed to overcome the limitations of the cognitive theory and to advance the treatment efficacy of emotional disorders. Therefore, it would be useful to review the differences between these approaches, rather than their similarities.

First of all, the level of cognition focused in the theoretical, and thereby, in the therapeutic framework is an important difference between cognitive and metacognitive approaches. Whilst the main focus in the cognitive theory is the *content* of thoughts, the metacognitive theory provides an integrated account of other relevant levels and varieties of cognitions as well as the content level. Unlike cognitive theories of emotional disorders, the metacognitive theory emphasizes that dysfunctional schemata and beliefs are composed of a metacognitive component guiding to individual's thoughts and coping mechanisms. Consequently, metacognitive theory focuses on clarification of the underlying mechanisms responsible for the development and modification *processes* of the content of thought. By doing so, the main question metacognitive theory asks about cognition is "how" instead of "what" type of questions since it is believed that by focusing on "how" questions answers to "what" type of questions can necessarily be found. As a result of this notion, proceeding above and beyond specific belief domains correspond to specific disorders, metacognitive theory emphasizes a fundamental restructuring by focusing on underlying cognitive plans, dynamic processing configurations, information processing styles, and self-regulation that have a role in the development of these specific belief domains. In brief, on the basis of its theoretical accounts and depending on the emerging empirical evidence, multiple ranges of cognitive components including process and metacognitive dimensions of thought, instead of focusing predominantly on the thematic content of thought in emotional disorders, have been addressed in metacognitive theory (Wells, 2000). Wells and Purdon (1999) stated that although cognitive models of psychopathology, especially OCD, have recently begun to stress the role of beliefs about one's own thoughts and appraisal of thoughts themselves, these models have not implicitly focused on metacognitive dimensions of these beliefs and appraisals.

In particular, the main point that metacognitive theory criticizes in cognitive theory is the schemata concept which lies under the cognitive formulations of emotional disorders (Beck, 1976). Metacognitive theory states that it is not a useful

viewpoint to see schemata as disconnected information that can be erased in the therapy process and replace with more realistic propositions (Wells, 2000). Since individuals structure and revise their beliefs on the basis of internal rules, it is important for a theory to formulate the internal cognitive processes, rules, and mechanisms that helps patients to reach their dysfunctional assumptions and beliefs (Wells, 2000). Whilst the mechanisms explaining how beliefs affect cognitive processing remains unexplained in the schemata theory, metacognitive theory offers metacognitive knowledge and regulation mechanisms that guides the information processing such as attention allocation, use of coping strategies, etc.

To conclude, unlike cognitive theories of emotional disorders, the metacognitive theory concentrates on the thought processes and thinking styles in addition to thought content to explain the development of emotional disorder.

6. Focus of the Thesis: Basic Aims

In light of the relevant literature it is clear that consideration of the metacognitive perspective in the formulation of the development and maintenance mechanisms of psychopathology enables us to broaden the scope of cognitive approaches from focusing only on cognitive content to concentrating on other crucial aspects of cognition related to information processing. Consequently, it can be asserted that the metacognitive approach to emotional disorders have gradually begun to give a new direction to the clinical psychology literature and have a potential to effect the future psychotherapy orientations in terms of identifying the appropriate points of prevention, assessment and intervention strategies. Taken together the new metacognitive treatment techniques augment the classical framework of the cognitive therapy and as such metacognitive research seems to be a promising area for both theory and practice.

On the other hand, no studies so far have sought to clarify whether the concept of metacognition from the clinical psychology standpoint is applicable in a Turkish sample. A further question is that whether metacognitive theory can be universally generalized. Since the role of metacognition in explaining the origins and persistence mechanisms for psychopathology in different cultures is still unknown, there is a strong need for studies investigating the cross-cultural validation of the metacognitive theory. Therefore, one of the main aims of this thesis was to make a cross-cultural replication of the research in the metacognition field using both

Turkish and British samples to be able to statistically compare the results between these two groups through employing the same instruments and analysis strategies. By doing so, a preliminary insight for the cross-cultural validity of the propositions suggested by the metacognitive theory could be gained.

Despite the growing evidence base for metacognitive theory, some important aspects remain to be empirically validated. One aspect requiring exploration in the metacognitive theory, is the assertion that metacognitive beliefs enhance our knowledge about the mechanisms underlying emotional disorders beyond cognitive theory which focuses mainly on cognitive content (Wells & Matthews, 1994; Wells & Purdon, 1999). Although a considerable number of studies have supported aspects of the metacognitive model for specific emotional disorders, it is useful to determine the relative contribution of cognitive content versus metacognition to emotional dysfunction. Thus, as a preliminary investigation of this notion, it was also aimed to explore the individual contribution of metacognitive beliefs to the psychopathology above and beyond the contribution of cognitive content alone.

A review of the metacognition literature has also demonstrated that much of the evidence for the model comes from the cross-sectional and correlative designs that prevent causal interpretations. However, if metacognition is a vulnerability factor for the development of many psychological disorders as asserted in the metacognitive model of psychopathology, then a prospective test of the theory is necessary. In other words, treating a certain variable as a vulnerability factor depending only on cross-sectional analyses would not be a conservative test of the vulnerability function of the given variable. On the other hand, the mere existence of a vulnerability factor is not a sufficient condition to lead to psychological disorder, although it is necessary. Instead, a pre-existing vulnerability factor later interacts with stress to lead to psychological disturbance. Thus, in order to make a proper analysis for clarifying the vulnerability function of the metacognitive beliefs, a prospective vulnerability-stress study should be designed. Therefore, one of the main aims of the present study was to investigate metacognitive beliefs and life stress in a two time measurement design to be able to test the causal role of metacognitions as a vulnerability factor to psychopathology.

In order to achieve these generic aims of the study, a two-step research plan each of which has its own specific objectives was followed. Data for cross-sectional

and prospective parts of the study were collected from both Turkish and British samples. In the cross-sectional part, mainly the individual contribution of metacognitions to psychopathology above and beyond the contribution of cognitive content alone was separately tested in Turkish and English samples. By doing so, also the relationships between metacognition and psychological symptomatology were revealed in the Turkish sample. In the prospective part, the causal role of metacognition as a vulnerability factor was tested using a vulnerability-stress approach separately in Turkish and English samples. Whilst the results obtained from cross-sectional part were statistically compared between samples, the results from prospective part were compared from a theoretical perspective, instead of making statistical comparisons between Turkish and British samples.

6.1. Cross-Cultural Validation of the Metacognitive Theory: A Cross-Sectional Study

6.1.1. Aims and hypotheses

For the first section of this study, four objectives are stated and hypotheses relevant to each are given. Each hypothesis was tested by using data collected from both Turkish and English samples and the results were also statistically compared.

Aim 1 and Hypothesis: Meta-Cognitions Questionnaire-30 (MCQ-30; Wells & Cartwright-Hatton, 2004) has been designed to measure a range of metacognitive beliefs. This scale measures five categories of metacognition: (1) positive beliefs about worry, (2) negative beliefs about worry concerning uncontrollability and danger, (3) lack of cognitive confidence, (4) beliefs about need to control thoughts, and (5) cognitive self-consciousness. Scores on the MCQ-30 have been shown to be highly correlated with several measures of anxiety such as obsessive-compulsive symptomatology, trait anxiety, and worry (Wells & Cartwright-Hatton, 2004). The first aim of the present thesis was to investigate the psychometric properties of MCQ-30 in a Turkish population as compared to an English population. Some of the following objectives to be examined within the framework of the present study also served to test the psychometric properties of the MCQ-30, apart from serving to test the cross-cultural validation of the metacognitive theory. In addition to MCQ-30, it was also aimed to examine the psychometric characteristics of the Penn State Worry Questionnaire (PSWQ; Meyer, Miller, Metzger, & Borkovec, 1990) which is a complementary assessment device to examine the psychometrics of the MCQ-30 in a

Turkish sample. It was hypothesized that the Turkish versions of the MCQ-30 and PSWQ would be found to have a similar factor structure, and the reliability and validity as their English versions.

Aim 2 and Hypotheses: To examine the relationships between metacognition and psychopathology, it was hypothesized that higher levels of metacognitions would be associated with higher levels of psychological symptomatology, when individual differences in terms of demographic variables (age and gender) are controlled. Thereby, the study also sought to examine the relationships between demographic variables such as gender and age and metacognitive beliefs. However, since this aspect of the research was exploratory, no specific hypothesis was made. Psychological symptom categories include the levels of pathological worry, obsessive-compulsive symptomatology, anxiety symptoms, and depressive symptoms. These dependent variables were used separately for testing the same hypothesis of the study. On the other hand, since comorbid symptomatology can be a confounding factor though separate analyses have been employed, in each analysis, the other symptom domains were controlled to see whether the relationship between a specific psychological symptom category and metacognition remains statistically significant.

Within the framework of this aim, another specific aim was to test the predictions of the metacognitive model of GAD in a Turkish sample. As mentioned in section 4.2, this model suggests that normal worry (Type 1 worry) turns into a pathological form not because of the negative thought content that is seen in anxiety disorders (e.g., “Something awful is going to happen”), but rather, because of negative beliefs about worry which is closely linked to Type 2 worry. Consequently, it was hypothesized that the relationship between anxious cognitive content and pathological worry should be mediated by negative beliefs about worry concerning uncontrollability and danger, after controlling for positive beliefs about worry, comorbid symptoms, and individual differences in terms of demographic variables (age and gender).

Aim 3 and Hypothesis: A review of literature in the metacognition field demonstrates that specificity of relationships between particular metacognitive dimensions and particular disorders is an issue that largely remains to be explored. Certain types of cognitive contents are strongly implicated for some disorders in

cognitive theory. Therefore, it might be asserted that certain types of metacognitive processing components would be more important for some specific disorders than the others. With this respect, a domain specific examination of metacognitions across different symptomatology groups seems to be meaningful (Bouman & Meijer, 1999; Semerari, Carcione, Dimaggio, Falcone, Nicolo, Procacci, & Alleva, 2003). Thus, the other hypothesis to be investigated in the first study was that some aspects of metacognition would be associated with some types of psychological symptomatology better than the others. The specific symptomatology groups were the same given above and this hypothesis was tested separately for each.

Aim 4 and Hypotheses: As stated above, it is asserted that the metacognitive approach enhances our understanding of psychopathology especially in terms of emotional disorders beyond the scope of cognitive theory which concentrates mainly on cognitive content (Wells, 2000; Wells & Matthews, 1994; Wells & Purdon, 1999). However, only a few studies have directly focused on the examination of this notion so far (Gwilliam et al., 2004; Myers & Wells, 2005) and these studies were conducted in the context of obsessive-compulsive disorder. Therefore, one of the core aims of this thesis was to make a preliminary investigation of the individual contribution of metacognitive beliefs to psychopathology above and beyond the contribution of cognitive content alone. It was hypothesized that metacognitions would still account for a significant proportion of variance in the symptoms of anxiety and depression even after controlling for anxious and depressogenic cognitive content and demographic variables. Furthermore, it was hypothesized that metacognitions would be more strongly associated with the symptoms than cognitive content. Again, the other symptom domains were controlled for in each analysis.

6.2. Causal Role of Metacognitions in the Development of Psychopathology Following Stress: A Prospective Study

6.2.1. Aims and hypotheses

The second step of this study was related to examination of the metacognition concept in terms of its proposed function as a vulnerability factor to psychopathology. The associations between metacognitive beliefs and emotional disorder categories do not mean that metacognition is a generic causal factor for psychological disorders. If metacognition is a vulnerability factor for the development of many psychological disorders as asserted in the metacognitive model

of psychopathology, then a test of vulnerability-stress model investigating the interaction of metacognitive beliefs and stressful life events is necessary.

Aim 1 and hypothesis. Prior to testing the causal role of metacognitions, it was aimed to study on the psychometric properties of two stress measures, namely Life Experiences Survey (LES; Sarason, Johnson, & Siegel, 1978) and Inventory of College Students' Recent Life Experiences (ICSRLE; Kohn, Lafreniere, & Gurevich, 1990) in a Turkish sample. Two different stress measurement devices were chosen since they represent different sources of stress that threaten self-regulation. While the LES assess the major life events experienced during the past year with 6-month interval options, the ICSRLE is a measure designed to assess college students' daily hassles levels experienced over the past month, and without contamination of psychological symptoms and subjective distress. It was hypothesized that the Turkish versions of the LES and ICSRLE would be found to have psychometric qualities that are similar to the English versions.

Aim 2 and hypothesis. Since a pre-existing vulnerability factor later interacts with stress to lead to psychological distress, treating a certain variable as a vulnerability factor depending only on cross-sectional analysis would be a limitation of a given study. In other words, measuring both vulnerability and stress factors at the same point in time to predict different psychopathological conditions would not be a conservative test. However, assessing the vulnerability factor prior to the occurrence of stressful events would be a more accurate way of validating the vulnerability-stress model. Therefore, the examination of the metacognitive beliefs and life stress in a two time measurement design was the other core aim of this research to be able to reach a causal inference and a stronger test of metacognition as a vulnerability factor. According to the metacognitive model, several possible patterns of result would be possible. Metacognitions may contribute to change in symptoms over and above exposure to stress and metacognitions may be activated by stress leading to more negative emotions. Therefore, two specific hypotheses were proposed. First, metacognitive beliefs and processes would be positively associated with anxiety and depressive symptoms at Time 2, when stress occurrences between the two measurement times were controlled, along with the preexisting symptom level. Second, it was hypothesized that the metacognitive beliefs and processes would prospectively interact with stress to predict change in the severity of anxious

and depressive symptomatology, when the levels of preexisting symptom severity are controlled.

To test these hypotheses, metacognitions were accepted as vulnerability factors (moderator variables) while the impact of negative life events and daily hassles measures were accepted as stress factors (independent or predictor variables) in predicting severity of anxiety and depression (dependent or criterion variables). So as to test the model accurately, measurements were taken two points in time. At Time 1, metacognitive beliefs, anxiety, and depression were assessed. At Time 2, which was after a six-month interval, anxiety and depression levels were assessed again. The measurements of the impact of negative life events and daily hassles were also taken at Time 2. The symptoms of anxiety and depression were measured both at Time 1 and Time 2 in order to control initial baseline differences between individuals and to predict the residual change in the symptom levels following negative life events and daily hassles.

7. Importance and Implications of the Thesis

It could be stated that the current study provides a significant contribution not only to the metacognition field but also to Turkish literature. By means of cross-sectional tests conducted separately in Turkish and British samples, it was possible to focus on the unique role of metacognitions above and beyond the cognitive content. Consequently, while clarifying an important theoretical prediction of metacognitive theory which has not been dealt with so far, preliminary evidence for the cross-cultural validity of this theory is obtained, as well. In addition to these, the role of metacognition as a predisposing factor when interacting with stress as the precipitating factor was also clarified using a prospective design which is one of the most appropriate research designs for such an investigation. Consequently, two prospective answers to the question that whether the combination of metacognitive factors and stress can predict change in psychological symptoms were obtained from two different samples collected from different cultures. Moreover, the individual role of metacognition as a vulnerability factor after controlling for the effect of stress was also investigated in both samples.

Furthermore, since this study is the first attempt to validate the metacognitive theory in Turkish culture, it also fills the research gap that exists in metacognition field in Turkey. Demonstrating that the metacognitive approach is applicable in a

Turkish sample could provide an alternative framework for conceptualizing cognitive change processes and contribute to the way that Turkish clinicians conceptualize and treat a broad range of emotional disorders. Since metacognitive factors might be found important in also Turkish culture, investigation of the topic would be beneficial in clinical settings to focus on metacognitive factors by helping patients recognize the role of metacognitive beliefs and processes in their psychological distress. Assessment of dysfunctional metacognitive beliefs and maladaptive metacognitive processes and coping and thought control strategies, and integrating metacognitive elements into case formulation might be taken among the essentials of treatment agenda. After problematic thinking styles which are metacognitive in nature are elicited, reframing work on worry/rumination, attentional threat monitoring strategies, and metacognitive beliefs by using specific metacognitive treatment strategies can also improve the treatment outcome. By providing the patient with new adaptive coping styles and thinking processes, the symptoms of emotional disorder can be ameliorated in a more practical way, instead of focusing only on the content of thoughts. Metacognition-focused modification techniques might also be used as alternative and supportive intervention strategies when working with difficult cases that cannot be treated with the help of traditional cognitive therapy.

CHAPTER II

PSYCHOMETRIC PROPERTIES of the PENN STATE WORRY QUESTIONNAIRE and META-COGNITIONS QUESTIONNAIRE-30 in a TURKISH SAMPLE

Two commonly used research instruments in the study of worry and metacognitive factors in psychopathology are the Penn State Worry Questionnaire (PSWQ; Meyer et al., 1990) and the Meta-Cognitions Questionnaire-30 (MCQ-30; Wells & Cartwright-Hatton, 2004). Therefore, prior to investigation of the main hypotheses of the thesis, a study investigating cross-cultural utility of these scales in Turkish culture which has different characteristics from the Western culture is necessary. Besides, demonstrating the applicability of these scales in a Turkish sample would serve as preliminary evidence for the culture-specific and universal features of the worry and meta-worry concepts. Reliability and validity analyses of this kind are a necessary pre-requisite for cross-cultural studies of individual differences and cross-cultural theory testing using these self-report measures.

As a result, the purpose of this section of the study was two-fold. First, to evaluate psychometric properties of a Turkish language version of the PSWQ, including an examination of its factor structure and convergent validity with associated measures of anxiety and a measure of depression. The second aim was to determine the factor structure of the MCQ-30 and seek evidence for its convergent and criterion validity. Within the framework of these aims, evaluation of the relationship between these two scales would also contribute to the information on the psychometric features of their Turkish version.

Penn State Worry Questionnaire (PSWQ)

The PSWQ (Meyer et al., 1990) is a 16-item trait measure designed to capture the frequency, intensity, and uncontrollability of worry in general, without referring to the content of specific topics. Since the nature of worry in GAD are to be chronic

(minimum six month), excessive, and generalized so as to be diagnosed, the PSWQ is a principal measure of pathological worry like that found in GAD (Molina & Borkovec, 1994).

The development process of the PSWQ was inclusively described by Meyer and his colleagues (1990), and Molina and Borkovec (1994). To summarize these studies, the initial version of the PSWQ was developed by Meyer (1988; cited in Molina & Borkovec, 1994) for his master's thesis the aim of which was to create a trait measure of pathological worry. The initial pool comprising of 161 items was generated on the basis of clinical and research experience with GAD clients and worriers, daily diaries from patients with GAD, a prior cognitive/somatic anxiety inventory, and theoretical views of worry. Some of these items were worded in a reverse fashion to eliminate the effects of agreement (Meyer et al., 1990). This initial item pool was subjected to a principal components factor analysis with oblique rotation, culminating in one general factor and a number of smaller factors. Because the aim was to generate a trait measure of the worry proneness without referring to the content of specific topics, only items constituting the general factor were retained if the loading of an individual item was greater than .30 for reverse-scored items and .30 for others. The resulting 58 items were subjected to a repeated process of deletion due to lowest loadings, ambiguous language, redundancy with other items, and recalculation of internal consistency. This process yielded the final 16-item version of the PSWQ with a Cronbach alpha coefficient of .93.

Apart from the original development study of the PSWQ, adequate internal consistency for the PSWQ, ranging between .86 and .95 has been consistently reported in both clinical and non-clinical samples (Brown et al., 1992; Fresco, Heimberg, Mennin, & Turk, 2002). In addition, the test-retest reliability of the PSWQ over different time intervals ranges from .74 to .93 across three independent college samples (Meyer et al., 1990). The instrument has also proved useful in both adult and elderly samples in terms of discriminating GAD patients from individuals with other anxiety disorders and normal controls (Beck, Stanley, & Zebb, 1995; Behar, Alcaine, Zuellig, & Borkovec, 2003; Brown et al., 1992) and social anxiety disorder (Fresco et al. Mennin, Heimberg, & Turk, 2003). The convergent validity of the PSWQ is

supported by significant correlations with other anxiety constructs such as trait anxiety (Belzer, D'Zurilla, Maydeu-Olivares, 2002; Davey, 1993; Meyer et al., 1990; van Rijsoort, Emmelkamp, & Vervaeke, 1999), state anxiety (Dugas, Freeston, & Ladouceur, 1997; Stöber & Joormann, 2001), and obsessive-compulsive (o-c) symptoms (Burns, Keortge, Formea, & Sternberger, 1996) in non-clinical samples. The PSWQ was also correlated with depression as measured by Beck Depression Inventory (BDI, $r = .36$; Meyer et al., 1990) but this relationship was considerably lower than the PSWQ's typical association with the anxiety measures (Molina & Borkovec, 1994). However, some studies reported considerably higher correlation coefficients ($r_s = .52$ to $.62$) between the PSWQ and BDI in student and community samples (Dugas et al., 1997; Stöber & Joormann, 2001; van Rijsoort et al., 1999), indicating that there is a variability in the relationship of the PSWQ with depression, probably depending on the study population. For example, the PSWQ scores of a small group of GAD patients ($N = 14$) did not reveal significant correlation with BDI and BAI, but it was significant for that of with STAI-T (Freeman & Garety, 1999). As evidence of concurrent validity, the PSWQ is also positively correlated with other self-report measures of worry, including MCQ-30 (Beck et al., 1995; Davey, 1993; Davey, Tallis, & Capuzzo, 1996; van Rijsoort et al., 1999; Wells, 1994; Wells & Cartwright-Hatton, 2004).

Studies evaluating the factor structure of the PSWQ using exploratory and confirmatory factor analysis have produced inconsistent results. Whilst some researchers have concluded that the PSWQ is a unidimensional measure (Brown, 2003; Brown et al., 1992; Gana, Martin, Canouet, Trouillet, & Meloni, 2002; Ladouceur, Freeston, Rheume, Letarte, & Dumont, 1992; Meyer et al., 1990), other studies have reported that the PSWQ yielded two potentially meaningful factors, the second one comprised of items that were reverse scored (Beck et al., 1995; Carter, Sbrocco, Miller Jr., Suchday, Lewis, & Freedman, 2005; Fresco et al., 2002). In addition, some non-English versions of the PSWQ such as the Dutch (van Rijsoort et al., 1999), German (Stöber, 1995), and Italian (Meloni & Gana, 2001) versions have revealed a two-factor structure depending on the direction of the wording of items, with the exception of two French versions (Gana et al., 2002; Ladouceur et al., 1992).

Although the factor solution obtained in these cross-cultural studies indicated the presence of two subscales, van Rijsoort and colleagues (1999) have decided on a single underlying factor because of the good psychometric characteristics of the PSWQ as a whole and its common acceptance as a unidimensional instrument. The conclusion reached by some that the negatively keyed items constitute an independent latent factor as a representation of “absence of worry” has been subject to criticism due to the lack of a theoretical rationale supporting this second factor’s clinical and theoretical meaning (Brown, 2003).

The association of pathological worry with obsessive compulsive symptomatology has gained a considerable research interest. It is noteworthy that the PSWQ were shown as more related to obsessional features of OCD than it was to compulsive features since obsessive thought is similar to worry in terms of its intrusive and recurrent nature (Brown et al., 1993; Turner et al., 1992). However, the content of obsessions and worry has been considered as a distinguishing characteristic of these two (APA, 1994; Burns et al., 1996; Turner et al., 1992; Wells & Morrison, 1994; Wells & Papageorgiou, 1998). Because of this content discrepancy, rather than a high correlation between obsessional features of OCD and generalized worry, moderate to weak correlations should be expected (Burns et al., 1996; Freeston, Ladouceur, Rheaume, Letarte, Gagnon & Thibodeau, 1994). In line with this idea, the total score of Padua Inventory Washington State University Revision (PI-WSUR; Burns et al., 1996) and its obsessional subscales were reported as having relationships with the PSWQ as ranging moderate to weak.

Worry has also been reported as a common intrusive thought that can be seen in depression (Andrews & Borkovec, 1988; Molina, Borkovec, Peasley, & Person, 1998; Starcevic, 1995). In their experimental study in which the emotional states of the non-clinical subjects were measured immediately after they were randomly assigned to one of the four emotion conditions including inductions of depression, worry, somatic anxiety, or neutral states, Andrews and Borkovec (1988) found that worry had no unique features separate from depression and anxiety and could not be categorized reliably as a thought process belonging more to one of these two emotion. In addition, Starcevic (1995) reported that the levels of pathological worry measured

by the PSWQ were almost identical in patients with pure GAD and major depressive episode (MDE). Hence, the author concluded that high PSWQ scores might not be confined to GAD and there might be no difference in the level of pathological worrying between individuals with GAD and MDE, while the domains and content of their worrying may differ. On the other hand, Chelminski and Zimmerman (2003) emphasized that this analogous levels of PSWQ scores between GAD and MDE in Starcevic's study might be caused by the DSM-IV hierarch rule which does not allow to diagnosis of GAD if symptoms take place during depressive episodes. Chelminski and Zimmerman (2003), in their study in a large psychiatric outpatients sample, also found no difference between pure GAD versus major depressive disorder (MDD) with GAD groups but, as inconsistent with Starcevic's finding, the pure GAD patients had significantly higher worry scores than those with pure MDD and other anxiety disorders including social phobia, specific phobia, and posttraumatic stress disorder. Also, the PSWQ scores of pure MDD patients were almost same as patients with other anxiety disorders other than GAD. However, the pure GAD and OCD groups had identical PSWQ scores. As for the relative relationship of the PSWQ both with anxiety and depression, Gana et al. (2002) shown that the correlation between worry and anxiety was significantly higher than the correlation between worry and depression ($r = .61$ vs $.25$, respectively).

Meta-Cognitions Questionnaire-30 (MCQ-30)

The MCQ-30 (Wells & Cartwright-Hatton, 2004) is a brief, multidimensional measure of a range of metacognitive processes, as well as metacognitive beliefs about worry and cognition. This measure was originally developed out of the metacognitive model of psychological vulnerability (Wells & Matthews, 1994; 1996), and some of the domains measured are important in the model of worry and GAD (Wells, 1994; 1997). Although it was initially devised as a 65-item questionnaire (MCQ; Cartwright-Hatton & Wells, 1997), the scale was further revised into a shorter 30-item version to produce a relatively practical instrument to administer (Wells & Cartwright-Hatton, 2004).

Items of the original MCQ were derived from semi-structured interviews with a student sample and therapy transcripts of patients with GAD, OCD, hypochondriasis, and panic disorder. Subjects were questioned about their experience of worry and intrusions, the reasons for worrying, and problems associated with worry and intrusive thoughts. To the item pool drawn from these sources, a number of items related with confidence in cognitive functioning were added. As a result, a total of ninety four items were generated and subjected to a series of principal components factor analyses with oblique rotation using different graduate and undergraduate samples. These analyses resulted in the final 65-item version of the MCQ composed of five correlated but conceptually distinct factors: (1) positive beliefs about worry, which assesses the extent to which the person believes that worrying is helpful (e.g. “Worrying helps me cope”), (2) negative beliefs about worry concerning uncontrollability and danger, which measures the extent to which the person believes that worrying is uncontrollable and dangerous (e.g., “When I start worrying I cannot stop”), (3) lack of cognitive confidence, measuring confidence in memory (e.g., I have a poor memory”), (4) beliefs concerning the need to control thoughts and the negative consequences of not doing so in domains of superstition, responsibility, and punishment (e.g., “Not being able to control my thoughts is a sign of weakness”), and (5) cognitive self-consciousness, assessing the tendency to monitor one’s own thoughts and focus attention inwards (e.g., “I pay close attention to the way my mind works”).

To determine the psychometric properties of the 65-item scale, it was administered to different student samples across a series of studies. The internal consistency of subscales ranged from .72 to .89 (Cartwright-Hatton & Wells, 1997). In addition, test-retest reliability coefficients measured 5 weeks apart were between .76 and .89 for the subscales of the MCQ. As evidence for convergent validity, the MCQ subscales were found positively correlated with trait anxiety as measured by STAI-T (Cartwright-Hatton & Wells, 1997) and pathological worry as measured by PSWQ (Wells & Papageorgiou, 1998). As for the discriminant validity of the MCQ, it was demonstrated that particular subscales of the MCQ significantly differentiated patients with GAD and OCD from patients with emotional disorders other than GAD

or OCD (Cartwright-Hatton & Wells, 1997). In addition, studies conducted with clinical and normal samples have revealed that the negative beliefs about worry subscale scores of the MCQ successfully differentiate certain psychopathology groups such as patients with GAD, panic disorder, social phobia, and depression from non-patient controls and each other (Wells & Carter, 2001). Some other studies have also focused on between group comparisons to determine whether there are significant differences between certain psychopathology group such as patients with hallucinations, delusions, and OCD in terms of certain metacognitive beliefs (García-Montes, et al. 2006, Morrison & Wells, 2000; 2003; Wells & Carter, 2001). To conclude, the MCQ has proven to possess good psychometric qualities of reliability and validity.

A review of the studies using the original 65-item version of the MCQ has also shown that metacognitive beliefs and processes are positively related with obsessive-compulsive symptoms (Hermans et al., 2003; Janeck et al., 2002; Wells & Papageorgiou, 1998), pathological worry (Wells & Papageorgiou, 1998), predisposition to auditory hallucinations (Baker & Morrison, 1998; Morrison, Wells, & Nothard, 2000), test-anxiety (Matthews, Hillyard, & Campbell, 1999), and depression (Papageorgiou & Wells, 2003).

Because of the significant length of the 65-item MCQ, a shortened 30-item version of the MCQ has been developed to obtain a relatively brief and easy instrument to administer (Wells & Cartwright-Hatton, 2004). In this study, six representative items from each of the five subscales of the MCQ were selected to construct the 30-item MCQ. This selection was done mainly on the basis of the factor loadings of the items reported in the original construction study (Cartwright-Hatton & Wells, 1997). Apart from the factor loadings criterion, any items whose meaning had been questioned by the participants of the previous study were not considered in the brief MCQ. Among all items, the highest loading items on their respective factors were selected as long as they represent the range of thematic components constituting each factor. The most composite subscale including diverse themes was the subscale assessing beliefs concerning need for control, superstition, responsibility, and punishment. On the other hand, the principal theme of this subscale was beliefs

concerning the need to control and negative consequences of not controlling one's own thoughts. Therefore, the six highest loading items representing this theme were retained and this subscale was renamed as "beliefs concerning need for control".

The factor structure of the MCQ-30 was assessed using both exploratory and confirmatory factor analyses (EFA and CFA, respectively; Wells & Cartwright-Hatton, 2004). Consistent with the full-scale MCQ, the results of the EFA conducted for the MCQ-30 yielded a five-factor solution on the basis of the Scree test, and the extracted factors were rotated to achieve simple structure. CFA also supported the view that a five factor model of the MCQ-30 fits the data acceptably.

Wells and Cartwright-Hatton's study (2004) conducted with student and non-student participants demonstrated that the MCQ-30 had good psychometric qualities. Accordingly, the internal consistency of the total MCQ-30 ($\alpha = 0.93$) and its subscales ($\alpha = 0.92, 0.91, 0.93, 0.72,$ and 0.92 , respectively) were found to be satisfactory. Test-retest reliability, after a period of 22-118 days, was reported as high (0.75) for the total MCQ-30, whilst stability of the subscales ranged from acceptable to good (0.79, 0.59, 0.69, 0.74, and 0.87, respectively). As evidence of convergent validity, total and subscale scores of the MCQ-30 were found to be significantly and positively correlated with the measures of pathological worry, o-c symptoms, and trait anxiety in many studies (e.g., Myers & Wells, 2005; Wells & Cartwright-Hatton, 2004; Wells & Papageorgiou, 1998). More specifically, the total score of the MCQ-30 correlated significantly with the PSWQ ($r = 0.54$), STAI-T ($r = 0.53$), and a range of obsessional symptom subscales (Wells & Cartwright-Hatton, 2004).

Method

Subjects

The sample of the present study consisted of 561 participants comprising 457 (81.5%) undergraduate and postgraduate students from various departments of Abant Izzet Baysal University (AIBU) and Middle East Technical University (METU), and 104 (18.5%) non-students who were employees of the AIBU. While the student sample consisted of 251 females (54.9%) and 206 males (45.1%), the non-student sample included 49 females (47.1%) and 55 males (52.9%). As a whole, the sample

was composed of 300 (53.5%) females and 261 (46.5%) males. The age of the total sample ranged from 17 to 52 years with a mean of 23.55 ($SD = 5.7$).

Instruments

Penn State Worry Questionnaire (PSWQ). The PSWQ (Meyer et al., 1990) is a 5-point 16 item Likert-type scale designed to assess general tendency to worry. Since the items are independent from specific topics of worry, the PSWQ is considered as a content-free measure of frequency, intensity, and uncontrollability of trait-like worry. Response options for the PSWQ range from *not at all typical* (1) to *very typical* (5). While 11 items are positively scored, the remaining 5 items (items 1, 3, 8, 10, and 11) require reverse scoring. In this way, a single total score which can range from 16 to 80 is obtained by summing all items, and higher scores represent higher levels of pathological worry.

Meta-Cognitions Questionnaire-30 (MCQ-30). The MCQ-30 (Wells & Cartwright-Hatton, 2004) was designed to measure a range of metacognitive beliefs and processes relevant to vulnerability to and maintenance of emotional disorders. The items are rated on a 4-point scale with 1 labelled *do not agree* and 4 *agree very much*. The MCQ-30 is composed of five correlated but conceptually distinct factors (shorthand in parentheses): (1) positive beliefs about worry (positive beliefs), which assesses the extent to which the person believes that worrying is helpful, (2) negative beliefs about worry concerning uncontrollability and danger (uncontrollability and danger), which measures the extent to which the person believes that worrying is uncontrollable and dangerous, (3) lack of cognitive confidence, measuring confidence in memory, (4) beliefs concerning the need to control thoughts and consequences of not controlling one's own thoughts (need to control thoughts), and (5) cognitive self-consciousness, assessing the tendency to monitor one's own thoughts and focus attention inwards. Total scores for the MCQ-30 and its subscales are obtained by summing all items and higher scores indicate higher levels of metacognitive beliefs or processes.

Padua Inventory Washington State University Revision (PI-WSUR). The PI-WSUR (Burns et al., 1996) is a 39-item scale measuring obsessive-compulsive

symptoms without worry contamination. Since the obsessional subscales of the initial version of this scale (Padua Inventory; Sanavio, 1988) has been reported as measuring worry in addition to obsessions due to a rather high correlation with measures of worry such as the PSWQ (Freeston et al., 1994), it has been revised to reduce this overlap with worry. As a result of this revision, the overlap between the PI-WSUR and PSWQ was smaller (12% reported in Burns et al., 1996) than that of the original version (34% reported in Freeston et al., 1994). Each item in the PI-WSUR is scored on a 5-point scale ranging from *not at all* (0) to *very much* (4). The PI-WSUR includes five subscales: (1) Contamination Obsessions and Washing Compulsions (COWC), (2) Dressing/Grooming Compulsions (DRGRC), (3) Checking Compulsions (CHKC), (4) Obsessional Thoughts about Harm to Self/Others (OTAHSO), and (5) Obsessional Impulses to Harm Self/Others Subscale (OITHSO). The total score of PI-WSUR and its obsessional subscales were reported as having relationships with the PSWQ as ranging moderate to weak ($r = .34$ for the total score, $.37$ for the OTAHSO, $.08$ for the OITHSO, and $.21$ for COWC, $p < .001$ for all). In Burns et al.'s study (1996), high level of internal consistency was reported both for the total PI-WSUR ($\alpha = .92$) and its five subscales ($\alpha = .77-.88$), as well as stability over a 6 to 7-month intervals. Besides, the scores of the OCD individuals on the PI-WSUR were shown as higher than a normative sample.

The adaptation study of the PI-WSUR into Turkish was conducted in samples of college students and patients with OCD and other anxiety disorders (Yorulmaz, Dirik, Karancı, Burns, Baştuğ, Kısa, & Göka, submitted for publication). The Turkish version of the scale (see Appendix C) was found to have a similar 5-factor structure and psychometric qualities as the English version. In the non-clinical college student sample, the Cronbach alpha coefficient of the scale was $.93$ for the total scores and ranged from $.73$ to $.91$ for the five subscales. The test-retest reliability of the total scale within a four-week interval was $.86$. The Turkish PI-WSUR was also shown as positively related with other o-c symptom measures such as Maudsley Obsessive-Compulsive Inventory (MOCI; $r_s = .76$ for student, $.88$ for OCD samples) and Thought-Action Fusion Scale (TAFS; $r_s = .39$ for student, $.67$ for OCD samples). It

was reported that the Turkish PI-WSUR discriminated OCB patients from individuals with other anxiety disorders and college students.

State-Trait Anxiety Inventory-Trait form (STAI-T). The STAI-T (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983) is a 20-item measure used to assess anxiety proneness. Respondents indicate how they generally feel on a 4-point Likert scale ranging from *not at all* (1) to *very much so* (4). Responses are summated to obtain a total trait anxiety score. High scores indicate more trait anxiety. The STAI-T has been found to possess good to excellent internal consistency (r_s ranging from .86 to .95) and test-retest reliability (r_s ranging from .65 to .75) in adult, college, and high school samples (Spielberger et al., 1983). Convergent validity of the STAI-T with other measures of anxiety was shown in normal and anxiety disorder samples (Bieling, Antony, & Swinson, 1998; Creamer, Foran, & Bell, 1995). Bieling and his colleagues (1998) showed that STAI-T comprised two subscales assessing trait anxiety (STAI-A) and trait depression (STAI-D). Cronbach's alphas for the STAI-A and STAI-D were reported to be .78 and .88, respectively.

The Turkish adaptation of the scale (see Appendix D) was assessed by Öner and Lecompte (1985). As comparable with the original scale, the internal consistency coefficients of the Turkish version were found as ranging from .83 to .87, while the test-retest reliability ranged from .71 and .86 over a year period in five samples of university students. In terms of validity, the STAI-T scores of a psychiatric patient group were found to be significantly higher than a normal comparison group. The correlation between the Turkish STAI and BAI was reported as .53.

Beck Anxiety Inventory (BAI). The BAI (Beck, Epstein, Brown, & Steer, 1988) consisting of 21 items is a 4-point Likert type measure of cognitive and somatic symptoms of anxiety. Scores can range from 0 to 63. It was developed to improve the ability to discriminate between anxiety and depression symptomatology. Good internal consistency and high short-term test-retest reliability has been demonstrated in mixed psychiatric samples and patients with anxiety disorders (Beck et al., 1988; de Beurs, Wilson, Chambless, Goldstein, & Feske, 1997), as well as non-clinical samples (e.g., Creamer et al., 1995). As for concurrent and convergent validity, the BAI was found to be moderately correlated with anxiety ($r_s = .36$ to .69)

and depression ($r_s = .25$ to $.56$) measures in psychiatric (Beck et al., 1988) and student samples (Osman, Kopper, Barrios, Osman, & Wade, 1997). The BAI was adapted to Turkish (see Appendix E) by Ulusoy, Şahin, and Erkmen (1998), who found it to have reliability and validity coefficients comparable with the original values.

Beck Depression Inventory (BDI). The BDI (Beck et al., 1979) is comprised of 21 items that assess the affective, cognitive, behavioral, somatic, and motivational symptoms of depression as well as suicidal wishes. The items are rated on a 4-point Likert-type scale and scores can change from 0 to 63. The BDI has a well-established reliability that its mean coefficient alpha across 25 years of studies was reported as .86 in psychiatric populations and .81 in non-psychiatric populations (Beck, Steer, & Garbin, 1988). A psychometric evaluation of the Turkish version of the BDI (see Appendix F) was carried out by Hisli (1988; 1989) and its psychometric properties were found to be similar to the original scale.

Procedure

After obtaining the necessary permissions to adapt the questionnaires into Turkish culture (see Appendix J), the PSWQ was translated into Turkish by three independent translators, while the number of translators was five for the MCQ-30. All of the translators were bilingual and had strong psychology backgrounds. The translated Turkish items together with the original items were given to two additional judges, who were asked either to choose one of the translations or to suggest their own translations for each item. Finally, two of the judges, one of whom was from the first and the other was from the second step translation group, reviewed and decided on the final forms of the Turkish versions of the PSWQ and MCQ-30 (see Appendices A and B). The final forms were then translated back into English by a psychology professor familiar with Western culture. The back translated versions were very close to the original scales.

The instruments, along with the other questionnaires were administered during regular class hours to the student participants. The students either got credit for their participation or they were volunteers. A method of convenience sampling was used to

obtain non-student participants. Before the administrations, instructions were given to all participants and they were told that they could contact the researcher if they had further questions. The instruments were presented in randomized sequences in order to eliminate the effect of sequencing. The cover page included a brief explanation about the study and an informed-consent form. The total administration time for the instruments was approximately 30 minutes.

A small sub-sample of 26 student participants was retested with the PSWQ and MCQ-30. The retest interval between the two administrations ranged from five to seven weeks. In this group of participants there were 24 men and 2 women. The age of these participants ranged from 23 to 46 years with a mean of 28.39 ($SD = 4.3$).

Results

1. Screening for Data

Before the main analyses, variables were assessed for normality. The BAI and OTHSO and OITHSO subscales of the PI-WSUR were found to be slightly and positively skewed. Thus, a square root transformation procedure was employed for these variables so that the skewness values were within the range of -1 to +1.

2. Descriptive Statistics

Mean scores and standard deviations of the PSWQ and MCQ-30 subscales are presented for the total sample, men, and women separately in Table 2.1. The mean worry level was comparable to that reported both in the original study and other research with non-clinical student and community individuals (Meyer et al., 1990; see also Molina & Borkovec, 1994 and Startup & Erickson, 2006 for reviews). To illustrate, compiling from a number of studies, Startup and Erickson (2006) reported a mean score on the PSWQ of 47.42 ($SD = 13.40$) for college students and 42.67 ($SD = 11.71$) for community adult samples. The total and subscale means for the MCQ-30 obtained from the current sample as a whole tended to be higher than the mean values reported in the original study (Wells & Cartwright-Hatton, 2004). For example, a mean value of 48.41 ($SD = 13.31$) was reported for the total MCQ-30 for the English version, which compares with 63.90 ($SD = 12.26$) in the current sample.

Table 2.1. Means (standard deviations) and mean differences on the PSWQ and MCQ-30

| Variables | Total (N = 561) | Men (N = 261) | Women (N = 300) | t value | Effect size <i>d</i> |
|------------------------------|--------------------|------------------|--------------------|-----------|-------------------------|
| 1. PSWQ | 44.67 (12.73) | 42.25 (12.05) | 46.78 (12.95) | -4.27**** | .36 |
| 2. MCQ-30 Total | 63.90 (12.26) | 64.57 (11.58) | 63.32 (12.81) | 1.20 | - |
| Positive beliefs | 11.89 (3.94) | 12.59 (3.99) | 11.28 (3.81) | 3.97**** | .34 |
| Uncontrollability & danger | 12.13 (3.83) | 11.66 (3.61) | 12.53 (3.98) | -2.70** | .23 |
| Lack of cognitive confidence | 11.23 (4.38) | 10.66 (4.07) | 11.72 (4.58) | -2.88*** | .25 |
| Need to control thoughts | 12.84 (3.67) | 13.44 (3.74) | 12.32 (3.53) | 3.63**** | .31 |
| Cognitive self-consciousness | 15.82 (3.60) | 16.22 (3.56) | 15.46 (3.60) | 2.50* | .21 |

Note. PSWQ = Penn State Worry Questionnaire, MCQ-30 = Meta-Cognitions Questionnaire-30. *****p* < .001, ****p* < .005, ***p* < .01, **p* < .05

Independent samples *t*-tests were used to test whether there were any differences between men and women on the PSWQ and the subscales of the MCQ-30 (see Table 2.1). As consistent with the conclusion in the available literature reviews on the PSWQ (Molina & Borkovec, 1994; Robichaud, Dugas, Conway, 2003; Startup & Erickson, 2006), women scored significantly higher than men on the PSWQ in this non-clinical sample of the present study. As a result of these comparisons, the differences between men and women on the total score of MCQ-30 did not emerge as significant. However, the mean scores of men for positive beliefs, need to control thoughts, and cognitive self-consciousness subscale subscales were significantly higher than that of women. The mean scores of women for uncontrollability and danger, and lack of cognitive confidence were significantly higher than that of men.

Whilst these gender differences were statistically significant, overall they are small in magnitude and may not be meaningful. In order to determine the standardized magnitude of these differences, the effect sizes were calculated using Cohen's formula. As can be seen in Table 2.1, the effect size values indicated that the magnitude for the significant differences between men and women were small.

3. Psychometric Properties of the PSWQ

3.1. Factor Structure. To examine the factor structure of the PSWQ, a principal component factor analysis with a Varimax rotation was performed. The Kaiser-Meyer-Olkin measure of sampling adequacy showed that the coefficient was .94, which is higher than its minimum required value of .60 (Tabachnick & Fidell, 2001). Bartlett's test of sphericity was significant ($df = 120$, $p < .001$), indicating the suitability of the correlation matrix for factoring. Scree plot and eigenvalues revealed 2 factors with eigenvalues of 7.13 (explaining 44.54% of the total variance) and 1.44 (explaining 8.97% of the total variance), accounting for 53.51% of the total variance. The lower limit for a factor loading was set at .30 (Tabachnick & Fidell, 2001). Whilst the first factor consisted of 11 positively scored items, the second factor was composed of 5 reverse scored items. In accordance with the previous studies which obtained the same factor structure, these factors were called "presence of worry" and "absence of worry" factors, respectively. Table 2.2 presents the factor loadings of the

PSWQ items. Cronbach's alpha reliability coefficient for the presence of the worry factor was .92, and it was .68 for the absence of worry factor.

Table 2.2. Rotated factor loadings of the PSWQ items

| Item and Item Number | Loadings on factors | |
|--|---------------------|------|
| | 1 | 2 |
| <u>Factor 1: presence of worry</u> | | |
| I worry all the time (15) (Sürekli olarak endişeliyimdir) | .83 | -.11 |
| Once I start worrying, I can't stop (14) (Bir kez endişelenmeye başladığımda, bunu durduramam) | .79 | -.20 |
| I am always worrying about something (7) (Her zaman birşeyler hakkında endişeleniyorum) | .79 | -.23 |
| I've been a worrier all my life (12) (Tüm yaşamım boyunca endişeli biri olmuşumdur) | .78 | -.24 |
| I know I shouldn't worry about things, but I just can't help it (5) (Yaşamakta olduğum şeyler hakkında endişelenmemem gerektiğini biliyorum ama kendime engel olamıyorum) | .75 | -.25 |
| Many situations make me worry (4) (Bir çok durum beni endişelendirir) | .74 | -.28 |
| I notice that I have been worrying about things (13) (Yaşamakta olduğum şeyler hakkında endişeleniyor olduğumu fark ederim) | .74 | -.16 |
| As soon as I finish one task, I start to worry about everything else I have to do (9) (Bir işi bitirir bitirmez, yapmak zorunda olduğum tüm diğer şeyler hakkında endişelenmeye başlarım) | .67 | -.11 |
| My worries overwhelm me (2) (Endişelerim beni bunaltır) | .66 | -.22 |
| I worry about projects until they are all done (16) (Tamamen yapıp bitirene kadar tasarladığım işler hakkında endişelenirim) | .60 | -.29 |
| When I am under pressure I worry a lot (6) (Baskı altında olduğumda çok endişelenirim) | .60 | -.23 |

Table 2.2. (cont' d)

| Item and Item Number | Loadings on factors | |
|---|---------------------|------------|
| | 1 | 2 |
| <u>Factor 2: absence of worry</u> | | |
| I don't tend to worry about things (3) (Yaşamakta olduğum şeyler hakkında endişelenme eğiliminde değilimdir) | -.18 | .71 |
| I never worry about anything (10) (Asla herhangi bir şey için endişelenmem) | -.15 | .68 |
| I find it easy to dismiss worrisome thoughts (8) (Endişe verici düşünceleri aklımdan kolaylıkla atarım) | -.35 | .67 |
| If I don't have enough time to do everything I don't worry about it (1) (Herşeyi yapmaya yeterli zamanım yoksa, bunun için endişelenmem) | -.01 | .59 |
| When there is nothing more I can do about a concern, I don't worry about it anymore (11) (Bir konu ile ilgili olarak yapabileceğim daha fazla bir şey olmadığında, artık o konu hakkında endişelenmem) | -.17 | .51 |

These results, particularly the low reliability of the factor composed of the reverse scored items, correspond with the findings of studies focusing on the psychometric properties of the PSWQ in a cross-cultural context (Meloni & Gana, 2001; Stöber, 1995; van Rijsoort et al., 1999). In order to examine whether the PSWQ has a substantial and conceptually distinct second subscale that might be called “absence of worry” or the presence of this factor only results from the effect of reverse wording, the data of the present study was subjected to re-factoring. Two principal component analyses, one for 11 items phrased in the positive direction and one for 5 items worded in the negative direction, were conducted. In the first analysis, scree plot and eigenvalues indicated one factor with eigenvalue of 6.28 and this single factor explained 57.08 % of the total variance. For the 5-item scale, principal component analysis together with the scree plot revealed one factor with an eigenvalue of 2.23, accounting for 44.61 % of the total variance. These results

demonstrated that the positively scored items alone explained more of the variance than the combination of the positive and negative items or negative items alone and the contribution of the reverse scored items to the whole scale was less than that of the positively scored items.

3.2. Reliability. The corrected item-total correlations for the total PSWQ ranged from .32 to .75. Whilst these correlations were between .56 and .77 for the presence of worry factor, they ranged from .35 to .54 for the absence of worry factor. These coefficients denoted that both positively and negatively scored items were acceptable as they are higher than the conventional level of 0.20 (Kline, 1986). The reliability of the PSWQ was determined by computing the internal consistency coefficient, split-half reliability, and test-retest correlations. Cronbach's alpha coefficient for the whole scale was found to be .91, supporting high reliability for the scale corresponding with the relevant literature. It is worth noting that the magnitude of this alpha was quite similar to the alpha coefficient ($\alpha = .92$) for the 11-item, presence of worry factor. The Guttman split-half reliability for the whole PSWQ was .91, where the Cronbach's alpha coefficient for the first half composed of 8 items was .82, it was .84 for the second half which consisted of 8 items.

The test-retest reliability of the PSWQ was assessed via Pearson correlation on a sub-sample of twenty six participants. The retest coefficient for the PSWQ was .88, and it was .88 for the positive items, and .72 for the negative items. In order to examine any change of the PSWQ and its factors over the test-retest interval, paired samples *t*-tests were carried out. The result of this test indicated that there was no significant mean difference between these two intervals for the PSWQ total scores and presence and absence of worry factors.

3.3. Convergent Validity. To investigate the convergent validity of the PSWQ, Pearson correlations of the PSWQ with PI-WSUR, STAI-T, BAI, and BDI were computed. As can be seen in Table 2.3, positive correlations ranging from moderate to strong were obtained between the PSWQ and these measures and these coefficients were in parallel with previous research findings. In addition, the correlations of the PSWQ with the COWC, DRGRC, CHKC, OTAHSO, and OITHSO subscales of the PI-WSUR were .30, .22, .44, .53, and .30 ($p < .01$ for all), respectively.

With respect to the question of whether reverse scored items in the Turkish version of the PSWQ measure a different component of worry which makes a direct contribution to understanding psychological disturbances, the relationships among presence and absence of worry factors and anxiety and depression measures was examined (see Table 2.3). The scores on each factor of the PSWQ were calculated by summing the relevant items on these factors. Higher scores on the “presence of worry” factor indicated higher levels of worry, whereas higher scores on the “absence of worry” factor indicated lower levels of worry. The presence of worry showed a strong negative correlation with absence of worry ($r = -.53$), indicating that these two factors were intercorrelated, but the magnitude is not consistent with the idea that they measure opposite ends of the same construct unless they are considered to ineffectively tap it.

The magnitude of the relationships between the presence of worry and the PI-WSUR, STAI-T, BAI, and BDI were almost identical to those obtained between the total scores of the PSWQ and these measures. In order to determine whether the presence of worry factor correlated with PI-WSUR, BAI, and BDI to a significantly different degree than did the total PSWQ scores, tests of differences between dependent correlations (Steiger, 1980) were carried out using the t formula developed to compare dependent correlation coefficients coming from the same sample. As can be seen in Table 2.3, none of these relationships were significantly different than the relationships of total PSWQ scores with measures of anxiety and depression. That is, positive items had an equivalent strength to the total PSWQ in detecting the relationship patterns between pathological worry and psychological symptomatology. As for the absence of worry, it revealed moderate and negative correlations with measures of anxiety and depression. All of these correlation coefficients were significantly smaller than the PSWQ total score and presence of worry factor correlations obtained for these symptom measures (see Table 2.3).

Table 2.3. Correlations of total PSWQ, presence of worry, and absence of worry with other variables and differences in these dependent correlations

| | Total PSWQ (a) | Presence of Worry (b) | Absence of Worry (c) | Difference a vs b \underline{t} (558) | Difference a vs c \underline{t} (558) | Difference b vs c \underline{t} (558) |
|--------|----------------------|-----------------------------|----------------------------|---|---|---|
| PIWSUR | 0.49* | 0.51* | -0.26* | 1.94 | 10.49* | 11.76* |
| STAI-T | 0.67* | 0.67* | -0.44* | 0.00 | 17.74* | 19.74* |
| BAI | 0.43* | 0.44* | -0.26* | 0.93 | 9.45* | 10.40* |
| BDI | 0.46* | 0.48* | -0.26* | 1.90 | 9.99* | 11.18* |
| POW | | | -0.53* | | | |

Note. PSWQ = Penn State Worry Questionnaire, PIWUSR = Padua Inventory Washington State University Revision, STAI-T = State-Trait Anxiety Inventory Trait form, BAI = Beck Anxiety Inventory, BDI = Beck Depression Inventory, POW = Presence of Worry. \underline{t} tests calculated using Steiger's (1980) formula developed for the comparisons of dependent correlation coefficients coming from the same sample. * $p < .01$

4. Psychometric Properties of the MCQ-30

4.1. Factor Structure. In order to investigate the factor structure of the Turkish version of the MCQ-30, scores obtained from the scale were exposed to an exploratory factor analysis using principal components factoring. The Kaiser-Meyer-Olkin measure of sampling adequacy was found to be .89 and Bartlett's test of sphericity was significant ($df = 435$, $p < .001$). Scree plot and eigenvalues indicated five factors with eigenvalues of 6.79, 4.19, 2.81, 2.03, and 1.38 for extraction. These factors were subjected to an oblique rotation since previous research with the MCQ and MCQ-30 demonstrated that dimensions of the MCQ are intercorrelated. The explained variances by these five factors were 22.65%, 13.98%, 9.38%, 6.76%, and 4.61%. The lower limit for a salient item loading was set at .30 (Tabachnick & Fidell, 2001). The rotated loadings of the MCQ-30 items for each of the extracted factors are displayed in Table 2.4. The comparison of the results from the original English nonclinical sample (Wells & Cartwright-Hatton, 2004) and the present Turkish sample showed that the factor structure was quite similar. Therefore, the same factor names used in the original study were assigned to these factors. Although item 11 and 13 loaded on two factors in the Turkish version of the scale, the loadings of these items on their related subscales were higher than that on the unrelated subscales.

Table 2.4. Rotated factor loadings and alpha coefficients of MCQ-30 items (structure matrix)

| Item and Item Number | Loadings on factors | | | | |
|--|---------------------|------------|------|------|-----|
| | 1 | 2 | 3 | 4 | 5 |
| Factor 1: uncontrollability and danger ($\alpha = 0.80$) | | | | | |
| My worrying thoughts persist, no matter how I try to stop them (9) (Durdurmak için ne kadar uğraşsam da, endişe verici düşüncelerim devam eder) | .78 | .29 | -.35 | .11 | .25 |
| My worrying could make me go mad (15) (Endişelerim beni deliye döndürebilir) | .77 | .22 | -.18 | .09 | .32 |
| When I start worrying, I cannot stop (21) (Endişelenmeye başladığımda, bunu durduramam) | .75 | .31 | -.38 | .04 | .28 |
| I could make myself sick with worrying (4) (Endişelenerek kendi kendimi hasta edebilirim) | .73 | .14 | -.02 | .12 | .28 |
| I cannot ignore my worrying thoughts (11) (Endişe verici düşüncelerimi görmezden gelmek elimde değildir) | .58 | .27 | -.55 | .22 | .21 |
| My worrying is dangerous for me (2) (Endişelerim benim için tehlikelidir) | .46 | .08 | .21 | .14 | .29 |
| Factor 2: lack of cognitive confidence ($\alpha = 0.89$) | | | | | |
| I do not trust my memory (26) (Hafızama güvenmem) | .18 | .92 | -.06 | -.10 | .09 |
| I have a poor memory (17) (Hafızam zayıftır) | .19 | .89 | -.13 | -.08 | .08 |
| I have little confidence in my memory for actions (29) (Olaylarla ilgili hafızama güvenim azdır) | .25 | .83 | -.13 | -.10 | .12 |

Table 2.4. (cont' d)

| Item and Item Number | Loadings on factors | | | | |
|--|---------------------|------------|-------------|------|-----|
| | 1 | 2 | 3 | 4 | 5 |
| I have little confidence in my memory for words and names (8) (Kelime ve isimlerle ilgili hafızama güvenim azdır) | .16 | .81 | -.09 | -.06 | .01 |
| I have little confidence in my memory for places (24) (Yerlerle ilgili hafızama güvenim azdır) | .22 | .68 | -.00 | -.05 | .07 |
| My memory can mislead me at times (14) (Hafızam beni zaman zaman yanıltabilir) | .12 | .66 | -.14 | -.04 | .06 |
| <u>Factor 3: positive beliefs ($\alpha = 0.89$)</u> | | | | | |
| Worrying helps me to solve problems (23) (Endişelenmek sorunları çözmeme yardımcı olur) | .12 | .14 | -.85 | .14 | .17 |
| Worrying helps me cope (19) (Endişelenmek yaşadıklarımınla başetmeme yardımcı olur) | .11 | .10 | -.84 | .18 | .14 |
| Worrying helps me to get things sorted out in my mind (10) (Endişelenmek işleri zihnimde bir düzene koymama yardımcı olur) | .11 | .06 | -.82 | .21 | .12 |
| I need to worry, in order to work well (28) (İyi çalışmak için, endişelenmem gerekir) | .17 | .11 | -.77 | .13 | .26 |
| I need to worry in order to remain organized (7) (Planlı kalabilmek için endişelenmem gerekir) | .28 | .12 | -.73 | .16 | .29 |
| Worrying helps me to avoid problems in the future (1) (Endişelenmek gelecekte olabilecek sorunları engellememe yardımcı olur) | .16 | .11 | -.71 | .22 | .14 |

Table 2.4. (cont' d)

| Item and Item Number | Loadings on factors | | | | |
|---|---------------------|------|------|------------|------------|
| | 1 | 2 | 3 | 4 | 5 |
| Factor 4: cognitive self-consciousness ($\alpha = 0.80$) | | | | | |
| I constantly examine my thoughts (30) (Düşüncelerimi sürekli incelerim) | .30 | .01 | -.27 | .78 | .33 |
| I pay close attention to the way my mind works (18) (Zihnimin nasıl çalıştığına çok dikkat ederim) | .14 | -.09 | -.16 | .77 | .23 |
| I monitor my thoughts (12) (Düşüncelerimi izler, takip altında tutarım) | .01 | -.09 | -.28 | .73 | .32 |
| I am constantly aware of my thinking (16) (Düşüncelerimin sürekli farkındayım) | .01 | -.07 | -.07 | .69 | .33 |
| I am aware of the way my mind works when I am thinking through a problem (5) (Bir sorun üzerinde düşündüğüm esnada, zihnimin nasıl çalıştığının farkında olurum) | -.02 | -.11 | -.10 | .62 | -.01 |
| I think a lot about my thoughts (3) (Düşüncelerim hakkında çok düşünürüm) | .42 | .07 | -.13 | .56 | .20 |
| Factor 5: need to control thoughts ($\alpha = 0.73$) | | | | | |
| Not being able to control my thoughts is a sign of weakness (20) (Düşüncelerimi kontrol altına alamamak bir zayıflık işaretidir) | .10 | .08 | -.15 | .36 | .75 |
| If I could not control my thoughts, I would not be able to function (27) (Düşüncelerimi kontrol altına alamazsam, iş göremez hale gelirim) | .29 | .12 | -.14 | .30 | .70 |
| I will be punished for not controlling certain thoughts (22) (Bazı düşünceleri kontrol altına almadığım için cezalandırılacağım) | .38 | .10 | -.22 | -.01 | .62 |

Table 2.4. (cont' d)

| Item and Item Number | Loadings on factors | | | | |
|---|---------------------|-----|------|-----|------------|
| | 1 | 2 | 3 | 4 | 5 |
| It is bad to think certain thoughts (25) (Bazı düşünceleri akıldan geçirmek kötüdür) | .25 | .08 | -.08 | .06 | .62 |
| I should be in control of my thoughts all of the time (13) (Düşüncelerimi her zaman kontrolüm altında tutabilmem gerekir) | .11 | .00 | -.25 | .55 | .56 |
| If I did not control a worrying thought, and then it happened, it would be my fault (6) (Endişe verici bir düşünceyi kontrol altına almazsam, ve sonra bu düşüncem gerçekleşirse, bu benim hatam olur) | .28 | .07 | -.29 | .31 | .54 |

4.2. Reliability. Except for one item (item 5), corrected item-total coefficients ranged from 0.20 to 0.59 for the total MCQ-30. As for the individual subscales, they ranged from .29 to .67 for uncontrollability and danger, .54 to .86 for lack of cognitive confidence, .61 to .77 for positive beliefs, .42 to .68 for cognitive self-consciousness, and .37 to .57 for need to control thoughts, indicating that all items were associated with their respective subscales. Item 5 whose relationship with the whole scale was lower than the conventional level of 0.20 was not excluded from the MCQ-30 since it was correlated sufficiently with its corresponding subscale ($r = .42$) and had a high loading on this subscale. In addition, examination of the alpha statistics demonstrated that deletion of this item would not make any significant contribution in terms of the reliability of the factor.

Internal consistency and test-retest reliability coefficients were computed for the whole scale and its subscales. Cronbach's alpha coefficient for the full MCQ-30 was found to be .87, indicating high reliability for the total score. The internal consistency coefficients of the factors are presented in Table 2.4 and ranged from .73 to .89. The Guttman split half reliability for the total MCQ-30 was .90, and Cronbach's alpha coefficients were .77 and .76 for the first and the second halves each including 15-items, respectively. In addition, the Guttman split half reliabilities of the MCQ factors were .82 for uncontrollability and danger, .90 for lack of cognitive confidence, .90 for positive beliefs, .84 for cognitive self-consciousness, and .76 for need to control thoughts. Twenty-six participants were re-tested with the MCQ-30. The retest interval ranged from five to seven weeks. While the retest correlation for the total MCQ-30 scores was found as .80, it was .75 for positive beliefs, .90 for uncontrollability and danger, .45 for lack of cognitive confidence, .68 for need to control thoughts, and .56 for cognitive self-consciousness. Paired samples *t*-tests revealed that none of the mean differences between two administrations was significant for any of the MCQ-30 subscales or total scores.

4.3. Convergent Validity. In order to evaluate the convergent validity of the MCQ-30 and its subscales, the correlation coefficients among MCQ-30 total score, MCQ-30 subscales, PSWQ, PI-WSUR, STAI-T, BAI, and BDI were examined. In line with previous research, as can be seen in Table 2.5, there were positive

Table 2.5. Correlations of the MCQ-30 and PSWQ with measures of anxiety and depression (N = 561)

| | MCQ30 | | Padua | | | | | Padua | PSWQ | STAIT | BAI | BDI | | |
|----------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | total | | | | |
| MCQ-30 | | | | | | | | | | | | | | |
| 1. Positive beliefs | 0.34** | 0.12** | 0.33** | 0.28** | 0.21** | 0.22** | 0.32** | 0.30** | 0.19** | 0.34** | 0.38** | 0.23** | 0.21** | 0.16** |
| 2. Uncontrol- lability/danger | | 0.30** | 0.44** | 0.25** | 0.29** | 0.20** | 0.41** | 0.51** | 0.32** | 0.47** | 0.70** | 0.65** | 0.45** | 0.47** |
| 3. Cognitive confidence | | | 0.11* | -0.08 | -0.02 | -0.01 | 0.08 | 0.21** | 0.23** | 0.11** | 0.30** | 0.34** | 0.17** | 0.23** |
| 4. Need to control | | | | 0.47** | 0.30** | 0.36** | 0.33** | 0.38** | 0.22** | 0.42** | 0.30** | 0.24** | 0.28** | 0.25** |
| 5. Cognitive consciousness | | | | | 0.20** | 0.23** | 0.23** | 0.22** | 0.06 | 0.26** | 0.16** | 0.07 | 0.12** | 0.05 |
| MCQ-30 Total Score | | | | | 0.30** | 0.31** | 0.43** | 0.51** | 0.33** | 0.50** | 0.58** | 0.49** | 0.39** | 0.37** |

Note. MCQ-30 = Meta-Cognitions Questionnaire-30, Padua 1 = Contamination Obsessions and Washing Compulsions, Padua 2 = Dressing-Grooming Compulsions, Padua 3 = Checking Compulsions, Padua 4 = Obsessional thoughts of harm to self/others, Padua 5 = Obsessional impulses to harm self/others, PI-R = Padua Inventory Washington State University Revision, PSWQ = Penn State Worry Questionnaire, STAIT = State-Trait Anxiety Inventory Trait form, BAI = Beck Anxiety Inventory, BDI = Beck Depression Inventory. **p< .01, *p< .05

correlations between total MCQ-30 and PSWQ, PI-WSUR, STAI-T, BAI, and BDI. Except for the correlations between the cognitive self-consciousness subscale and trait anxiety and depression, all of the remaining subscales of the MCQ-30 revealed significant positive correlations with the other convergent validity measures ranging from strong to weak. Except for the relationship between lack of cognitive confidence and cognitive self-consciousness subscales, all of the other MCQ-30 subscales were found to be intercorrelated.

4.4. Criterion Validity. With regard to criterion validity of the Turkish version of the MCQ-30, the scores of the PSWQ were divided into two extreme groups as high and low worriers, using the highest (over 52 points) and lowest (below 35 points) 25th percentiles. In order to evaluate whether MCQ-30 and its subscales would significantly distinguish these high and low worrier groups from each other, a between-subjects multivariate analysis of variance (MANOVA) was performed on the five factors of the MCQ-30 as dependent variables. The independent variable was worry group (N = 141 for low group, N = 153 for high group).

Using the Wilks' criterion, the overall results demonstrated that there were significant differences between high and low worry groups on the combination of these five dependent variables, $F(5, 288) = 69.83, p < .001, \eta^2 = .55$. Examination of follow-up univariate ANOVA's revealed that the high worry group significantly differed from the low group in all of the MCQ-30 subscales (see Table 2.6). In other words, people with high worry had high scores on positive beliefs ($F[1, 292] = 69.85, p < .001, \eta^2 = .19$), uncontrollability and danger ($F[1, 292] = 315.95, p < .001, \eta^2 = .52$), lack of cognitive confidence ($F[1, 292] = 29.16, p < .001, \eta^2 = .09$), need to control thoughts ($F[1, 292] = 35.57, p < .001, \eta^2 = .11$), and cognitive self-consciousness ($F[1, 292] = 8.28, p < .01, \eta^2 = .03$). Eta squared values showed that particularly for negative beliefs the effect size was quite large (i.e., $\eta^2 = .52$), whereas for the cognitive consciousness dimension it was small (i.e., $\eta^2 = .03$).

Table 2.6. Multivariate analysis of variance for low and high PSWQ groups

| Source | Means of PSWQ | | df | F | η^2 |
|---------------------------------|---------------|-------|--------|----------|----------|
| | Low | High | | | |
| Overall test | - | - | 5 | 69.83** | 0.55 |
| MCQ-30 | | | | | |
| 1. Positive beliefs | 9.72 | 13.48 | 1, 292 | 69.85** | 0.19 |
| 2. Uncontrollability and danger | 9.05 | 15.58 | 1, 292 | 315.95** | 0.52 |
| 3. Lack of cognitive confidence | 9.74 | 12.55 | 1, 292 | 29.16** | 0.09 |
| 4. Need to control thoughts | 11.70 | 14.29 | 1, 292 | 35.57** | 0.11 |
| 5. Cognitive self-consciousness | 15.45 | 16.70 | 1, 292 | 8.28* | 0.03 |

Note. PSWQ= Penn State Worry Questionnaire, MCQ-30 = Meta-Cognitions Questionnaire-30. ** $p < 0.001$, * $p < 0.01$

Discussion

The aim of the study was to investigate the psychometric properties of Turkish versions of Turkish versions of the PSWQ and MCQ-30 in a Turkish sample. For this purpose the factor structure, internal consistency, split-half reliability, test re-test reliability, and convergent validity of these scales was examined. Since pathological worry can be an appropriate criterion variable when the framework of the metacognitive theory is considered, the criterion validity of the MCQ-30 could be investigated, as well.

Results for the Penn State Worry Questionnaire. The initial factor analysis revealed a two-factor structure which was mainly based on the direction of the wording of items. While the “presence of worry” factor was comprised of 11 positively worded items, the “absence of worry” factor was composed of the remaining 5 items written in the negative direction. Although this finding was in accordance with many studies (Beck et al., 1995; Carter et al., 2005; Fresco et al., 2002; Meloni & Gana, 2001; Stöber, 1995; van Rijsoort, et al., 1999), there are other studies supporting a unidimensional, general factor solution for the PSWQ (Brown,

2003; Brown et al., 1992; Ladouceur et al., 1992; Meyer et al., 1990). So as to clarify the individual contributions of these factors to pathological worry, two complementary factor analyses were performed. Among all factor analyses of the current study, the greatest amount of variance in pathological worry was explained by the positive items, followed by the total PSWQ scores and the negative items, respectively.

While the internal consistencies of the whole PSWQ and presence of worry factor were found to be equivalently high, it was low for the absence of worry factor. The Turkish version of the PSWQ was also shown to have high split-half reliability and temporal stability (from five to seven weeks) as a whole. On the other hand, the stability of the presence and absence of worry factors across the retest interval were also supported. These results indicated that the PSWQ is a reliable instrument that could be utilized in Turkish culture in a manner consistent with the English version (Meyer et al., 1990).

The relationships between the PSWQ and PI-WSUR, STAI-T, BAI, and BDI were examined in connection with the convergent validity of the scale. The results verified that the PSWQ was significantly and positively associated with o-c symptoms, trait anxiety, and anxiety and depression symptoms. Such a pattern between pathological worry and anxiety and depression is a widespread finding in the literature (see Molina & Borkovec, 1994 and Startup & Erickson, 2006 for reviews). A more detailed investigation between obsessional subscales of PI-WSU-R and pathological worry were done to clarify whether Turkish versions of these two scales show similar relationship patterns as they did English versions. The results indicated that worry and obsessive-compulsive symptomatology shared 24 percent variance in common. Although it could be accepted in the moderate range of relationship, this amount of shared variance was higher than that of reported in Burns et al.'s study (1996) but lower than that found in Freeston et al.'s study (1994). In addition, the correlations of the PSWQ with the obsessional subscales were higher than that of reported in the original revision study (Burns et al., 1996). However, there is a need to further investigate these preliminary results within a study specifically devoted for this purpose.

As a complementary source of information to find out whether reverse scored items would represent a distinct component of worry, the relationships between the PSWQ, its factors and anxiety and depression measures were also inspected. It was observed that both total PSWQ scores and presence of worry factor demonstrated strong relationships with anxiety and depression measures. Tests of statistical significance conducted to determine the differences in these correlations revealed that the strength of the total scores of the PSWQ and the positive items alone in detecting the relationship patterns between pathological worry and psychological symptomatology was not significantly different. However, the correlations between the negative items and anxiety and depression measures were moderate, and the magnitude of these relationships was significantly smaller than for the total score's and presence of worry factor.

To summarize, the current data seem to suggest that the greatest amount of variance in pathological worry was explained by the positive items alone. Internal consistency coefficients for the total scale and for the presence of worry factor were almost identical. The correlations of the presence of worry factor and total scores with the anxiety and depression measures were statistically equivalent. Negative item scores alone correlated appreciably smaller with the anxiety and depression measures than did the total PSWQ and positive item scores. Considering these findings together, it can be asserted that using only the presence of worry factor without the reverse scored items would not cause loss of information in studies focusing on the relationships between pathological worry and psychological dysfunction.

In general, the results obtained from the psychometric investigation of the PSWQ could be interpreted as reverse scored items representing a second factor due to the wording effect. All the same, there was no direct evidence that indicates a reason for the exclusion of these items from the scale. In fact, the PSWQ as a whole showed good internal consistency, split-half reliability, and test-retest reliability over intervals as long as five to seven weeks. Moreover, all corrected item-total correlations of the total PSWQ were acceptable. Also, convergent validity of the whole PSWQ was quite satisfactory. Given the fact that the aim of including these negative statements in the original PSWQ was to reduce the effects of agreement

(Meyer et al., 1990), we do not know the effects that dropping these items might have on participants' responses. What is more, it is a frequent outcome that positively and negatively worded items can load on distinct factors when instruments include a combination of positive and negative items (Brown, 2003).

Results for the Meta-Cognitions Questionnaire-30. The MCQ-30 includes metacognitions that are related to both content and process dimensions. In accord with the original scale, the Turkish version of the instrument was found to be composed of five factors, which were positive beliefs about worry, negative beliefs about uncontrollability of thoughts and danger, lack of cognitive confidence, beliefs about need to control thoughts, and cognitive self-consciousness. The present results supported intercorrelation among these factors, except for the non-significant association between lack of cognitive confidence and cognitive self-consciousness subscales. The five resultant factors accounted for a total 57.38% of the variance, which is near to the amount accounted for by these five components in the original study (68%).

Reliability analyses with respect to internal consistency and split-half reliability procedures indicated that the instrument and its subscales possess high reliability. In addition, test-retest coefficients and tests of differences between two applications supported the stability of MCQ-30 and its subscales across time in a Turkish sample as parallel to the findings in the original study (Wells & Cartwright-Hatton, 2004). On the other hand, although retest correlations indicated a high level of stability for the whole scale and positive beliefs about worry, uncontrollability and danger, and need to control thoughts subscales, the correlations for lack of cognitive confidence (.45) and cognitive self-consciousness (.56) subscales were relatively low, suggesting these subscales may act more like state variables and be prone to fluctuation.

Providing evidence for the convergent validity of the MCQ-30 and its subscales, the relationships with related constructs were significant and in the expected direction. The results of correlations between the total scores of MCQ-30 and PI-WSUR subscales were similar to those reported in the original study (Wells & Cartwright-Hatton, 2004). Thus, the present findings are consistent with other data

showing positive relationships between metacognitions and dimensions of obsessive and compulsive symptoms (Gwilliam et al., 2004; Hermans et al., 2003; Myers & Wells, 2005; Purdon & Clark, 1999; Wells & Papageorgiou, 1998). Moreover, the associations of MCQ-30 and its subscales with pathological worry and trait anxiety were significant as consistent with the original study, with the exception of the correlation between cognitive self-consciousness and trait anxiety. In particular, the MCQ-30 uncontrollability and danger subscale strongly correlated with pathological worry, accounting for 49 per cent of the variance in worry in accordance with the original study (53%). Therefore, the findings of the current study provided further evidence for the pattern of associations between metacognitive beliefs and pathological worry and trait anxiety (Davis & Valentiner, 2000; Wells & Carter, 1999; Wells & Papageorgiou, 1998).

Concerning the criterion validity of the MCQ-30, the results were as expected. High and low worry groups were successfully differentiated on the basis of MCQ-30 scores. People with high worry reported more metacognitive beliefs than those with low worriers. The greatest difference was obtained for the uncontrollability and danger subscale, which is consistent with other studies comparing high and low patient and non-patient worriers (e.g., Wells & Carter, 1999).

The means for MCQ-30 and its subscales obtained from a Turkish sample tended to be higher than that reported for an English sample (Wells & Cartwright-Hatton, 2004). This may indicate true cultural differences but this notion must be confirmed with subsequent studies. The fifth chapter of this thesis sought to investigate issues in relation to this notion.

General Conclusion. The findings of the current study provided preliminary data on the psychometric properties of the Turkish version of the MCQ-30 and PSWQ. Overall, the results suggest that both scales are psychometrically sound measures that possess acceptable reliability, temporal stability, and substantial validity in a non-clinical population drawn from a non-Western culture. The positive associations between dimensions of metacognition and pathological worry and o-c symptoms are also consistent with earlier findings (Cartwright-Hatton & Wells, 1997; Wells & Papageorgiou, 1998). Given the promising initial findings, there is a need for

studies focusing on the psychometrics of the Turkish versions of these scales in clinical samples, particularly in patients with GAD. In addition, the ability of the scales to differentiate individuals with GAD from those without GAD and/or with other anxiety disorders should be studied, along with their sensitivity to treatment effects. Thus, replication of this study in patient samples is strongly encouraged for a broader generalization of the current findings.

CHAPTER III

COGNITIVE and METACOGNITIVE PREDICTORS of ANXIETY and DEPRESSIVE SYMPTOMS: TWO CROSS-SECTIONAL STUDIES in TURKISH and BRITISH SAMPLES

The principle aim of this section of the study was to undertake an examination of cognitive and metacognitive correlates of worry, obsessive-compulsive (o-c) symptoms, anxiety, and depression separately in Turkish and English samples. In particular, the relationship patterns between metacognitions and psychological symptomatology were investigated in both cultures.

In addition, one aspect requiring exploration in the metacognitive theory, is the assertion that metacognitive beliefs enhance our knowledge about the mechanisms underlying emotional disorders beyond cognitive theory which focuses mainly on cognitive content (Wells & Matthews, 1994; Wells & Purdon, 1999). Whilst a number of studies have supported aspects of the metacognitive model, it would be useful to determine the relative contribution of cognitive content versus metacognition to emotional symptoms and test specific hypotheses based on the metacognitive theory.

In this section, hypotheses were examined separately in the Turkish and British samples. Statistical comparisons of these results allow the cross-cultural aims of the study to be met and reported separately in the following sections.

A. An Investigation of the Metacognitive Factors Above and Beyond Cognitive Content in a Turkish Sample

Three objectives were stated for the Turkish study and hypotheses relevant to each were as follows:

The first aim was to replicate earlier findings concerning the relationship between metacognitions and psychological symptomatology. It was hypothesized that higher levels of negative and positive metacognitive beliefs about worry and

employment of metacognitive processes such as monitoring, need to control thoughts, and judgments of cognitive confidence would be associated with higher levels of pathological worry and obsessive-compulsive (o-c) symptoms when comorbid symptoms and individual differences in terms of demographic variables (age and gender) were controlled. In addition, since this study has been the first examination of metacognitive factors in a Turkish population, the scope of the study was widened and state anxiety as measured by BAI and depressive symptomatology as measured by BDI were also included as dependent variables, to test the contribution of metacognition to more general emotional symptoms. Therefore, the first hypothesis of the study can be reworded as “higher levels of metacognitions would be associated with higher levels of pathological worry, o-c symptoms, and anxiety and depressive symptoms when comorbid symptoms and demographic variables (age and gender) were controlled”.

As connected with the first objective, the present study also aimed to test the predictions of Wells' (1994, 1995) metacognitive model of pathological worry and GAD in a Turkish sample. This model emphasizes that pathological worry does not emerge from the traditional negative beliefs and automatic thoughts (e.g., “I am worthless, the world is dangerous”) of schema theory but derives from a separate knowledge base which consists of positive and negative beliefs about worrying (metacognitions). Complementary to this prediction, it is thought that negative cognitive content, which is often in the form of “what if” questions, functions as one of the sources of triggers for positive metacognitive beliefs about worrying which leads to the experience of Type 1 worry. During the Type 1 worry process in GAD negative metacognitive beliefs about worry concerning uncontrollability and danger which is closely linked to the experience of Type 2 worry are activated. In this model, negative beliefs about worry is predicted as a central causal factor in the development and maintenance of pathological worry. Therefore, although both positive and negative beliefs about worry should be associated with pathological worry, it should be negative beliefs about worry that predicts pathological worry independent of positive beliefs about worry. In the light of these predictions of the metacognitive

model of GAD, as the second hypothesis of the study it was predicted that the relationship between anxious cognitive content and pathological worry should be mediated by negative beliefs about worry concerning uncontrollability of thoughts and danger, after controlling for positive beliefs about worry, comorbid symptoms, and individual differences in terms of demographic variables (age and gender).

Earlier research suggests that certain types of metacognitive processing components would be more important for some specific disorders than others. Consequently, a domain specific examination of metacognitions associated with symptoms constituted the second aim of the study. As the third proposition, it was hypothesized that some aspects of metacognition would be associated with some specific types of psychological symptomatology better than the others.

Finally, this study aimed to focus on the individual contribution of metacognitions as relative to cognitive contents. Therefore, the fourth hypothesis of the study was that metacognitive beliefs would still account for a significant proportion of variance in the symptoms of anxiety and depression, even after controlling for anxious and depressogenic cognitive content, and demographic variables. As complementary to this hypothesis, it was also hypothesized as the fifth proposition that metacognitive beliefs would be more strongly associated with the symptoms than cognitive content.

Method

Subjects

The sample used to examine the psychometric properties of the PSWQ and MCQ-30 in the previous chapter was also used in this section of the present study conducted in the Turkish culture. To remind, there were 561 participants comprising 457 (81.5%) undergraduate and postgraduate students, and 104 (18.5%) non-students. As a whole, the sample was composed of 300 (53.5%) females and 261 (46.5%) males. The age of the sample ranged from 17 to 52 years with a mean of 23.55 (SD = 5.7).

Instruments

The instruments administered for testing the main hypotheses of the Turkish study were as follows: MCQ-30, PSWQ, PI-WSUR, BAI, BDI, and Cognition Checklist (CCL). Apart from the CCL, the rest of these questionnaires were introduced in the previous chapter.

Cognition Checklist (CCL; Beck, Brown, Steer, Eidelson, & Riskind, 1987).

This is a 26-item scale designed to measure the frequency of automatic thoughts or cognitions relevant to anxiety and depression, and to test the cognitive content specificity hypothesis. Since the scale is constructed to differentiate between depressive and anxious cognitions, it has two subscales, one for anxious cognitions (CCL-A), and the other for depressive cognitions (CCL-D). CCL-A comprises 12 items, while CCL-D comprises 14 items. CCL-A includes cognitions related to danger, which are thought to be characteristic of anxiety disorders (Beck & Emery, 1985), while CCL-D includes items related to loss and failure. Respondents are required to endorse how often each thought typically occurred to them on a 5-point scale ranging from *never* (0) to *always* (4) in the context of one of three specific situations (attending a social occasion, with a friend, and experiencing pain or physical discomfort) which potentially trigger depressive and anxious thoughts. Since the first two situations are thought to provoke thoughts relevant for depression, items given under these categories are representative of depressive cognitive content. In this way, the latter situation is designed to detect anxious cognitive content. In addition, some other items assessing either depressive or anxious cognitions are also included regardless of the situation. Example items for CCL-A subscale include “What if I get sick and become an invalid?”, “I am going to be injured”, and “Something awful is going to happen”. Example items for CCL-D include “I don’t deserve to be loved”, “I am worthless”, and “I will never overcome my problems”. Higher total scores for each subscale indicates that the individual’s cognitive content is highly anxious and/or depressogenic. The reliability coefficients for the CCL-A and CCL-D were .86 and .90, respectively for the student sample (Steer, Beck, Clark, & Beck, 1994). Providing support for the convergent validity of the scale, CCL-A positively

correlated with BAI; CCL-D was positively correlated with BDI and Hamilton Psychiatric Rating Scale for Depression (HRSD-R). With regard to discriminant validity of the scale for student sample, the CCL-D was found more highly correlated with the BDI than with the BAI, but the CCL-A was reported as being equally correlated with the BDI and BAI (Steer et al., 1994).

The adaptation of the scale into Turkish language (see Appendix G) was done by Dürü (1998) and both the CCL-A and CCL-D subscales, as well as the whole scale, were demonstrated to have adequate psychometric properties.

Procedure

The instruments were administered during regular class hours to the student participants. The students either got credit for their participation or they were volunteers. A method of convenience sampling was used to obtain non-student participants. Before the administrations, instructions were given to all participants and they were told that they could contact the researcher if they had further questions. The instruments were presented in randomized order to eliminate the effect of sequencing. The cover page included a brief explanation about the study and an informed-consent form. The total administration time for the instruments was approximately 30 minutes.

Results

1. Screening for Data

Prior to testing the main hypotheses of the study, all variables were evaluated to determine whether assumptions of multivariate analyses were satisfactorily met. The examination of univariate extreme cases revealed that five subjects on BAI, two subjects on CCL-Depression, and three subjects on CCL-Anxiety were outliers. After the exclusion of these cases from the data file, 551 cases including 296 females (53.7%) and 255 males (46.3%) remained for the analyses. Even after excluding these outliers, CCL-Anxiety and CCL-Depression variables were found to be positively skewed. Thus, a square root transformation procedure was employed for these variables so that the skewness values were within the range of -1 to +1.

2. Psychometric Properties of the Study Questionnaires

The psychometric qualities of the instruments for the present study are presented in Table 3.1. Because the psychometric qualities of the MCQ-30 and PSWQ were reported in detail in the previous chapter, only PI-WSUR, BAI, BDI, and CCL total and subscale scores were considered.

Table 3.1. Internal consistency coefficients of the instruments for the present studying the Turkish Sample

| | Range of item-total correlations | Cronbach α |
|---------|----------------------------------|-------------------|
| PI-WSUR | .13-.65 | .93 |
| BAI | .44-.73 | .93 |
| BDI | .23-.62 | .87 |
| CCL-T | .39-.69 | .92 |
| CCL-A | .41-.67 | .85 |
| CCL-D | .46-.73 | .90 |

Note. PI-WSUR = Padua Inventory-Washington State University Revised, BAI = Beck Anxiety Inventory, BDI = Beck Depression Inventory, CCL-T = Cognitions Checklist Score, CCL-A = Cognitions Checklist Anxiety Subscale, CCL-D = Cognitions Checklist Depression Subscale.

3. Descriptive Statistics

Apart from the MCQ-30 and the PSWQ, means and standard variations of the other study variables for Turkish sample are presented in Table 3.2, separately for male and female participants. In this table, the means and standard deviations of non-transformed versions of the CCL-Anxiety and -Depression scales are displayed. Descriptive statistics of the MCQ-30 and PSWQ can be found in Table 2.1 presented in the previous chapter.

Independent samples *t*-tests were used to test gender differences on the PI-WSUR, BAI, BDI, CCL-Anxiety and CCL-Depression. As a result, differences between men and women on the dependent variables did not emerge as significant (see Table 3.2).

Table 3.2. Descriptive statistics (means with standard deviations in parentheses) for the study variables in the Turkish Sample

| | Total (N = 551) | Men (N = 255) | Women (N = 296) | t value |
|------------|-----------------|---------------|-----------------|---------|
| 1. PI-WSUR | 35.26 (21.13) | 34.02 (20.45) | 36.32 (21.68) | -1.28 |
| 2. BAI | 13.49 (11.49) | 12.56 (11.56) | 14.29 (11.40) | -1.76 |
| 3. BDI | 9.44 (7.37) | 9.15 (6.74) | 9.68 (7.87) | -0.85 |
| 4. CCL-A | 5.14 (5.50) | 5.03 (5.65) | 5.23 (5.38) | -0.41 |
| 5. CCL-D | 8.14 (7.95) | 7.67 (7.81) | 8.54 (8.07) | -1.29 |

Note. PI-WSUR = Padua Inventory-Washington State University Revised, STAI-T = State-Trait Anxiety Inventory Trait form, BAI = Beck Anxiety Inventory, BDI = Beck Depression Inventory, CCL-A = Cognitions Checklist Anxiety Subscale, CCL-D = Cognitions Checklist Depression Subscale.

4. Overview of Main Analyses

In order to investigate the relationships between metacognitions and psychological symptomatology in the Turkish sample and test the specific hypotheses relevant to this objective, a series of hierarchical multiple regression analyses were performed, in which anxiety (PSWQ, BAI, or PI-WSUR) or depression (BDI) were regressed on the metacognitions (MCQ-30 subscales). In all the regressions, the demographic variables and the other relevant symptom dimension for a given criterion variable were entered on the first step and on the second step the MCQ-30 subscales as a set were forced to enter, with the measures of PSWQ, PI-WSUR, BAI, or BDI as the criterion variable respectively. When pathological worry (PSWQ) was the criterion variable, obsessive-compulsive symptomatology (PI-WSUR) and depression (BDI) were controlled in the first step, along with the demographic variables. When obsessive-compulsive symptomatology (PI-WSUR) was the criterion variable, in addition to the demographic variables, pathological worry (PSWQ) and depression (BDI) were controlled in the first step. When state anxiety (BAI) was the criterion variable, depression (BDI) was controlled in the first step, in addition to the demographic variables. And finally, when depression (BDI) was the criterion variable, in addition to the demographic variables, general anxiety symptomatology (BAI) was controlled in the first step.

The reason for controlling the overlap between worry and o-c symptomatology before predicting either of these symptom categories was theoretical. The association of pathological worry with obsessive compulsive symptomatology has gained a considerable research interest and the content of obsessions and worry has been considered as a distinguishing characteristic of these two (APA, 1994; Burns et al., 1996; Turner et al., 1992; Wells & Morrison, 1994; Wells & Papageorgiou, 1998). Because of this overlap, it is necessary to control for the variance obsessive compulsive symptoms share with worry to obtain more specific results about each, without the contamination of the other.

In order to achieve the other main aim of the study regarding the domain specific examination of metacognitions, the same analysis strategy described above was employed and subscales of the MCQ-30 were forced to enter into the regression equation as a set. Consequently, an examination of the importance of different metacognitive factors in different symptom groups became possible. Thus, the hypothesis that some aspects of metacognition would predict some specific types of psychological symptomatology better than the others was tested within the framework of the same analyses described above.

Similarly, employment of the same analysis strategy was also possible to examine individual contribution of metacognitive beliefs to the psychopathology above and beyond the contribution of cognitive content alone. Therefore, in the regression equations mentioned above, either anxious or depressogenic cognitions (CCL-A or CCL-D, respectively) depending on whether the criterion variable was an anxiety or depression measure, was entered on the second step before entering the MCQ-30 subscales in the next step. On the other hand, to properly test whether metacognitive beliefs are stronger predictors of psychological symptoms than cognitive content, and to determine the relative contribution of cognitive content versus metacognition to psychological symptoms, all of these regressions for specific symptomatology were repeated by reversing the second and third steps. Consequently, the MCQ-30 subscales were forced to enter on the second step while the relevant cognitive content (anxious cognitions when the criterion variable was the

PSWQ, PI-WSUR, or BAI; depressogenic cognitions when the dependent variable was BDI) was entered on the last step, after controlling for demographic variables and the relevant symptom dimensions in the first step.

The present study also aimed to test the predictions of Wells' (1994, 1995) metacognitive model of pathological worry and GAD. In order to test the hypothesis relevant to this aim, a mediation analysis with pathological worry (PSWQ) as the criterion variable, negative beliefs about worry (MCQ-2) as the mediator variable, and anxious cognitive content-automatic thoughts (CCL-Anxiety) as the independent variable, was performed following the criteria recommended by Baron and Kenny (1986). To provide a conservative test of this model and clarify the independent mediator role of negative beliefs about worry, positive beliefs about worry (MCQ-1) was also treated as a covariate and was controlled in the analysis. In addition, nonspecific effects that may be associated with overlap between worry and o-c symptoms and individual differences in terms of demographic variables (age and gender) were also controlled.

5. Correlational Analyses

Prior to conducting regression analyses, the Pearson intercorrelations of the variables used in the study as potential predictors and criterion variables were computed (See Table 3.3). According to the rule of thumb given by Tabachnick and Fidell (2001), correlations of .90 and above are evaluated as a multicollinearity problem in regression analysis, thus, as can be seen from Table 3.3, the correlations among independent variables were not large enough to suggest that multicollinearity was a problem in the analyses.

As can be seen from the correlation matrix, age had not a significant correlation with o-c, anxiety, and depression symptoms which were the criterion variables of the current study in testing the main hypotheses, whilst its correlation was significant with pathological worry indicating that older people had higher pathological worry. In addition, the correlation between cognitive self-consciousness and depressive symptoms was not significant. All of the other predictor variables were significantly correlated with the criterion variables.

Table 3.3. Intercorrelations among metacognitive factors, worry, obsessional, anxious, and depressive symptoms, anxious and depressive cognitions, age, and gender (N = 551 for all but 550 for age)

| | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|----------|
| 1. MCQ-1 | 0.33** | 0.09* | 0.33** | 0.28** | 0.39** | 0.33** | 0.19** | 0.15** | 0.21** | 0.21** | -0.16** | -0.08 |
| 2. MCQ-2 | - | 0.29** | 0.43** | 0.24** | 0.69** | 0.46** | 0.43** | 0.45** | 0.40** | 0.51** | 0.12** | -0.15** |
| 3. MCQ-3 | | - | 0.10* | -0.09* | 0.28** | 0.10* | 0.14** | 0.21** | 0.18** | 0.27** | 0.13** | 0.02 |
| 4. MCQ-4 | | | - | 0.46** | 0.30** | 0.41** | 0.25** | 0.23** | 0.26** | 0.21** | -0.15** | -0.16** |
| 5. MCQ-5 | | | | - | 0.16** | 0.24** | 0.11** | 0.03 | 0.16** | 0.05 | -0.10* | -0.016** |
| 6. PSWQ | | | | | - | 0.48** | 0.38** | 0.45** | 0.37** | 0.50** | 0.18** | -0.09* |
| 7. PI-WSUR | | | | | | - | 0.46** | 0.43** | 0.38** | 0.36** | 0.05 | -0.11* |
| 8. BAI | | | | | | | - | 0.49** | 0.41** | 0.43** | 0.08 | -0.11** |
| 9. BDI | | | | | | | | - | 0.49** | 0.67** | 0.04 | -0.11** |
| 10. CCL-A | | | | | | | | | - | 0.61** | 0.05 | -0.12** |
| 11. CCL-D | | | | | | | | | | - | 0.05 | -0.13** |
| 12. Age | | | | | | | | | | | - | -0.17** |
| 13. Gender | | | | | | | | | | | | - |

Note. MCQ-1 = Positive beliefs about worry, MCQ-2 = Negative beliefs about worry concerning uncontrollability and danger, MCQ-3 = Lack of cognitive confidence, MCQ-4 = Need to control thoughts, MCQ-5 = Cognitive self-consciousness, PSWQ = Penn State Worry Questionnaire, PI-WSUR = Padua Inventory Washington State University-Revised, BAI = Beck Anxiety Inventory, BDI = Beck Depression Inventory, CCL-A = Cognition Checklist-Anxiety subscale, CCL-D = Cognition Checklist-Depression subscale, Gender = 1: Male, 2: Female. **p < .01, *p < .05

Since age was a demographic variable to be used in the first stages of the regression analyses, it was excluded from the analyses whose criterion variable was PI-WSUR, BAI, or BDI. However, considering earlier findings, cognitive self-consciousness was not excluded from the regression analysis when regressing depressive symptoms.

6. Main Analyses: Results of the Multiple Hierarchical Regression Analyses Testing the Hypotheses

6.1. Roles of metacognitive factors and cognitive content on pathological worry in the Turkish sample

The first set of hierarchical regression analyses was conducted to identify the associates of pathological worry. In the first step of the first regression analysis, gender, age, o-c symptoms (PI-WSUR) and depression (BDI) were entered into the equation to control for the variance explained by these variables. In the second step, anxious cognitive content (CCL-A) was forced to enter. In order to test if metacognitive factors could explain a significant proportion of variance in explaining pathological worry above and beyond all of these variables, the subscales of the MCQ were entered as a set on the last step. In the subsequent regression analysis, this regression was repeated but with reversing the second and third steps.

In the first set (see Table 3.4), \underline{R} was significantly different from zero at the end of each step. After all variables were entered into the regression equation, Multiple $\underline{R} = .76$, $\underline{F}(10, 539) = 71.66$, $p < .001$. After step one, the control variables as a set emerged as significant in predicting pathological worry with $R^2 = .33$, $\underline{F}(4, 545) = 67.05$, $p < .001$. Apart from age, the other control variables, namely gender and comorbid o-c and depressive symptomatology, emerged as significant individual associates of pathological worry, indicating that being women and higher levels of o-c and depressive symptomatology were significantly associated with pathological worry. On the second step, addition of anxious cognitive content to the equation resulted in a significant increment in \underline{R}^2 with $\underline{R}^2_{\text{change}} = .01$, $\underline{F}_{\text{change}}(1, 544) = 8.68$, $p < .005$.

Table 3.4. The first set of regression equations with PSWQ regressed on gender, age, PI-WSUR, BDI, CCL-A, and MCQ-30 in the Turkish Sample

| Variables | β | t (within set) | df | F_{change} | R^2 |
|-------------------------------|---------|---------------------|--------|--------------|-------|
| Regression 1 | | | | | |
| Step 1: Control Variables | | | 4, 545 | 67.05*** | .33 |
| Gender | .15 | 4.29*** | 545 | | |
| Age | .01 | 0.08 | 545 | | |
| PI-WSUR | .35 | 8.97*** | 545 | | |
| BDI | .30 | 7.68*** | 545 | | |
| Step 2: Cognitive Content | | | 1, 544 | 8.68** | .34 |
| CCL-A | .12 | 2.95** | 544 | | |
| Step 3: Metacognitive Factors | | | 5, 539 | 57.86*** | .57 |
| MCQ-1 | .19 | 5.84*** | 539 | | |
| MCQ-2 | .50 | 13.23*** | 539 | | |
| MCQ-3 | .06 | 1.98* | 539 | | |
| MCQ-4 | -.04 | -1.22 | 539 | | |
| MCQ-5 | -.01 | -0.41 | 539 | | |
| Regression 2 | | | | | |
| Step 1: Control Variables | | | 4, 545 | 67.05*** | .33 |
| Gender | .15 | 4.29*** | 545 | | |
| Age | .01 | 0.08 | 545 | | |
| PI-WSUR | .35 | 8.97*** | 545 | | |
| BDI | .30 | 7.68*** | 545 | | |
| Step 2: Metacognitive Factors | | | 5, 540 | 60.50*** | .57 |
| MCQ-1 | .19 | 5.87*** | 540 | | |
| MCQ-2 | .50 | 13.39*** | 540 | | |
| MCQ-3 | .06 | 2.02* | 540 | | |
| MCQ-4 | -.04 | -1.21 | 540 | | |
| MCQ-5 | -.01 | -0.37 | 540 | | |
| Step 3: Cognitive Content | | | 1, 539 | 0.36 | .57 |
| CCL-A | .02 | 0.60 | 539 | | |

Multiple R = .76***, Adjusted R² = .56

Note. PSWQ = Penn State Worry Questionnaire, PI-WSUR = Padua Inventory Washington State University-Revised, BDI = Beck Depression Inventory, CCL-A = Cognition Checklist-Anxiety subscale, MCQ-1 = Positive beliefs about worry, MCQ-2 = Negative beliefs about worry concerning uncontrollability and danger, MCQ-3 = Lack of cognitive confidence, MCQ-4 = Need to control thoughts, MCQ-5 = Cognitive self-consciousness, Gender = 1: Male, 2: Female. *** $p < .001$, ** $p < .005$, * $p < .05$

On the third step the set of metacognitive variables made a further significant contribution to the explained variance ($R^2_{\text{change}} = .23$, $F_{\text{change}} [5, 539] = 57.86$, $p < .001$). Among these metacognitive variables, negative beliefs about worry considering uncontrollability and danger was the strongest associate of the pathological worry ($\beta = .50$, $t [539] = 13.23$, $p < .001$), indicating that having negative beliefs about worry was related to high levels of pathological worry even after controlling for the variance explained by overlapping constructs and cognitive content considering anxiety. Moreover, increased levels of positive beliefs about worry ($\beta = .19$, $t [539] = 5.84$, $p < .001$) and lack of cognitive confidence ($\beta = .06$, $t [539] = 1.98$, $p < .05$) were also appeared to be significant predictors of pathological worry, indicating that higher levels of positive beliefs about worry and lack of cognitive confidence were significantly associated with increased pathological worry. The individual association of cognitive content with pathological worry was no longer significant, when metacognitions entered on this step. In the second regression which was repeated reversing the order of entry of anxious cognitions and metacognitions (see Table 3.4), metacognitive factors significantly increased the variance explained on the second step ($R^2_{\text{change}} = .24$, $F_{\text{change}} [5, 540] = 60.50$, $p < .001$), however on the third step, after controlling for the variance accounted for by metacognitions, anxious cognitive content did not significantly ($R^2_{\text{change}} = .00$, $F_{\text{change}} [1, 539] = .36$, $p = .55$) contribute to the explained variance.

This set of findings indicated that metacognitive factors (particularly negative beliefs about worry concerning uncontrollability and danger, positive beliefs about worry, and lack of cognitive confidence) explained a significant amount of variance in pathological worry above and beyond cognitive content after controlling for comorbid symptomatology and demographic characteristics. However, in the reverse situation, anxious cognitive content did not explain significant amount of additional variance in pathological worry after controlling for the variance accounted for by metacognitive factors.

6.1.1. A test of the Metacognitive Model for GAD in the Turkish sample

In accordance with the criteria suggested by Baron and Kenny (1986) for establishing mediation, three predictions were made to test the hypothesis that negative beliefs about worry concerning uncontrollability and danger (MCQ-2) mediates the relationship between anxious cognitive content (CCL-A) and pathological worry (PSWQ), while controlling for positive beliefs about worry (MCQ-1), overlap between pathological worry and o-c symptoms (PI-WSUR), age, and gender. Following the control variables, first, anxious cognitive content should be significantly associated with negative beliefs about worry; second, anxious cognitive content should be significantly correlated with pathological worry; and third, anxious cognitive content should be no longer correlated with pathological worry (complete mediation) or the correlation between them should reduce (partial mediation), when the effect of negative beliefs about worry on pathological worry is removed.

These predictions were tested by conducting two regression analyses, as recommended by Baron and Kenny (1986). For the first regression in which pathological worry acted as dependent or criterion variable, the four control variables were entered first (MCQ-1, o-c symptoms, age, and gender) followed, on Step 2, by independent or predictor variable (anxious cognitive content). The mediator variable (MCQ-2) was entered into the equation on Step 3. The results (see Table 3.5) revealed that on the first step, the variability in control variables accounted for 33% of the variance in pathological worry ($F [4, 545] = 67.77, p < .001$). With the exception of age, and according to the order of their magnitude, o-c symptoms ($\beta = .37, t [545] = 9.99, p < .001$), MCQ-1 ($\beta = .30, t [545] = 7.81, p < .001$), and gender - being women- ($\beta = .21, t [545] = 5.78, p < .001$) revealed significant and positive associations with pathological worry. On step 2, addition of anxious cognitive content to the equation resulted in a significant increment in explained variance (36%) with $R^2_{\text{change}} = .03, F_{\text{change}} (1, 544) = 25.83, p < .001$, and the association of anxious cognitive content with pathological worry was significant ($\beta = .19, t [544] = 5.08, p < .001$). On the last step, MCQ-2 significantly augmented the explained variance to 55% ($R^2_{\text{change}} = .19, F_{\text{change}} [1, 543] = 232.86, p < .001$), and revealed a strong

Table 3.5. Statistics for the regression equations testing MCQ-2 as mediator between CCL-A and PSWQ while controlling for MCQ-1, PI-WSUR, age, and gender in the Turkish Sample

| Variables | β | t (within set) | df | F_{change} | R^2 |
|--|---------|---------------------|--------|---------------------|-------|
| Regression 1 (DV: PSWQ) | | | | | |
| Step 1: Control Variables | | | 4, 545 | 67.77* | .33 |
| MCQ-1 | .30 | 7.81*** | 545 | | |
| PI-WSUR | .37 | 9.99*** | 545 | | |
| Age | .01 | 0.11 | 545 | | |
| Gender | .21 | 5.78*** | 545 | | |
| Step 2: Cognitive Content | | | 1, 544 | 25.83** | .36 |
| CCL-A | .19 | 5.08*** | 544 | | |
| Step 3: Negative beliefs about worry | | | 1, 543 | 232.86*** | .55 |
| MCQ-2 | .53 | 15.26*** | 543 | | |
| (CCL-A) | .06 | 1.97* | 543 | | |
| Multiple R = .74***, Adjusted R ² = .55 | | | | | |
| Regression 2 (DV: MCQ-2) | | | | | |
| Step 1: Control Variables | | | 4, 545 | 51.21*** | .27 |
| MCQ-1 | .22 | 5.63*** | 545 | | |
| PI-WSUR | .37 | 9.56*** | 545 | | |
| Age | -.08 | -2.02 | 545 | | |
| Gender | .13 | 3.36** | 545 | | |
| Step 2: Cognitive Content | | | 1, 544 | 37.90*** | .32 |
| CCL-A | .24 | 6.16*** | 544 | | |
| Multiple R = .57***, Adjusted R ² = .31 | | | | | |

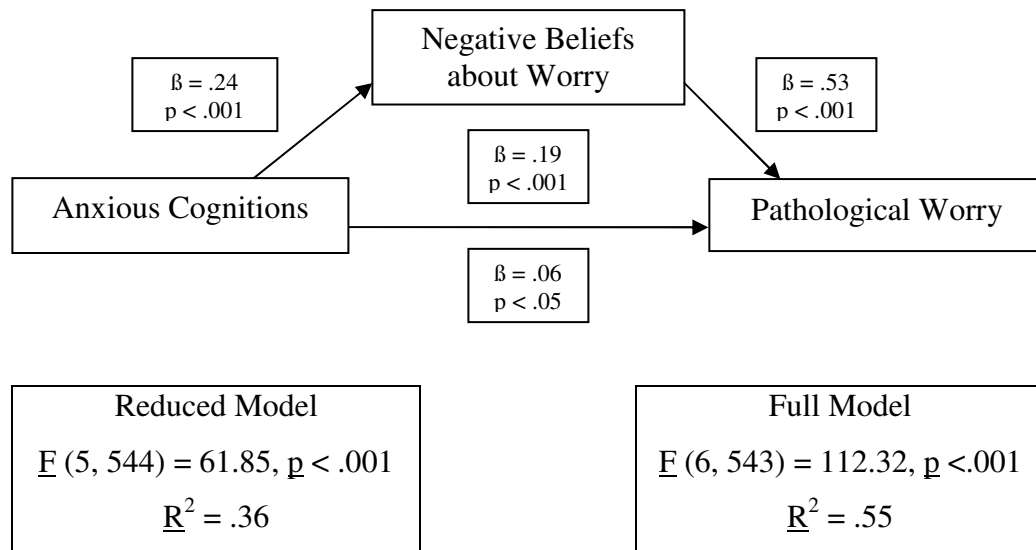
Note. PSWQ = Penn State Worry Questionnaire, PI-WSUR = Padua Inventory Washington State University-Revised, CCL-A = Cognition Checklist-Anxiety subscale, MCQ-1 = Positive beliefs about worry, MCQ-2 = Negative beliefs about worry concerning uncontrollability and danger, Gender = 1: Male, 2: Female. *** $p < .001$, ** $p < .005$, * $p < .05$

significant relationship with pathological worry ($\beta = .53$, $t [543] = 15.26$, $p < .001$). When the effect of MCQ-2 on pathological worry was removed, the strength of the association observed between anxious cognitive content and pathological worry in the previous step was reduced in this last step ($\beta = .06$, $t [543] = 1.97$, $p = .049$), representing only a marginally significant correlation.

In order to test whether this reduction in the strength of association is significant, an interactive computer Sobel test was performed. Leading to the rejection of the null hypothesis that “the mediated effect equals zero in the population”, the result of the Sobel test was significant ($z = 5.84 > 1.96$, $p < .001$). Consequently, the results of the first regression together with the Sobel test led to the confirmation of second and third criteria and supported the idea that negative beliefs about worry could function as a partial mediator between anxious cognitions and pathological worry.

For the second regression conducted to provide further support for the mediator role of negative beliefs about worry by confirming the first criterion for establishing mediation, MCQ-2 was regressed on anxious cognitive content, while controlling for MCQ-1, o-c symptoms, age, and gender. As can be followed from Table 3.5, after step one, all of the control variables as a set were significant in predicting negative beliefs about worry with $R^2 = .27$, $F(4, 545) = 51.21$, $p < .001$. On the second step, 32% of the variance in negative beliefs about worry was explained by the individual contribution of anxious cognitive content ($R^2_{\text{change}} = .05$, $F_{\text{change}} [1, 544] = 37.90$, $p < .001$), and its association with negative beliefs about worry was significant ($\beta = .24$, $t [544] = 6.16$, $p < .001$).

The findings of these two regression analyses together with the Sobel test provided support for the three predictions made on the basis of the criteria suggested by Baron and Kenny (1986). The results revealed that negative beliefs about worry (MCQ-2) partially mediated the relationship between anxious cognitive content and pathological worry, while controlling for positive beliefs about worry (MCQ-1), overlap between pathological worry and o-c symptoms (PI-WSUR), age, and gender. Figure 3.1 depicts the summary path model for pathological worry.



Note. Summary for the path model of the relationship between anxious cognitions, negative beliefs about worry (MCQ-2), and pathological worry including beta-weights (β), F values, and R^2 's for the model before MCQ-2 was included (Reduced Model) and after the inclusion of MCQ-2, which is the mediator (Full Model). The β and p values between anxious cognitions and pathological worry given above the arrow represent the relationship before MCQ-2 was entered into equation. The values given below the arrow represents the relationship when MCQ-2 was entered into equation.

Figure 3.1. Path model of the relationship between anxious cognitions, negative beliefs about worry, and pathological worry, while controlling for positive beliefs about worry, o-c symptoms, age, and gender

6.2. Roles of metacognitive factors and cognitive content on obsessive-compulsive symptoms in the Turkish sample

The second set of hierarchical regression analyses was performed to determine the associates of o-c symptoms. Because age as a potential predictor was not found to be significantly related with PI-WSUR, it was not included in this set of regression analyses so that the power of the analyses was not lowered. For the first regression equation, gender, pathological worry and depressive symptoms as control variables entered on step 1, followed by anxious cognitions on step 2, and the set of metacognitive variables on step 3. The full model (see Table 3.6) accounted for approximately 38% of the variance in o-c symptoms with Multiple $R = .62$, $F(9, 541) = 37.19$, $p < .001$. On step 1, control variables explained a significant proportion of the variance with $R^2 = .29$, $F(3, 547) = 73.52$, $p < .001$. On the second step, inclusion

of anxious cognitive content in the equation led to a significant increase in the explained variance ($R^2_{\text{change}} = .02$, $F_{\text{change}} [1, 546] = 15.59$, $p < .001$). On the third step the set of metacognitive variables made a further significant contribution to the explained variance ($R^2_{\text{change}} = .08$, $F_{\text{change}} [5, 541] = 13.15$, $p < .001$). The strongest metacognitive associate of the o-c symptoms was need to control thoughts ($\beta = .20$, $t [541] = 4.70$, $p < .001$), followed by positive beliefs about worry ($\beta = .11$, $t [541] = 2.90$, $p < .01$), indicating that intensified need to control thoughts and holding positive beliefs about worry were linked to the increased o-c symptomatology. Lack of cognitive confidence ($\beta = -.07$, $t [541] = -2.03$, $p < .05$) was also marginally significant, representing that higher levels of lack of cognitive confidence or “cognitive uncertainty” is significantly associated with decreased levels of o-c symptomatology, which was an inconsistent finding with the literature.

Interestingly, the direction of the relationship for the lack of cognitive confidence was not in the positive direction as it was in the correlation matrix (see Table 3.3). This suggests that the direction of the relationship changed due to the suppressive effects of the other variables in the equation. The opposite signs between the simple correlation and beta weight are representative of one of the two conditions signaling the presence of a suppressor variable (Tabachnick & Fidell, 2001). The regression analysis was repeated by reversing steps 2 and 3 so that MCQ-30 subscales were entered on step two to control for metacognitions and the CCL-A was entered on the last step (see Table 3.6). On the second step, metacognitive factors significantly improved the variance explained ($R^2_{\text{change}} = .09$, $F_{\text{change}} [5, 542] = 14.86$, $p < .001$). It should be importantly noted that supporting the suppression effect supposition, lack of cognitive confidence did not appear as a significant associate of o-c symptomatology when anxious cognitive content was not controlled for as it was done in the first regression equation of this set. Therefore, lack of cognitive confidence was not taken into account as an independent predictor of pathological worry in the subsequent discussion of the results. On the third step the contribution of anxious cognitive content to the explained variance was also significant ($R^2_{\text{change}} = .01$, $F_{\text{change}} [1, 541] = 7.82$, $p < .01$).

Table 3.6. The second set of regression equations with PI-WSUR regressed on gender, PSWQ, BDI, CCL-A, and MCQ-30 in the Turkish Sample

| Variables | β | t (within set) | df | F_{change} | R^2 |
|-------------------------------|---------|---------------------|--------|---------------------|-------|
| Regression 1 | | | | | |
| Step 1: Control Variables | | | 3, 547 | 73.52*** | .29 |
| Gender | -.02 | -0.61 | 547 | | |
| PSWQ | .37 | 9.00*** | 547 | | |
| BDI | .26 | 6.37*** | 547 | | |
| Step 2: Cognitive Content | | | 1, 546 | 15.85*** | .31 |
| CCL-A | .17 | 3.95*** | 546 | | |
| Step 3: Metacognitive Factors | | | 5, 541 | 13.15*** | .38 |
| MCQ-1 | .11 | 2.90** | 541 | | |
| MCQ-2 | .06 | 1.21 | 541 | | |
| MCQ-3 | -.07 | -2.03* | 541 | | |
| MCQ-4 | .20 | 4.70*** | 541 | | |
| MCQ-5 | .05 | 1.24 | 541 | | |
| Regression 2 | | | | | |
| Step 1: Control Variables | | | 3, 547 | 73.52*** | .29 |
| Gender | -.02 | -0.61 | 547 | | |
| PSWQ | .37 | 9.00*** | 547 | | |
| BDI | .26 | 6.37*** | 547 | | |
| Step 2: Metacognitive Factors | | | 5, 542 | 14.86*** | .37 |
| MCQ-1 | .12 | 3.02** | 542 | | |
| MCQ-2 | .08 | 1.46 | 542 | | |
| MCQ-3 | -.07 | -1.89 | 542 | | |
| MCQ-4 | .20 | 4.81*** | 542 | | |
| MCQ-5 | .06 | 1.47 | 542 | | |
| Step 3: Cognitive Content | | | 1, 541 | 7.82** | .38 |
| CCL-A | .11 | 2.80** | 541 | | |

Multiple R = .62***, Adjusted R² = .37

Note. PI-WSUR = Padua Inventory Washington State University-Revised, PSWQ = Penn State Worry Questionnaire, BDI = Beck Depression Inventory, CCL-A = Cognition Checklist-Anxiety subscale, MCQ-1 = Positive beliefs about worry, MCQ-2 = Negative beliefs about worry concerning uncontrollability and danger, MCQ-3 = Lack of cognitive confidence, MCQ-4 = Need to control thoughts, MCQ-5 = Cognitive self-consciousness, Gender = 1: Male, 2: Female. *** $p < .001$, ** $p < .005$, * $p < .05$

In the light of these findings it could be argued that need to control thoughts and positive beliefs about worry explained a significant amount of variance in o-c symptoms above and beyond cognitive content after controlling for comorbid symptomatology and gender. Moreover, cognitive content regarding anxious automatic thoughts also explained an additional variance in obsessive symptomatology after controlling for metacognitive factors. However, the set of metacognitive variables explained more variance than cognitive content.

6.3. Roles of metacognitive factors and cognitive content on anxiety symptoms in the Turkish sample

A third set of hierarchical regression analyses were run to examine the associates of state anxiety symptoms as measured by the BAI. Since age was not found to be significantly related with BAI, it was not included in the analysis. In the first regression equation (see Table 3.7) with gender and depressive symptoms entered on step 1, anxious cognitions on step 2, and metacognitive variables on step 3, the explained variance was significantly different from zero at the end of each step and all variables together accounted for 32% of the variance in the BAI scores (Multiple $R = .56$, $F [8, 542] = 31.55$, $p < .001$). On the first step, the control variables as a set emerged as significant in predicting anxiety symptoms ($R^2 = .24$, $F [2, 548] = 87.74$, $p < .001$), with the significant individual contribution of depressive symptomatology ($\beta = .49$, $t [548] = 13.09$, $p < .001$). On step 2, anxious cognitive content explained significant additional variance in BAI score ($R^2_{\text{change}} = .04$, $F_{\text{change}} [1, 547] = 27.98$, $p < .001$). On the third step the set of metacognitive variables made a further significant contribution to the explained variance ($R^2_{\text{change}} = .04$, $F_{\text{change}} [5, 542] = 6.09$, $p < .001$). On this step, negative beliefs concerning uncontrollability and danger was the only independent metacognitive predictor in the final equation ($\beta = .19$, $t [542] = 3.98$, $p < .001$). In the second regression which was repeated by reversing the order of entry of anxious cognitions and metacognitions (see Table 3.7), metacognitive factors significantly enhanced the variance explained ($R^2_{\text{change}} = .06$, $F_{\text{change}} [5, 543] = 8.78$, $p < .001$) on the second step. On the third step anxious

cognitive content also contributed significantly to the explained variance ($R^2_{\text{change}} = .02$, $F_{\text{change}} [1, 542] = 14.71$, $p < .001$).

This set of findings showed that negative beliefs concerning uncontrollability and danger explained a significant amount of variance in general anxiety symptomatology above and beyond cognitive content, after controlling for comorbid symptomatology and demographic characteristics. As expected, anxious cognitive content also explained an additional variance in anxiety symptomatology after controlling for metacognitive factors. Whilst the contribution of metacognition versus cognitive content to the explained variance was statistically equal in the first regression of the set, the metacognitive variables explained more variance than cognitive content in the second regression.

Table 3.7. The third set of regression equations with BAI regressed on gender, BDI, CCL-A, and MCQ-30 in the Turkish Sample

| Variables | β | t (within set) | df | F_{change} | R^2 |
|-------------------------------|---------|---------------------|--------|---------------------|-------|
| Regression 1 | | | | | |
| Step 1: Control Variables | | | 2, 548 | 87.74*** | .24 |
| Gender | .06 | 1.53 | 548 | | |
| BDI | .49 | 13.09*** | 548 | | |
| Step 2: Cognitive Content | | | 1, 547 | 27.98*** | .28 |
| CCL-A | .22 | 5.29*** | 547 | | |
| Step 3: Metacognitive Factors | | | 5, 542 | 6.09*** | .32 |
| MCQ-1 | .04 | 1.10 | 542 | | |
| MCQ-2 | .19 | 3.98*** | 542 | | |
| MCQ-3 | -.03 | -0.73 | 542 | | |
| MCQ-4 | .05 | 1.05 | 542 | | |
| MCQ-5 | .01 | 0.04 | 542 | | |

Table 3.7.(cont' d)

| Variables | β | t (within set) | df | F_{change} | R^2 |
|-------------------------------|---------|---------------------|--------|---------------------|-------|
| Regression 2 | | | | | |
| Step 1: Control Variables | | | 2, 548 | 87.74*** | .24 |
| Gender | .06 | 1.53 | 548 | | |
| BDI | .49 | 13.09*** | 548 | | |
| Step 2: Metacognitive Factors | | | 5, 543 | 8.78*** | .30 |
| MCQ-1 | .05 | 1.33 | 543 | | |
| MCQ-2 | .21 | 4.48*** | 543 | | |
| MCQ-3 | -.02 | -0.53 | 543 | | |
| MCQ-4 | .06 | 1.22 | 543 | | |
| MCQ-5 | .02 | 0.35 | 543 | | |
| Step 3: Cognitive Content | | | 1, 542 | 14.71*** | .32 |
| CCL-A | .16 | 3.84*** | 542 | | |

Multiple R = .56***, Adjusted R² = .31

Note. BAI = Beck Anxiety Inventory, BDI = Beck Depression Inventory, CCL-A = Cognition Checklist-Anxiety subscale, MCQ-1 = Positive beliefs about worry, MCQ-2 = Negative beliefs about worry concerning uncontrollability and danger, MCQ-3 = Lack of cognitive confidence, MCQ-4 = Need to control thoughts, MCQ-5 = Cognitive self-consciousness, Gender = 1: Male, 2: Female. ***p < .001, **p < .005, *p < .05

6.4. Roles of metacognitive factors and cognitive content on depressive symptoms in the Turkish sample

The fourth set of hierarchical regression analyses was conducted to investigate metacognitive predictors of depressive symptoms. Since age was not found to be significantly related with the BDI, this variable was excluded from the analyses. The Pearson correlation coefficient between cognitive self-consciousness and depression was not significant, as well. In spite of this, cognitive self-consciousness which has been shown as a metacognitive predictor of depressive symptoms in previous research was included in the present analyses in order to examine possible influences of all metacognitive factors, considering interactive effects of the other variables in the regression equation that may potentially reveal the relationship between these two variables.

For the first regression equation, gender and anxiety were entered on step 1 to control their effects, and depressive cognitions and metacognitive variables were forced to enter on step 2 and step 3, respectively. As can be seen in Table 3.8, these variables together explained 51% of the variance in depressive symptoms (Multiple $R = .71$, $F [8, 542] = 70.56$, $p < .001$). On the first step, the control variables as a set with the significant individual contribution of anxiety symptoms ($\beta = .49$, $t [548] = 13.09$, $p < .001$) were significant in predicting depression symptoms ($R^2 = .24$, $F [2, 548] = 86.19$, $p < .001$). On step 2, depressive cognitive content explained significant additional variance in BDI scores ($R^2_{\text{change}} = .26$, $F_{\text{change}} [1, 547] = 282.27$, $p < .001$). On the third step, the set of metacognitive factors made a further significant contribution to the explained variance ($R^2_{\text{change}} = .01$, $F_{\text{change}} [5, 542] = 2.64$, $p < .05$). Amongst the metacognition variables, negative beliefs about worry concerning uncontrollability of thoughts and danger remained significant in the final equation ($\beta = .10$, $t [542] = 2.44$, $p < .05$), indicating that higher levels of negative beliefs about worry was related with increased depressive symptoms. When the order of entry of depressive cognitions and metacognitions was reversed (see Table 3.8), the set of metacognitive factors significantly increased the explained variance on the second step ($R^2_{\text{change}} = .09$, $F_{\text{change}} [5, 543] = 14.51$, $p < .001$).

Interestingly, on the second step, apart from believing harmful effects of worry, cognitive self-consciousness was also found as contributing significantly to the variance in the symptoms of depression. However, inconsistent with the literature, the direction of the relationship for the cognitive self-consciousness was negative. Such a result was also contradictory to the result of non-significant correlation found between cognitive self-consciousness and depressive symptomatology (see Table 3.3). Again, this change in the relationship status from non-significance to an unexpected negative direction might be attributed to the suppressive effects of other variables in the regression equation. On the third step, depressive cognitive content also made a significant contribution to the explained variance ($R^2_{\text{change}} = .18$, $F_{\text{change}} [1, 542] = 200.51$, $p < .001$).

Table 3.8. The fourth set of regression equations with BDI regressed on gender, BAI, CCL-D, and MCQ-30 in the Turkish Sample

| Variables | β | t (within set) | df | F_{change} | R^2 |
|-------------------------------|---------|---------------------|--------|---------------------|-------|
| Regression 1 | | | | | |
| Step 1: Control Variables | | | 2, 548 | 86.19*** | .24 |
| Gender | .01 | -0.01 | 548 | | |
| BAI | .49 | 13.09*** | 548 | | |
| Step 2: Cognitive Content | | | 1, 547 | 282.27*** | .50 |
| CCL-D | .56 | 16.80*** | 547 | | |
| Step 3: Metacognitive Factors | | | 5, 542 | 2.64* | .51 |
| MCQ-1 | -.04 | -1.21 | 542 | | |
| MCQ-2 | .10 | 2.44* | 542 | | |
| MCQ-3 | -.01 | -0.09 | 542 | | |
| MCQ-4 | .06 | 1.71 | 542 | | |
| MCQ-5 | -.07 | -1.85 | 542 | | |
| Regression 2 | | | | | |
| Step 1: Control Variables | | | 2, 548 | 86.19*** | .24 |
| Gender | .01 | -0.01 | 548 | | |
| BAI | .49 | 13.09*** | 548 | | |
| Step 2: Metacognitive Factors | | | 5, 543 | 14.51*** | .33 |
| MCQ-1 | -.02 | -0.46 | 543 | | |
| MCQ-2 | .29 | 6.47*** | 543 | | |
| MCQ-3 | .07 | 1.91 | 543 | | |
| MCQ-4 | .06 | 1.34 | 543 | | |
| MCQ-5 | -.10 | -2.40* | 543 | | |
| Step 3: Cognitive Content | | | 1, 542 | 200.51*** | .51 |
| CCL-D | .53 | 14.16*** | 542 | | |

Multiple R = .71***, Adjusted R² = .50

Note. BDI = Beck Depression Inventory, BAI = Beck Anxiety Inventory, CCL-D = Cognition Checklist-Depression subscale, MCQ-1 = Positive beliefs about worry, MCQ-2 = Negative beliefs about worry concerning uncontrollability and danger, MCQ-3 = Lack of cognitive confidence, MCQ-4 = Need to control thoughts, MCQ-5 = Cognitive self-consciousness, Gender = 1: Male, 2: Female. ***p < .001, **p < .005, *p < .05

This set of findings indicated that only the metacognitive factor regarding the negative beliefs about uncontrollability and danger of worry was predictive of depression above and beyond depressive cognitive content, after comorbid symptomatology and demographic characteristics were controlled. Depressive cognitive content also explained a significant proportion of variance in depressive symptoms when the effects of demographic variables, comorbid anxiety, and metacognitive factors were controlled. The contribution of depressive cognitive content to the explained variance in depressive symptomatology was greater than that of explained by metacognitive factors. Such a finding was probable especially when the fact that the dimensions of the MCQ-30 are more relevant to anxiety than depression is considered.

7. Summary and Discussion of the Results Regarding the Hypotheses in the Turkish Study

In the present Turkish sample, all of the above reported results provided support for the first hypothesis of the study proposing that higher levels of metacognitions would be associated with higher levels of pathological worry, o-c symptoms, anxiety, and depressive symptoms when comorbid symptoms and demographic variables (age and gender) were controlled. In particular, a review considering the second sets of each regression analysis, as well as the correlation matrix, for a pure confirmation of this hypothesis revealed that metacognitive variables as a set were significantly associated with these symptom dimensions after partialling out the variance explained by the covariates.

The present data gave also a partial support for the second hypothesis regarding the metacognitive model of GAD. It was shown that negative beliefs about worry partially mediated the relationship between anxious cognitive content and pathological worry, while controlling for positive beliefs about worry, the overlap between pathological worry and o-c symptoms (PI-WSUR), age, and gender.

With regard to the third hypothesis claiming that some aspects of metacognition would be associated with some specific types of psychological symptomatology better than the others, the results of the main analyses from the

second regression sets for a given dependent variable are summarized in Table 3.9. Note that these results represent the metacognitive variables found to be significantly associated with a given dependent variable after controlling for the comorbid symptoms and relevant demographic variable(s).

Table 3.9. Summary table for the associations of specific metacognitive domains with dependent measures in the Turkish sample

| Metacognitive Factors | Dependent Variables | | | |
|-------------------------------------|----------------------------|-------------|-------------|-------------|
| | PSWQ | PI | BAI | BDI |
| Positive beliefs about worry | Yes | Yes | No | No |
| Negative beliefs about worry | Yes* | No | Yes* | Yes* |
| Lack of cognitive confidence | Yes | No | No | No |
| Need to control thoughts | No | Yes* | No | No |
| Cognitive self-consciousness | No | No | No | No |

Note. PSWQ = Penn State Worry Questionnaire, PI-WSUR = Padua Inventory Washington State University-Revised, BAI = Beck Anxiety Inventory, BDI = Beck Depression Inventory. Asterisks (*) in each column indicate the best predictor for the relevant dependent variable.

As can be seen in Table 3.9, positive beliefs about worry played a role in predicting pathological worry and o-c symptoms. Negative beliefs about worry dimension was found to be associated with all but one of these dependent measures. Besides, negative beliefs about worry was the best predictor of these symptom categories among the other metacognitive variables. The only dependent variable with which negative beliefs about worry was shown not to be associated was o-c symptoms. Whilst lack of cognitive confidence predicted only pathological worry, need to control thoughts appeared as the predictor for only o-c symptomatology, but become the strongest predictor of it. Cognitive self-consciousness did not emerge as significantly associated with any of those symptom measures.

As consistent with the bulk of evidence (Cartwright-Hatton & Wells, 1997; Davis & Valentiner, 2000; de Bruin et al., 2007; Papageorgiou & Wells, 1999; Wells & Carter, 1999; Wells & Papageorgiou, 1998), negative and positive beliefs about

worry which are the markers of the metacognitive model of GAD were found to be positively associated with pathological worry in the present Turkish sample, as well. In addition to this, lack of cognitive confidence was the other significant independent predictor of pathological worry, indicating that greater levels of impairment or uncertainty in the cognitive/memory performance was associated with increased pathological worry levels of the Turkish participants. One of the negative consequences of the dysfunctional self-processing is described as impaired control over processing, which eventually leads to meta-appraisals of lowered cognitive confidence (Wells & Matthews, 1994, 1996; Wells, 2000). In other words, lack of cognitive confidence can interfere with problem solving ability and therefore exacerbates worry. Thus, as well as confirming this theoretical proposition, the current finding was also in accordance with the other empirical findings (Davis & Valentiner, 2000; Cartwright-Hatton & Wells, 1997; Wells & Papageorgiou, 1998). In fact, in Wells and Papageorgiou's study (1998), lack of cognitive confidence did not appear as an independent predictor of pathological worry when the overlap between worry and o-c symptoms and all other metacognitive factors were controlled. Therefore, it is worth noting that in the present study, lack of cognitive confidence was an associate of worry even after controlling for this overlap, comorbid depression, age, and gender. The other metacognitive dimensions of need to control thoughts and cognitive self-consciousness have not received a special interest in studies centering on GAD and have not been demonstrated as associated with pathological worry. Therefore, the non-significance of these metacognitions in predicting pathological worry could be accepted as parallel to the literature.

The current results also verified that need to control thoughts and positive beliefs about worry were significant predictors of obsessive compulsive symptoms. In particular, the former was the best predictor of o-c symptomatology. Since the need to control thoughts is accepted as a marker for the component of the model concerning beliefs about rituals, this finding is consistent with the metacognitive model of OCD and with earlier findings (Cartwright-Hatton & Wells, 1997; Myers & Wells, 2005; Wells & Papageorgiou, 1998). Not supporting of the literature, negative beliefs about

worry, lack of cognitive confidence, and cognitive self-consciousness did not emerge as significant associates of o-c symptoms in the Turkish sample, even though they had significantly positive correlations with o-c symptoms. Particularly, the finding that negative beliefs about worry was not a significant associate of o-c symptoms was surprising. The reason for this non-significant finding might be the variance obsessive compulsive symptoms share with worry as reported in the relevant literature (Burns et al., 1996; Turner et al., 1992; Wells & Morrison, 1994; Wells & Papageorgiou, 1998). In the relevant analyses, this overlap was controlled in order to obtain more specific results about o-c symptoms and pathological worry, without the contamination of the other. To find out the effect of not controlling for this overlap in the Turkish sample, the o-c symptoms score was again regressed on metacognitions without controlling for the variance shared by worry but controlling for the other covariates in the original analysis (age, gender, depression). Interestingly, when the level of pathological worry was not controlled, negative beliefs about worry appeared to be a significant associate of o-c symptoms in the Turkish sample ($\beta = .19$, $t [543] = 4.20$, $p < .001$), along with the need to control thoughts ($\beta = .20$, $t [543] = 4.65$, $p < .001$) and positive beliefs about worry ($\beta = .17$, $t [543] = 4.27$, $p < .001$). As can be seen, negative beliefs about worry became as nearly strongest predictor of o-c symptoms as need to control thoughts in the Turkish sample. However, when the overlapping effect of o-c symptoms was not controlled for pathological worry, no change in the status of metacognitions in predicting pathological worry took place. These results indicated that negative beliefs about worry is a metacognitive concept that is associated more with pathological worry than o-c symptoms in the Turkish sample. In other words, regardless of the o-c symptom level, negative beliefs about worry is a predictor of pathological worry, whilst it is a significant predictor of o-c symptoms only with the companionship of worry. That is, worry level may mediate the relationship between negative beliefs about worry and o-c symptoms.

According to the results, neither cognitive self-consciousness, which refers to the tendency to monitor one's own thoughts, nor lack of cognitive confidence, which refers to metacognitive appraisals of cognitive efficiency, emerged as significant

associates of o-c symptoms in the Turkish sample. However, the tendency to be excessively aware of thinking is the most salient and empirically supported metacognitive characteristic of OCD patients in the literature. For example, it has been demonstrated having an important role in distinguishing OCD patients from other clinical groups and non-clinical controls (Cartwright-Hatton & Wells, 1997; Cohen & Calamari, 2004; Garcia-Montes et al., 2006; Hermans et al., 2003; Janeck et al., 2002). At this juncture, although the concept of cognitive self-consciousness was not found to be a significant associate for none of the symptom measures used in this study after controlling for the comorbid symptoms and demographics, it might be still suggested that instead of focusing on the individual association of the cognitive self-consciousness concept with o-c symptoms, focusing more on the distinguishing role of it in patient populations would be more valuable investigation for researchers. Similarly, lack of cognitive-confidence was also shown as a significant predictor of o-c symptoms in some studies (Hermans et al., 2003; Wells & Papageorgiou, 1998), although this was not the case in the current Turkish study. However, Wells and Papageorgiou also stated that it was not a unique predictor of o-c symptoms when the variance explained by worry and other metacognitive factors was partialled out. As mentioned above, the effect of lack of cognitive confidence was not significant in either case in the Turkish sample. Since the lack of cognitive confidence should have more relevance to checking obsessions (Wells & Matthews, 1994; Wells, 2000), further studies focusing on checking obsessions rather than general o-c symptomatology are strongly encouraged.

The associations of metacognitions with a state measure of anxiety remained largely unknown. In terms of the significant and positive correlations between MCQ-30 subscales and the BAI, the results of the present study was in accordance with the results obtained in Davis and Valentiner's study (2000). Similarly, only lack of cognitive confidence dimension of the MCQ-30 questionnaire was used to examine its relationship with depression because it is accepted as a by-product of depression and metacognitive beliefs about rumination (Papageorgiou & Wells, 2003). However, the researchers confirmed their model and the relationship between lack of cognitive

confidence and depression in the clinically depressed patients, not in a non-clinical sample. Therefore, the results of the present study provided preliminary evidence in understanding the relationship patterns of metacognitions with a more global state measure of anxiety and depression. The data verified that after controlling for the variance explained by comorbid symptomatology, demographics, and the intercorrelations between metacognitions, the only significant associate of both anxiety and depression was negative beliefs about worry in the Turkish sample. This result can be accepted as in the expected direction since both anxiety and depression includes worry and negative beliefs about worry may reasonably predict the severity of the symptom levels. All over again, these relationships should be examined in clinical samples to draw more valid inferences.

Another hypothesis was that metacognitive beliefs would still account for a significant proportion of variance in the symptoms of anxiety and depression, even after controlling for anxious and depressogenic cognitive content, and demographic variables. The results of the present study indicated that after the effects of the relevant cognitive content were controlled, the same pattern of findings as presented in Table 3.9 and discussed above was obtained. In other words, the same metacognitive variables were found to be significantly associated with these dependent variables after controlling for the variance explained by the cognitive content. Within set analyses indicated that these metacognitive variables appeared as independent predictors of a given dependent variable above and beyond the contribution of cognitive content alone. In addition to this, in all analyses, metacognitive variables as a set served as the significant associates of pathological worry, o-c symptoms, anxiety, and depression even after the effects of cognitions were statistically excluded. Therefore, regardless of the specific metacognitive domains, it could be concluded that the concept of metacognition as measured by the MCQ-30 explained an additional variance in pathological worry, o-c, anxiety, and depressive symptoms when the effects of all of the other covariates used this study, including cognitive content, were controlled.

Furthermore, as linked with the previous proposition, it was hypothesized that metacognitive beliefs would be more strongly associated with the symptoms than cognitive content. To test the relative contribution of cognitive content versus metacognition to psychological symptoms, the order of entry between cognition and metacognition was reversed in the analyses. Results showed that for pathological worry, addition of cognitive content into the regression equation did not make a significant contribution to the explained variance after controlling for metacognitions. That is, although anxiogenic content of thoughts had explained a significant amount of variance in pathological worry, the contribution of cognitions to understanding pathological worry became nonsignificant after the effects of metacognitions were controlled. In other cases, cognitive content variable remained as a significant predictor of symptoms after metacognitions were controlled. Yet, comparisons of the explained variances (R^2 and R^2_{change} values) by cognitive content and metacognitive variables, and of the beta values when they entered on the second and third steps of these regression sets revealed that apart from depression analysis, metacognitions explained more variance and became stronger predictors than cognitive content in anxiety-based analyses. Although the degree of this difference was not statistically tested, they are small in magnitude. On the other hand, depressive cognitive content was a stronger predictor of depressive symptomatology than metacognitions as measured by the MCQ-30 which is a device more relevant to anxiety than depression.

In general, the findings obtained from the Turkish part were in keeping with earlier research. The supportive data obtained from a Turkish sample was an important initial step in terms of the cross-cultural validation of the metacognitive approach. Therefore, the hypothesis of the study anticipating a positive relationship between metacognitions and emotional symptomatology was confirmed for emotional symptomatology included within the framework of this study.

B. An Investigation of the Metacognitive Factors Above and Beyond Cognitive Content in the British Sample

The overall aims of the British study were basically the same as those stated for the Turkish study. That is, a domain specific examination of the relationships

between metacognitive variables and emotional symptoms was done considering the relative contribution of cognitive content versus metacognition to emotional symptoms. Many studies in the literature have provided support for the relationship patterns between different dimensions of metacognitions and specific psychopathology groups. Apart from replicating these studies, the present British study was unique in terms of the examination of the independent contribution of metacognitive beliefs to the psychopathology above and beyond the contribution of cognitive content alone. When testing the predictions of the metacognitive approach, taking cognitive variables into account would provide a conservative test of the model in comparison to the cognitive models of psychopathology. A further aim was to test the predictions of Wells' (1994, 1995) metacognitive model of GAD in a British sample, using the same mediation analysis framework as reported previously.

In metacognitive theory, certain types of metacognitive processing components are suggested as more central for some specific disorders than others. The MCQ-30 is a generic device, including different dimensions of metacognition, the dimensions of the MCQ-30 are more relevant to anxiety than depression. The metacognitive beliefs thought to be central for depression are beliefs about rumination (rather than about worry). Negative Beliefs about Rumination Scale (NBRS) and Positive Beliefs about Rumination Scale (PBRS) are two devices specifically developed for measuring metacognitive beliefs about depressive ruminations. Therefore, assessment of metacognitive beliefs specific to depression in the British part of the present study enabled a more effective test of metacognitive theory for depression. Subsequently, the specific aim of the British study was to conduct a focused and theory driven investigation of the relationships between metacognitive beliefs and depressive symptoms.

A review of the literature demonstrates that there are a range of beliefs said to be central in the development and maintenance of depressive symptoms. Cognitive theory of depression, such as schema theory (Beck, 1976), emphasizes the importance of dysfunctional attitudes. According to this model, activation of dysfunctional schemata concerning achievement, dependency, and self control leads to negative

automatic thoughts and distortions in interpretations. Metacognitive theory of depression (Papageorgiou & Wells, 2003), which is based on the Self-Regulatory Executive Function (S-REF) Model (Wells & Matthews, 1994), emphasizes negative and positive beliefs about ruminations. Considering these “cognitions” versus “metacognitions”, the aim of the present study was to answer the question of which is the best individual predictor(s) of depression. Following the metacognitive model of depression, it was hypothesized that metacognitive beliefs about rumination would be associated with depression better than dysfunctional attitudes, after anxiety symptoms and demographic variables are controlled.

In order to test this hypothesis, four additional measurement devices were used along with the questionnaires used in the Turkish sample. Since the Turkish adaptation studies for these additional questionnaires have not been done yet, it was not possible to use them in the Turkish sample. However, they were added to the questionnaire battery of British sample because the information collected by them would make a significant contribution to testing the relative contribution of cognition and metacognition to depression.

Accordingly, the Center for Epidemiological Studies-Depression Scale (CES-D) which assesses the presence and severity of depressive symptoms was added into the British battery as an alternative device to the BDI since the former was developed specifically for community samples like students who are not diagnosed with depression, whilst the latter was mainly used to follow the severity of the depressive symptomatology in clinical samples. Similarly, the Dysfunctional Attitude Scale-24 (DAS-24) which was developed to measure depressive schemata was used to improve the scope of the measurement of cognition beyond depressive automatic thoughts which was measured using Cognition Checklist-Depression subscale (CCL-D). Finally, two new metacognition questionnaires, NBRS and PBRS were also included since these two devices were specifically developed for measuring metacognitive beliefs about depressive ruminations. Furthermore, the two subscales of the STAI-T, namely trait anxiety (STAI-A) and trait depression (STAI-D) were also used to test the above stated hypothesis for trait depression.

If it is necessary to state the hypotheses for the British part of the study again, they can be listed as follows:

(1) Higher levels of metacognitions would be associated with higher levels of pathological worry, o-c symptoms, anxiety, and depressive symptoms when comorbid psychopathology and demographic variables (age and gender) were controlled.

(2) The relationship between anxious cognitive content and pathological worry should be mediated by negative beliefs about worry concerning uncontrollability of thoughts and danger, after controlling for positive beliefs about worry, comorbid symptoms, and individual differences in terms of demographic variables (age and gender).

(3) Some aspects of metacognition would be associated with some specific types of psychological symptomatology better than the others.

(4) Metacognitive beliefs would still account for a significant proportion of variance in the symptoms of anxiety, even after controlling for anxious cognitive content, and demographic variables.

(5) Metacognitive beliefs would be more strongly associated with the symptoms than cognitive content.

(6) Metacognitive beliefs about rumination would be associated with depression (both trait and state depression) independently of dysfunctional attitudes, after the relevant anxiety symptoms and demographic variables are controlled.

As can be seen, the fourth hypothesis was reworded to establish the last hypothesis of this section so that the vulnerability function of metacognitive beliefs about rumination could be tested for depression using the relevant questionnaires in the British sample.

Method

Subjects

Three hundred and sixty undergraduate and postgraduate students from various departments of the University of Manchester took part in the first study carried out in British culture. There were 233 females (64.7%) and 127 males (35.3%). After excluding subjects who had missing values for more than ten percent

on any of the questionnaires, the original sample size reduced to 251 participants consisting of approximately 164 females (65.3%) and 85 males (33.9%), with two participants not indicating their gender. The age of this reduced sample ranged from 17 to 59 years with a mean of 22.5 ($SD = 5.0$).

Investigation of the citizenship status of the participants revealed that the sample was composed of 195 (77.7%) students who are UK citizens or permanent residents of UK and 56 (22.3%) students who are not UK citizens (citizen of another country). The diversity of ethnic group among Non-UK participants was as follows: 31 White, 9 Asian, 2 Black, 10 Chinese, and 4 other. The duration of residence in UK within this group ranged from 1 month to 6 years with a mean of 19.74 months ($SD = 17.39$). Independent samples *t*-tests were used to test whether there were any differences between UK and non-UK participants on the dependent variables of the study (PSWQ, PI-WSUR, BAI, BDI, CES-D, and STAI-D). Results revealed that there were not any significant differences between UK and non-UK groups for the PSWQ, PI-WSUR, BAI, and BDI. However, the British group scored significantly higher on the CES-D ($t [249] = 2.21, p < .05$) and on the STAI-D ($t [249] = 2.26, p < .05$) than the non-British group. The effect sizes of these significant mean differences were also calculated. Whilst the effect size was .28 ($r = .14$) for the CES-D difference found between UK and non-UK groups, it was .29 ($r = .14$) for the difference on the STAI-D. These effect sizes were small in magnitude to impact the results.

Instruments

The questionnaires administered to the British sample were MCQ-30 (see Appendix K), NBRIS (see Appendix L), PBRIS (see Appendix M), PSWQ (see Appendix N), PI-WSUR (see Appendix O), STAI-T (see Appendix P), BAI (see Appendix Q), BDI (see Appendix R), CES-D (see Appendix S), CCL (see Appendix T), and DAS-24 (see Appendix U). Along with the questionnaires used in Turkish sample, the NBRIS, PBRIS, DAS-24, and CES-D were additional questionnaires used only in the British sample. As the psychometric properties of the common instruments used in both Turkish and British studies were reported in the previous

sections, below are the psychometrics of questionnaires used only in the British study.

Negative Beliefs about Rumination Scale (NBRS; Papageorgiou, Wells, & Meina, 2003). This is a 13-item measure that assesses negative metacognitive beliefs about rumination. It consists of two subscales, NBRS1 and NBRS2. NBRS1 includes 8 items and assesses negative metacognitive beliefs about uncontrollability and harm associated with rumination. NBRS2 which is composed of 5 items assesses negative metacognitive beliefs about the interpersonal and social consequences of rumination. Respondents indicate their agreement with each item on a 4-point rating scale ranging from *do not agree* (1) to *agree very much* (4). The internal consistency and test-retest reliability coefficients of the NBRS1 and NBRS2 were reported as .80 and .83, and .66 and .68, respectively (Papageorgiou & Wells, 2003).

Positive Beliefs about Rumination Scale (PBRS; Papageorgiou & Wells, 2001b). This is a 9-item scale that assesses positive metacognitive beliefs about benefits and advantages of rumination. Respondents indicate their agreement with each item on a 4-point rating scale ranging from *do not agree* (1) to *agree very much* (4). The internal consistency and test-retest reliability coefficients of the scale were found to be .89 and .85, respectively (Papageorgiou & Wells, 2001b). It has been shown that the PBRS is a psychometrically sound measure which possesses good reliability and validity in non-clinical and clinical populations (Papageorgiou & Wells, 2001b).

Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977). This 20-item scale is designed to measure the level of depressive symptomatology for research purposes in non-clinical samples. It has four subscales: (1) Depressed affect, (2) Positive affect, (3) Somatic and retarded activity, and (4) Interpersonal difficulties. The response categories for the scale range from *rarely or none of the time* (0) to *most or all of the time* (3). For many different samples, internal consistency coefficients of 0.84 or higher have been reported (Radloff, 1977). This scale has proved to have good test-retest reliability, and adequate validity as supported by significant correlations with other depression measures.

Dysfunctional Attitude Scale-24 (DAS-24; Power, Katz, McGuffin, Duggan, Lam, & Beck, 1994). This is a 24-item brief measure of dysfunctional beliefs or assumptions. It was derived from the Forms A and B of the Dysfunctional Attitude Scale (DAS). As identical with the full versions of DAS-A and DAS-B, the brief version of dysfunctional attitude scale has three subscales: (1) Achievement, (2) Dependency, and (3) Self-Control. Acceptable internal consistency values for these subscales (0.85, 0.74, and 0.68, respectively) were reported.

Procedure

British participants were asked via the university mailing list whether they would like to be included in the present study. If they consented, they used a link to a website where participants could find the information sheet, consent form, the questionnaires and demographic sheet. The necessary permissions to use the instruments online were also taken from the authorized people or institutes. Required revisions were made in the instructions of the questionnaires so that they could be used in the website (e.g., words such as “circle” were revised as “select”). Participants were given the option of entering their e-mail address if they wanted to be entered into a £50 prize draw. They were also asked whether they would agree to be contacted to take part in a further study which would occur six months after the completion of the current one. The instruments were presented in a randomized order using a specific programming for the questionnaire link to eliminate the effect of sequencing. The total administration time for the instruments was approximately 40 minutes.

Results

1. Screening for Data

The examination of univariate outliers demonstrated that five subjects on the BAI, three subjects on BDI, two subjects on NBRS, three subjects on PI-WSUR, one subject on cognitive confidence, and one subject on need to control thoughts subscales of MCQ-30 were outliers. After the exclusion of these cases, 236 cases including 157 females (66.5%) and 78 males (33.1%) remained for the analyses. In this reduced sample, the UK vs. non-UK ratio remained approximately the same (184

[78%] UK citizens vs. 52 [22%] non-UK citizens). Statistical differences between the UK and non-UK groups were also investigated in this reduced sample. The results of independent samples *t*-tests revealed the same pattern of findings as found to be in the non-reduced sample, except the finding that the difference between the UK and non-UK groups on the BAI became significant ($t [234] = 2.93, p < .005$), although it was not significant in the non-reduced sample. The effects size was found to be .38 ($r = .19$), which indicates a small difference.

2. Psychometric Properties of the Study Questionnaires

As can be seen in Table 3.10, the internal consistency coefficients of the instruments used in the main analyses of the present study were examined. Since subscales of these questionnaires were treated as main variables in the analyses, the reliability of these subscales were also reported.

Table 3.10. Internal consistency coefficients of the instruments for the present study in the British sample

| | Range of item-total correlations | Cronbach α |
|------------------------------|-------------------------------------|-------------------|
| MCQ-30 Total | .34-.65 | .91 |
| Positive beliefs | .55-.80 | .90 |
| Uncontrollability & danger | .60-.75 | .86 |
| Lack of cognitive confidence | .55-.76 | .87 |
| Need for control | .33-.59 | .73 |
| Cognitive consciousness | .50-.79 | .88 |
| NBRS | .26-.65 | .81 |
| PBRS | .71-.86 | .94 |
| PSWQ | .39-.80 | .93 |
| PI-WSUR | .10-.59 | .88 |
| STAIT | .38-.69 | .91 |
| STAIT-A | .38-.63 | .81 |
| STAIT-D | .48-.74 | .90 |
| BAI | .15-.61 | .88 |

Table 3.10. (cont' d)

| | Range of item-total correlations | Cronbach α |
|------------------|-------------------------------------|-------------------|
| BDI | .28-.58 | .85 |
| CES-D | .24-.77 | .89 |
| CCL-A | .39-.68 | .88 |
| CCL-D | .53-.74 | .91 |
| DAS-24 Total | .14-.69 | .88 |
| DAS-Achievement | .53-.71 | .86 |
| DAS-Dependency | .41-.60 | .81 |
| DAS-Self-control | .01-.53 | .69 |

Note. MCQ-30 = Meta-Cognitions Questionnaire-30, NBRS = Negative Beliefs about Rumination Scale, PBRs = Positive Beliefs about Rumination Scale, PSWQ = Penn State Worry Questionnaire, PI-WSUR = Padua Inventory-Washington State University Revised, STAIT = State-Trait Anxiety Inventory Trait form, STAIT-A = State-Trait Anxiety Inventory Trait form-Anxiety Subscale, STAIT-D = State-Trait Anxiety Inventory Trait form-Depression Subscale, BAI = Beck Anxiety Inventory, BDI = Beck Depression Inventory, CES-D = Center for Epidemiologic Studies Depression Scale, CCL-A = Cognitions Checklist Anxiety Subscale, CCL-D = Cognitions Checklist Depression Subscale, DAS-24 = Dysfunctional Attitude Scale-24.

3. Descriptive Statistics

Means and standard deviations of the MCQ-30, MCQ-30 subscales, NBRS, PBRs, PSWQ, PI-WSUR, STAI-T, STAI-D, STAI-A, BAI, BDI, CES-D, CCL-Anxiety, CCL-Depression, DAS-24, and DAS-24 subscales for the British sample are presented in Table 3.11, separately for male and female participants.

Independent samples *t*-tests were used to test whether there were any differences between men and women. As can be seen in Table 3.11, men scored significantly higher than women on the total score of the MCQ-30 and on lack of cognitive confidence and need to control subscales of the MCQ-30. Conversely, the mean scores of women were significantly higher than that of men on the PSWQ and BAI. Apart from these, no significant differences between men and women on the other measures emerged as significant.

Table 3.11. Descriptive statistics (means with standard deviations in parentheses) for the study variables in the British Sample

| | Total (N = 236) | Men (N = 78) | Women (N = 157) | t value |
|------------|-----------------|---------------|-----------------|---------|
| 1. MCQ-30 | 54.27 (13.56) | 56.85 (12.62) | 52.96 (13.90) | 2.08* |
| MCQ-1 | 10.91 (4.07) | 10.97 (3.99) | 10.90 (4.12) | 0.12 |
| MCQ-2 | 10.16 (4.05) | 9.64 (3.62) | 10.44 (4.24) | -1.44 |
| MCQ-3 | 9.61 (3.94) | 10.67 (4.28) | 9.00 (3.53) | 3.17** |
| MCQ-4 | 9.68 (3.20) | 10.99 (3.45) | 9.02 (2.86) | 4.65*** |
| MCQ-5 | 13.91 (4.61) | 14.58 (4.74) | 13.60 (4.53) | 1.53 |
| 2. NBRS | 18.95 (5.13) | 19.45 (5.47) | 18.70 (4.97) | 1.05 |
| 3. PBRS | 18.50 (6.82) | 19.28 (7.28) | 18.12 (6.60) | 1.22 |
| 4. PSWQ | 47.44 (13.37) | 44.56 (11.68) | 48.94 (13.96) | -2.39* |
| 5. PI-WSUR | 15.83 (11.88) | 16.01 (11.50) | 15.81 (12.11) | 0.12 |
| 6. STAI-T | 41.44 (9.59) | 40.56 (9.98) | 41.92 (9.41) | -1.02 |
| STAI-D | 28.21 (6.88) | 27.45 (7.17) | 28.61 (6.72) | -1.20 |
| STAI-A | 13.23 (3.61) | 13.09 (3.58) | 13.31 (3.64) | -0.44 |
| 7. BAI | 8.91 (7.40) | 7.23 (6.59) | 9.76 (7.67) | -2.49* |
| 8. BDI | 7.07 (6.02) | 6.42 (6.33) | 7.44 (5.85) | -1.22 |
| 9. CES-D | 14.55 (9.28) | 14.54 (9.64) | 14.60 (9.13) | -0.04 |
| 10. CCL-A | 7.77 (6.45) | 7.74 (6.32) | 7.82 (6.53) | -0.09 |
| 11. CCL-D | 9.84 (8.29) | 10.32 (9.53) | 9.64 (7.63) | 0.59 |
| 12. DAS-24 | 89.50 (20.41) | 92.06 (21.05) | 88.38 (20.02) | 1.31 |
| DAS-1 | 28.92 (9.64) | 30.76 (9.89) | 28.11 (9.38) | 2.00 |
| DAS-2 | 30.29 (8.87) | 29.88 (8.89) | 30.57 (8.86) | -0.57 |
| DAS-3 | 30.28 (7.28) | 31.43 (7.87) | 29.70 (6.95) | 1.72 |

Note. MCQ-30 = Meta-Cognitions Questionnaire-30, MCQ-1 = Positive beliefs about worry, MCQ-2 = Negative beliefs about worry concerning uncontrollability and danger, MCQ-3 = Lack of cognitive confidence, MCQ-4 = Need to control thoughts, MCQ-5 = Cognitive self-consciousness, NBRS = Negative Beliefs about Rumination Scale, PBRS = Positive Beliefs about Rumination Scale, PSWQ = Penn State Worry Questionnaire, PI-WSUR = Padua Inventory-Washington State University Revised, STAIT = State-Trait Anxiety Inventory Trait form, STAI-D = State-Trait Anxiety Inventory Trait form - Depression Subscale, STAI-A = State-Trait Anxiety Inventory Trait form - Anxiety Subscale, BAI = Beck Anxiety Inventory, BDI = Beck Depression Inventory, CES-D = Center for Epidemiologic Studies Depression Scale, CCL-A = Cognitions Checklist Anxiety Subscale, CCL-D = Cognitions Checklist Depression Subscale, DAS-24 = Dysfunctional Attitude Scale-24, DAS-1 = Dysfunctional Attitude Scale-24-Achievement subscale, DAS-2 = Dysfunctional Attitude Scale-24-Dependency subscale, DAS-3 = Dysfunctional Attitude Scale-24-Self-control subscale. *** $p < .001$, ** $p < .005$, * $p < .05$

4. Overview of Main Analyses

The first aim was to test the same hypotheses in the British sample as tested in the Turkish sample in order to investigate the relationships between metacognitive variables and anxiety symptoms considering the relative contribution of cognitive content versus metacognition. Therefore, in the analyses employing anxiety based symptoms as the dependent variable (pathological worry, o-c, and anxiety symptoms), the independent variables were the MCQ-30 subscales as measures of metacognitions about worry. Three sets of two hierarchical multiple regression analyses were run, in which PSWQ, PI-WSUR, or BAI were regressed on the demographic variables and relevant comorbid symptomatology on the first steps of all sets. In the first regression equations of a given set, the relevant cognitive content was entered on the second step and the MCQ subscales were forced to enter on the third step. In the second equations, the order of variables on steps 2 and 3 were reversed and the MCQ subscales were entered on the second step while the relevant cognitive content was left to the last step.

In order to investigate the relationships between metacognitions and state and trait depression considering the relative contribution of cognitive content versus metacognition in the British sample and to test the hypothesis relevant to this objective, a series of hierarchical multiple regression analyses were performed. Here, state (BDI, CES-D) and trait depression (STAI-D) were regressed on the dysfunctional attitudes (DAS-24 subscales) and metacognitions (NBRS and PBRS) scales. In all the regressions, the comorbid anxiety levels as relevant for a given criterion variable (state anxiety as measured by BAI when the criterion variable was BDI or CES-D and trait anxiety measure as measured by STAI-A when the criterion variable was STAI-D) and the demographic variables associated with the criterion variable were entered on the first step, followed by the forced entry of the DAS-24 subscales as a set on step two. Metacognitive beliefs (NBRS and PBRS) were entered on step three. These regressions were repeated by reversing steps 2 and 3 so that NBRS and PBRS were entered on step two to control for metacognitions and the

DAS-24 subscales were entered together on the last step. Therefore, six regression analyses were conducted as a total.

The effect for citizenship status (UK vs. non-UK) on the BAI, CES-D, and STAI-D was demonstrated as significant, with UK citizens receiving higher scores than non-UK citizens. Even though the magnitude of these differences was shown to be small in their effect sizes, this effect was controlled in the relevant analyses whose dependent variable is one of those measurement devices (BAI, CES-D, or STAI-D). In order for this occur, a dichotomous variable representing the citizenship status was created by dummy variable coding and then entered into the equation in the first steps of the relevant analyses. Accordingly, the UK citizens group was given a value of 1 on the dummy-coded variable as the reference group and coded as 1, whilst a code of zero was assigned for the non-UK citizens group.

5. Correlational Analyses

The Pearson intercorrelations of measures used in the anxiety-focused analyses are presented in Table 3.12, and the intercorrelations between variables used for depression-focused analyses can be seen in Table 3.13. The relationships of the MCQ-30 total score with the variables used for testing depression hypotheses was also examined. The intercorrelations did not indicate problems of multicollinearity between study variables.

As can be seen from the correlation matrix, apart from the correlation between cognitive confidence and obsessive compulsive symptomatology, all other correlations among predictor and criterion variables were positive and statistically significant. In addition, age had significant correlations with the CES-D scores as a criterion variable. Gender was also found as related to the PSWQ and BAI as criterion variables. Whilst age as a potential predictor variable was included only in the analysis whose criterion variable was the CES-D, gender was included only in analyses whose criterion variable was either the PSWQ or BAI. Not considering the lack of significant relationship between cognitive confidence and the PI-WSUR, it was included in the subsequent regression analyses because such a relationship has been shown in previous research.

Table 3.12. Intercorrelations of study variables used in anxiety analyses in the British Sample (N = 236 for all but 235 for gender)

| | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| 1. MCQ-30 | .65** | .68** | .58** | .72** | .78** | .50** | .48** | .50** | .41** | .46** | .36** | .01 | -.14* |
| 2. MCQ-1 | - | .31** | .21** | .30** | .39** | .44** | .32** | .41** | .32** | .28** | .27** | .01 | -.01 |
| 3. MCQ-2 | | - | .20** | .36** | .43** | .64** | .55** | .46** | .49** | .45** | .33** | -.04 | .09 |
| 4. MCQ-3 | | | - | .34** | .25** | .17* | .21** | .12 | .14* | .18** | .21** | .05 | -.20** |
| 5. MCQ-4 | | | | - | .54** | .22** | .29** | .38** | .21** | .30** | .17** | .01 | -.29** |
| 6. MCQ-5 | | | | | - | .24** | .26** | .34** | .22** | .35** | .24** | -.01 | -.10 |
| 7. PSWQ | | | | | | - | .64** | .41** | .47** | .46** | .30** | -.11 | .15* |
| 8. STAIT | | | | | | | - | .31** | .52** | .67** | .43** | -.14* | .07 |
| 9. PIWSUR | | | | | | | | - | .39** | .32** | .31** | -.05 | -.01 |
| 10. BAI | | | | | | | | | - | .56** | .44** | -.10 | .16* |
| 11. BDI | | | | | | | | | | - | .34** | -.11 | .08 |
| 12. CCL-A | | | | | | | | | | | - | -.10 | .01 |
| 13. Age | | | | | | | | | | | | - | -.21** |
| 14. Gender | | | | | | | | | | | | | - |

Note. MCQ-30 = Meta-Cognitions Questionnaire-30, MCQ-1 = Positive beliefs about worry, MCQ-2 = Negative beliefs about worry concerning uncontrollability and danger, MCQ-3 = Lack of cognitive confidence, MCQ-4 = Need to control thoughts, MCQ-5 = Cognitive self-consciousness, PSWQ = Penn State Worry Questionnaire, PIWSUR = Padua Inventory-Washington State University Revised, STAIT = State-Trait Anxiety Inventory Trait form, BAI = Beck Anxiety Inventory, BDI = Beck Depression Inventory, CCL-A = Cognitions Checklist Anxiety Subscale, Gender = 1: Male, 2: Female. ** $p < .01$, * $p < .05$

Table 3.13. Intercorrelations of study variables used in depression analyses in the British Sample (N = 236 for all but 235 for gender)

| | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|-------|
| 1. NBRS | .30** | .44** | .50** | .49** | .36** | .29** | .20** | .51** | .55** | .43** | -.10 | -.07 | .53** |
| 2. PBRS | - | .21** | .38** | .28** | .30** | .20** | .14* | .28** | .32** | .20** | -.02 | -.08 | .51** |
| 3. STAI-D | | - | .64** | .72** | .39** | .37** | .10 | .66** | .64** | .46** | -.14* | .08 | .36** |
| 4. STAI-A | | | - | .56** | .47** | .38** | .20** | .57** | .56** | .50** | -.10 | .03 | .60** |
| 5. CCL-D | | | | - | .46** | .40** | .13 | .64** | .64** | .41** | -.15* | -.04 | .44** |
| 6. DAS-1 | | | | | - | .51** | .57** | .42** | .35** | .27** | -.02 | -.13* | .46** |
| 7. DAS-2 | | | | | | - | .20** | .33** | .31** | .17** | -.29** | .04 | .23** |
| 8. DAS-3 | | | | | | | - | .18** | .14* | .10 | .11 | -.11 | .32** |
| 9. CES-D | | | | | | | | - | .79** | .55** | -.13* | .01 | .45** |
| 10. BDI | | | | | | | | | - | .56** | -.11 | .08 | .46** |
| 11. BAI | | | | | | | | | | - | -.10 | .16* | .41** |
| 12. Age | | | | | | | | | | | - | -.21** | .01 |
| 13. Gender | | | | | | | | | | | | - | -.14* |
| 14. MCQ30 | | | | | | | | | | | | | - |

Note. NBRS = Negative Beliefs about Rumination Scale, PBRS = Positive Beliefs about Rumination Scale, STAI-D = State-Trait Anxiety Inventory Trait form - Depression Subscale, STAI-A = State-Trait Anxiety Inventory Trait form - Anxiety Subscale, CCL-D = Cognitions Checklist Depression Subscale, DAS-1 = Dysfunctional Attitude Scale-24-Achievement subscale, DAS-2 = Dysfunctional Attitude Scale-24-Dependency subscale, DAS-3 = Dysfunctional Attitude Scale-24-Self-control subscale, CES-D = Center for Epidemiologic Studies Depression Scale, BDI = Beck Depression Inventory, BAI = Beck Anxiety Inventory, MCQ30 = Meta-Cognitions Questionnaire-30, Gender = 1: Male, 2: Female. **p < .01, *p < .05

6. Main Analyses: Results of the Multiple Hierarchical Regression Analyses Testing the Hypotheses

6.1. Roles of metacognitive factors and cognitive content on pathological worry in the British sample

The first set of hierarchical regression analyses was conducted to examine the predictors of pathological worry in the British sample, after the effect of anxious thought content are partialled out. In the first step of the first regression analysis, gender, o-c symptoms (PI-WSUR), and depression (BDI) were entered into equation as covariates. In the second step, anxious cognitive content (CCL-A) was entered, followed by the forced entry of the MCQ subscales as a set on step three.

As can be seen in Table 3.14, the full model explained 52% of the variance in pathological worry with Multiple $R = .72$, $F(9, 225) = 27.39$, $p < .001$. In the first step, all control variables, namely gender -being female-, o-c, and depressive symptomatology significantly predicted the level of pathological worry, $F(3, 231) = 33.84$, $p < .001$, and explained 31% of the total variance. However, addition of anxious cognitive content did not explain any significant additional variance in PSWQ score ($R^2_{\text{change}} = .01$, $F_{\text{change}}[1, 230] = 2.86$, $p = .09$). The set of metacognition variables made an additional 21% contribution to the total variance explained ($F_{\text{change}}[5, 225] = 19.71$, $p < .001$). Among these metacognitive variables, negative beliefs about worry was the strongest predictor of the pathological worry ($\beta = .50$, $t[225] = 8.45$, $p < .001$). Positive beliefs about worry ($\beta = .26$, $t[225] = 4.77$, $p < .001$) was another independent predictor of pathological worry. Cognitive self-consciousness ($\beta = -.14$, $t[225] = -2.43$, $p < .05$) was also significant. However the direction of the relationship was not in the positive direction as it was in the correlation matrix (see Table 3.12). This suggests that the direction of this relationship changed due to the suppressive effects of the other variables in the equation. Therefore, cognitive self-consciousness was not taken into account as an independent predictor of pathological worry in the subsequent discussion of the results.

Table 3.14. The first set of regression equation with PSWQ regressed on gender, PI-WSUR, BDI, CCL-A, and MCQ-30 in the British Sample

| Variables | β | t (within set) | df | F _{change} | R ² |
|---|---------|-------------------|--------|---------------------|----------------|
| Regression 1 | | | | | |
| Step 1: Control Variables | | | 3, 231 | 33.84** | .31 |
| Gender | .13 | 2.33* | 231 | | |
| PI-WSUR | .35 | 8.97** | 231 | | |
| BDI | .30 | 7.68** | 231 | | |
| Step 2: Cognitive Content | | | 1, 230 | 2.86 | .31 |
| CCL-A | .10 | 1.69 | 230 | | |
| Step 3: Metacognitive Factors | | | 5, 225 | 19.71** | .52 |
| MCQ-1 | .26 | 4.77** | 225 | | |
| MCQ-2 | .50 | 8.45** | 225 | | |
| MCQ-3 | .03 | 0.58 | 225 | | |
| MCQ-4 | -.03 | -0.53 | 225 | | |
| MCQ-5 | -.14 | -2.43* | 225 | | |
| Multiple R = .72**, Adjusted R ² = .50 | | | | | |
| Regression 2 | | | | | |
| Step 1: Control Variables | | | 3, 231 | 33.84** | .31 |
| Gender | .13 | 2.33* | 231 | | |
| PI-WSUR | .35 | 8.97** | 231 | | |
| BDI | .30 | 7.68** | 231 | | |
| Step 3: Metacognitive Factors | | | 5, 226 | 20.59** | .52 |
| MCQ-1 | .26 | 4.82** | 226 | | |
| MCQ-2 | .50 | 8.55** | 226 | | |
| MCQ-3 | .03 | 0.63 | 226 | | |
| MCQ-4 | -.03 | -0.55 | 226 | | |
| MCQ-5 | -.14 | -2.43* | 226 | | |
| Step 3: Cognitive Content | | | 1, 225 | 0.07 | .52 |
| CCL-A | .01 | 0.26 | 225 | | |
| Multiple R = .72**, Adjusted R ² = .50 | | | | | |

Note. PSWQ = Penn State Worry Questionnaire, PI-WSUR = Padua Inventory Washington State University-Revised, BDI = Beck Depression Inventory, CCL-A = Cognition Checklist-Anxiety subscale, MCQ-1 = Positive beliefs about worry, MCQ-2 = Negative beliefs about worry concerning uncontrollability and danger, MCQ-3 = Lack of cognitive confidence, MCQ-4 = Need to control thoughts, MCQ-5 = Cognitive self-consciousness, Gender = 1: Male, 2: Female. ** $p < .001$, * $p < .05$

This set of findings indicated that metacognitive factors (particularly negative beliefs about worry concerning uncontrollability and danger, and positive beliefs about worry) explained a significant amount of variance in pathological worry above and beyond cognitive content after controlling for gender and comorbid symptomatology. However, anxious cognitive content did not explain significant amount of additional variance in pathological worry after controlling for the variance accounted for by gender and comorbid symptomatology.

Since the anxious cognitive content was not found as a significant predictor of worry after controlling for comorbid symptomatology in the British sample, the second regression analysis with reversing the second and third steps was not necessary. However, it was conducted to see the predictive power of metacognitive variables on pathological worry when cognitive content is not controlled. As can be seen in Table 3.14, after the variance explained by the covariates was controlled, the set of metacognition variables explained a significant amount of additional variance in pathological worry scores ($R^2_{\text{change}} = .22$, $F_{\text{change}} [5, 226] = 20.58$, $p < .001$). Similar to the first regression in this set, negative beliefs about worry ($B = .50$, $t [226] = 8.55$, $p < .001$) and positive beliefs about worry ($\beta = .26$, $t [226] = 4.82$, $p < .001$) were the strongest individual predictors of the pathological worry, respectively. Again, cognitive self-consciousness ($\beta = -.14$, $t [226] = -2.43$, $p < .05$) was negatively associated with the PSWQ scores. The reason for this finding may again be the suppressive effects of the other variables in the equation, as discussed above.

In the light of this result, and when the criteria suggested by Baron and Kenny (1986) for establishing mediation (see p. 100) were considered, it was no use testing the mediation hypothesis in the British sample, since the association of anxious cognitive content with pathological worry was not significant after controlling gender, o-c, and depression symptoms, indicating that the mediation hypothesis was not supported.

6.2. Role of metacognitive factors and cognitive content on obsessive-compulsive symptoms in the British sample

Because age and gender were not found to be significantly correlated with PI-WSUR, they were not included in the second set of regressions so that the power of the analyses was not lowered. For the first regression, pathological worry and depressive symptoms were entered on step 1 to control their effects, and anxious cognitions on step 2 and metacognitive variables on step 3 were forced to enter. As can be seen in Table 3.15, the variability in these variables accounted for 35% of the variance in o-c symptoms (Multiple $R = .59$, $F [8, 227] = 15.02$, $p < .001$). In step 1, the contribution of the covariates to the explained variance was significant ($F [2, 233] = 27.36$, $p < .001$), explaining 19% of the total variability. On the second step, anxious cognitive content explained significant additional variance in PI-WSUR score ($R^2_{\text{change}} = .03$, $F_{\text{change}} [1, 232] = 8.50$, $p < .005$). On the final step the set of metacognition variables led to a further significant increment in the explained variance ($R^2_{\text{change}} = .13$, $F_{\text{change}} [5, 227] = 8.84$, $p < .001$). On this step, positive beliefs about worry ($\beta = .22$, $t [227] = 3.39$, $p < .005$), negative beliefs about worry concerning uncontrollability and danger ($\beta = .21$, $t [227] = 2.77$, $p < .01$), and need to control thoughts ($\beta = .21$, $t [227] = 3.10$, $p < .005$) were the metacognitive factors which were made independent contributions to explained variance while controlling for the comorbid symptomatology and anxious cognitive content. In the second regression which was repeated reversing steps 1 and 2 (see Table 3.15), metacognitive factors significantly increased the variance explained on the second step ($R^2_{\text{change}} = .14$, $F_{\text{change}} [5, 228] = 9.78$, $p < .001$). Anxious cognitive content was also significant on the third step ($R^2_{\text{change}} = .01$, $F_{\text{change}} [1, 227] = 4.49$, $p < .05$).

In the light of these findings it could be stated that metacognitive factors (particularly positive beliefs about worry, negative beliefs about worry concerning uncontrollability and danger, and need to control thoughts) explained a significant amount of variance in obsessive-compulsive symptomatology above and beyond cognitive content after controlling for comorbid symptomatology. Also, the converse applied and anxious cognitive content explained an additional variance in

pathological worry after controlling for metacognitive factors. However, the set of metacognitive variables explained more variance than cognitive content.

Table 3.15. The second set of regression equations with PI-WSUR regressed on PSWQ, BDI, CCL-A, and MCQ-30 in the British Sample

| Variables | β | t (within set) | df | F_{change} | R^2 |
|-------------------------------|---------|---------------------|--------|---------------------|-------|
| Regression 1 | | | | | |
| Step 1: Control Variables | | | 2, 233 | 27.36**** | .19 |
| PSWQ | .33 | 5.01**** | 233 | | |
| BDI | .17 | 2.51* | 233 | | |
| Step 2: Cognitive Content | | | 1, 232 | 8.50** | .22 |
| CCL-A | .18 | 2.92*** | 232 | | |
| Step 3: Metacognitive Factors | | | 5, 227 | 8.84*** | .35 |
| MCQ-1 | .22 | 3.39*** | 227 | | |
| MCQ-2 | .21 | 2.79** | 227 | | |
| MCQ-3 | -.09 | -1.50 | 227 | | |
| MCQ-4 | .21 | 3.10*** | 227 | | |
| MCQ-5 | .01 | 0.15 | 227 | | |
| Regression 2 | | | | | |
| Step 1: Control Variables | | | 2, 233 | 27.36**** | .19 |
| PSWQ | .33 | 5.01**** | 233 | | |
| BDI | .17 | 2.51* | 233 | | |
| Step 2: Metacognitive Factors | | | 5, 228 | 9.78**** | .33 |
| MCQ-1 | .23 | 3.64**** | 228 | | |
| MCQ-2 | .23 | 3.04*** | 228 | | |
| MCQ-3 | -.07 | -1.24 | 228 | | |
| MCQ-4 | .20 | 2.96*** | 228 | | |
| MCQ-5 | .02 | 0.24 | 228 | | |
| Step 3: Cognitive Content | | | 1, 227 | 4.49* | .35 |
| CCL-A | .13 | 2.12* | 227 | | |

Multiple R = .59****, Adjusted R² = .32

Note. PI-WSUR = Padua Inventory Washington State University-Revised, PSWQ = Penn State Worry Questionnaire, BDI = Beck Depression Inventory, CCL-A = Cognition Checklist-Anxiety subscale, MCQ-1 = Positive beliefs about worry, MCQ-2 = Negative beliefs about worry concerning uncontrollability and danger, MCQ-3 = Lack of cognitive confidence, MCQ-4 = Need to control thoughts, MCQ-5 = Cognitive self-consciousness, Gender = 1: Male, 2: Female. ****p < .001, ***p < .005, **p < .01, *p < .05

6.3. Roles of metacognitive factors and cognitive content on anxiety symptoms in the British sample

Since the UK and non-UK groups were found to be significantly different on their anxiety scores, the effect of citizenship status was controlled in the first step. On the other hand, having found not significantly correlated with BAI, age was not included in these set of analyses. In the first regression equation (see Table 3.16), citizenship, gender, and depressive symptomatology entered on step 1 to control their effects, followed by anxious cognitions and metacognitive variables on step 2 and step 3, respectively. At the end of each step, R was significantly different from zero and these variables together accounted for 46% of the variance in BAI score with Multiple $R = .68$, $F(9, 225) = 21.45$, $p < .001$. On the first step, control variables as a set significantly predicted anxiety symptoms ($R^2 = .34$, $F[3, 231] = 38.88$, $p < .001$). After excluding the variance explained by covariates, anxious cognitive content explained significant additional variance in BAI score ($R^2_{\text{change}} = .07$, $F_{\text{change}}[1, 230] = 26.39$, $p < .001$). On the third step the metacognitive variables made a further significant contribution ($R^2_{\text{change}} = .06$, $F_{\text{change}}[5, 225] = 4.83$, $p < .001$). Independent metacognitive predictors in the final equation were negative beliefs about worry concerning uncontrollability and danger ($\beta = .24$, $t[225] = 3.89$, $p < .001$) and positive beliefs about worry ($\beta = .13$, $t[225] = 2.29$, $p < .05$), respectively. When the order of entry of anxious cognitions and metacognitions was reversed (see Table 3.16), metacognitions significantly increased the variance explained ($R^2_{\text{change}} = .09$, $F_{\text{change}}[5, 226] = 6.81$, $p < .001$). On the third step anxious cognitive content was also significant ($R^2_{\text{change}} = .04$, $F_{\text{change}}[1, 225] = 16.37$, $p < .001$).

These results demonstrated that metacognitive factors explained a significant amount of variance in general anxiety symptomatology above and beyond cognitive content after controlling for citizenship status, gender, and comorbid depression. Similarly, anxious cognitive content also explained an additional variance in anxiety symptomatology after controlling for citizenship status, gender, depressive symptoms, and metacognitive factors.

Table 3.16. The third set of regression equations with BAI regressed on gender, BDI, CCL-A, and MCQ-30 in the British Sample

| Variables | β | t (within set) | df | F_{change} | R^2 |
|-------------------------------|---------|---------------------|--------|---------------------|-------|
| Regression 1 | | | | | |
| Step 1: Control Variables | | | 3, 231 | 38.88*** | .34 |
| Citizenship | .12 | 2.19* | 231 | | |
| Gender | .11 | 1.94 | 231 | | |
| BDI | .53 | 9.88*** | 231 | | |
| Step 2: Cognitive Content | | | 1, 230 | 26.39*** | .40 |
| CCL-A | .28 | 5.14*** | 230 | | |
| Step 3: Metacognitive Factors | | | 5, 225 | 4.83*** | .46 |
| MCQ-1 | .13 | 2.29* | 225 | | |
| MCQ-2 | .24 | 3.89*** | 225 | | |
| MCQ-3 | -.01 | -0.10 | 225 | | |
| MCQ-4 | .03 | 0.47 | 225 | | |
| MCQ-5 | -.11 | -1.71 | 225 | | |
| Regression 2 | | | | | |
| Step 1: Control Variables | | | 3, 231 | 38.88*** | .34 |
| Citizenship | .12 | 2.19* | 231 | | |
| Gender | .11 | 1.94 | 231 | | |
| BDI | .53 | 9.88*** | 231 | | |
| Step 2: Metacognitive Factors | | | 5, 226 | 6.81** | .42 |
| MCQ-1 | .16 | 2.77** | 226 | | |
| MCQ-2 | .27 | 4.38*** | 226 | | |
| MCQ-3 | .03 | 0.45 | 226 | | |
| MCQ-4 | .02 | 0.26 | 226 | | |
| MCQ-5 | -.10 | -1.48 | 226 | | |
| Step 3: Cognitive Content | | | 1, 225 | 16.37*** | .46 |
| CCL-A | .22 | 4.05*** | 225 | | |

Multiple R = .68***, Adjusted R² = .44

Note. BAI = Beck Anxiety Inventory, BDI = Beck Depression Inventory, CCL-A = Cognition Checklist-Anxiety subscale, MCQ-1 = Positive beliefs about worry, MCQ-2 = Negative beliefs about worry concerning uncontrollability and danger, MCQ-3 = Lack of cognitive confidence, MCQ-4 = Need to control thoughts, MCQ-5 = Cognitive self-consciousness, Gender = 1: Male, 2: Female, Citizenship = 1: UK, 2: Non-UK. *** $p < .001$, ** $p < .01$, * $p < .05$

6.4. Roles of metacognitive factors and cognitive content on state and trait depression in the British sample

In the first set (see Table 3.17) with state depression (BDI) as the criterion variable, state anxiety (BAI) was entered on step 1 to control the effect of comorbid anxiety. Since neither age nor gender as the demographic variables of the study was found as significantly related with state depression, they were not included in this set of analyses. Dysfunctional attitudes (DAS-24 subscales; achievement, dependency, and self-control) as a set were entered on step 2, followed by the forced entry of metacognitive beliefs (NBRS and PBRS) on step 3. These variables together accounted for 46% of the variance in state depression (Multiple $R = .68$, $F [6, 229] = 32.59$, $p < .001$). On the first step, comorbid anxiety significantly contributed to the explained variance ($R^2 = .31$, $F [1, 234] = 104.03$, $p < .001$). After controlling the overlap between depression and anxiety, dysfunctional attitudes explained significant additional variance in BDI score on step two ($R^2_{\text{change}} = .06$, $F_{\text{change}} [3, 231] = 7.78$, $p < .001$). The individual contributions of DAS-dependency ($\beta = .16$, $t [231] = 2.60$, $p < .05$) and DAS-achievement ($\beta = .16$, $t [231] = 2.13$, $p < .05$) were significant on this step. On the last step, metacognitive beliefs about ruminations made a further significant contribution to the explained variance ($R^2_{\text{change}} = .09$, $F_{\text{change}} [2, 229] = 18.96$, $p < .001$). Negative metacognitive beliefs about ruminations was the strongest associate of the BDI ($\beta = .30$, $t [229] = 5.25$, $p < .001$), followed by positive metacognitive beliefs about ruminations ($\beta = .12$, $t [229] = 2.21$, $p < .05$), after the effects of comorbid anxiety and depressive schemata were partialled out. Moreover, the individual associations of DAS subscales with depressive symptoms were no longer significant, when metacognitions entered, indicating that only NBRS and PBRS were the individual predictors of BDI on this step. This regression was repeated by reversing steps 2 and 3 so that NBRS and PBRS were entered on step two to control for metacognitions and the DAS-24 subscales were entered together on the last step (see Table 3.17). On the second step, the metacognitive beliefs significantly increased the variance explained ($R^2_{\text{change}} = .13$, $F_{\text{change}} [2, 232] = 27.62$, $p < .001$).

Table 3.17. Statistics for the regression equations with BDI regressed on BAI, DAS-24 subscales (Achievement, Dependency, Self-Control), NBRS, and PBRs in the British Sample

| Variables | β | t (within set) | df | F_{change} | R^2 |
|-------------------------------|---------|---------------------|--------|---------------------|-------|
| Regression 1 | | | | | |
| Step 1: Control Variables | | | 1, 234 | 104.03*** | .31 |
| BAI | .56 | 10.20*** | 234 | | |
| Step 2: Depressive Schemata | | | 3, 231 | 7.78*** | .37 |
| Achievement | .16 | 2.13* | 231 | | |
| Dependency | .16 | 2.60* | 231 | | |
| Self-Control | -.03 | -.54 | 231 | | |
| Step 3: Metacognitive Factors | | | 2, 229 | 18.96*** | .46 |
| NBRS | .30 | 5.25*** | 229 | | |
| PBRs | .12 | 2.21* | 229 | | |
| Regression 2 | | | | | |
| Step 1: Control Variables | | | 1, 234 | 104.03*** | .31 |
| BAI | .56 | 10.20*** | 234 | | |
| Step 2: Metacognitive Factors | | | 2, 232 | 27.62*** | .44 |
| NBRS | .34 | 6.05*** | 232 | | |
| PBRs | .14 | 2.71** | 232 | | |
| Step 3: Depressive Schemata | | | 3, 229 | 2.79* | .46 |
| Achievement | .08 | 1.10 | 229 | | |
| Dependency | .11 | 1.94 | 229 | | |
| Self-Control | -.04 | -.71 | 229 | | |

Multiple R = .68***, Adjusted R² = .45

Note. BDI = Beck Depression Inventory, BAI = Beck Anxiety Inventory, DAS-24 = Dysfunctional Attitude Scale-24, NBRS = Negative Beliefs about Rumination Scale, PBRs = Positive Beliefs about Rumination Scale. *** $p < .001$, ** $p < .01$, * $p < .05$

On the third step, dysfunctional attitudes as a set made a significant contribution ($R^2_{\text{change}} = .02$, $F_{\text{change}} [3, 229] = 2.79$, $p < .05$), but none of these dysfunctional attitudes was individually significant.

This set of findings demonstrated that positive and negative metacognitions about rumination individually explained a significant amount of variance in state depression above and beyond dysfunctional depressive schemata while controlling for state anxiety. Although dysfunctional attitudes as a set significantly predicted depression after anxiety and metacognitions were controlled, this set of variables were weaker than metacognitive variables. Moreover, none of the DAS-24 subscales contributed individually.

Further analysis was carried out to determine the predictors of trait depression. In the first set (see Table 3.18) with trait depression (STAI- D) as the criterion variable, citizenship status (its effect was significant on the criterion variable), trait anxiety (STAI-A) and age (it was found as significantly related with the criterion variable) were entered on step 1, followed by the forced entry of dysfunctional attitudes (DAS-24 subscales) as a set on step 2. Metacognitive beliefs (NBRS and PBRS) were entered on step 3. After all variables were entered into the regression equation, Multiple $R = .68$, $F(8, 227) = 23.91$, $p < .001$, explaining 46% of the variability in trait depression. On the first step, control variables as a set significantly predicted trait depression ($R^2 = .42$, $F[3, 232] = 55.04$, $p < .001$). On step 2, dysfunctional attitudes as a set explained significant additional variance in STAIT-D score ($R^2_{\text{change}} = .02$, $F_{\text{change}}[3, 229] = 3.32$, $p < .05$). On the last step, NBRS and PBRS together made a further significant contribution to the explained variance ($R^2_{\text{change}} = .02$, $F_{\text{change}}[2, 227] = 3.59$, $p < .05$). In this final step, NBRS was the only individual associate of trait depression ($\beta = .14$, $t[227] = 2.48$, $p < .05$). In the second regression with the order of entry reversed, metacognitive beliefs about rumination significantly increased the variance explained on the second step ($R^2_{\text{change}} = .02$, $F_{\text{change}}[2, 230] = 3.94$, $p < .05$). On the third step, dysfunctional attitudes as a set made a further significant contribution to the explained variance ($R^2_{\text{change}} = .02$, $F_{\text{change}}[3, 227] = 3.09$, $p < .05$).

Table 3.18. Statistics for the regression equations with STAI-D regressed on STAI-A, DAS-24 subscales (Achievement, Dependency, Self-Control), NBRS, and PBRS in the British Sample

| Variables | β | t (within set) | df | F_{change} | R^2 |
|-------------------------------|---------|---------------------|--------|---------------------|-------|
| Regression 1 | | | | | |
| Step 1: Control Variables | | | 3, 232 | 55.04*** | .42 |
| Citizenship | .05 | 0.84 | 232 | | |
| STAI-A | .63 | 12.40*** | 232 | | |
| Age | -.06 | -1.09 | 232 | | |
| Step 2: Depressive Schemata | | | 3, 229 | 3.32* | .44 |
| Achievement | .14 | 1.86 | 229 | | |
| Dependency | .10 | 1.64 | 229 | | |
| Self-Control | -.10 | -1.64 | 229 | | |
| Step 3: Metacognitive Factors | | | 2, 227 | 3.59* | .46 |
| NBRS | .14 | 2.48* | 227 | | |
| PBRS | -.07 | -1.30 | 227 | | |
| Regression 2 | | | | | |
| Step 1: Control Variables | | | 3, 232 | 55.04*** | .42 |
| Citizenship | .05 | 0.84 | 232 | | |
| STAI-A | .63 | 12.40*** | 232 | | |
| Age | -.06 | -1.09 | 232 | | |
| Step 2: Metacognitive Factors | | | 2, 230 | 3.94* | .44 |
| NBRS | .16 | 2.74** | 230 | | |
| PBRS | -.05 | -1.00 | 230 | | |
| Step 3: Depressive Schemata | | | 3, 227 | 3.09* | .46 |
| Achievement | .13 | 1.81 | 227 | | |
| Dependency | .10 | 1.54 | 227 | | |
| Self-Control | -.11 | -1.79 | 227 | | |

Multiple R = .68***, Adjusted R² = .44

Note. STAI-D = State-Trait Anxiety Inventory Trait form - Depression Subscale, STAI-A = State-Trait Anxiety Inventory Trait form - Anxiety Subscale, DAS-24 = Dysfunctional Attitude Scale-24, NBRS = Negative Beliefs about Rumination Scale, PBRS = Positive Beliefs about Rumination Scale, Citizenship = 1: UK, 2: Non-UK. *** $p < .001$, ** $p < .01$, * $p < .05$

This set of findings indicated that metacognitive variables concerning rumination (particularly negative metacognitions about ruminations) explained a significant amount of variance in trait depression above and beyond dysfunctional schemata while controlling for trait anxiety and age. Likewise, the DAS made a significant contribution to the variability of trait depression when trait anxiety, age, and metacognitions were controlled.

The final set of analyses were performed using the CES-D as criterion variable to determine whether there would be a difference in the associates of depression when the measurement device is shifted from a clinical instrument to an instrument more suited to a non-clinical sample. In the first set (see Table 3.19), citizenship (its effect was significant on the criterion variable), state anxiety symptoms (BAI), and age (found as significantly related with the criterion variable) entered on step 1 to control their effects, followed by forced entry of dysfunctional attitudes (DAS-24 subscales) on step 2 and metacognitive variables concerning rumination on step 3. These variables together accounted for 45% of the variance in CES-D scores with Multiple $R = .67$, $F(8, 227) = 22.71$, $p < .001$. On the first step, covariates significantly predicted the variability in the CES-D ($R^2 = .30$, $F[3, 232] = 33.86$, $p < .001$). Dysfunctional attitudes explained significant additional variance in CES-D score on step two ($R^2_{\text{change}} = .09$, $F_{\text{change}}[3, 229] = 11.05$, $p < .001$). In this step, DAS-Achievement subscale was the only individual associate of the CES-D score ($\beta = .25$, $t[229] = 3.41$, $p < .005$). On the last step, metacognitive beliefs about ruminations made a further significant contribution to the explained variance ($R^2_{\text{change}} = .05$, $F_{\text{change}}[2, 227] = 10.66$, $p < .001$). Negative beliefs about ruminations was the strongest independent associate of the CES-D ($\beta = .25$, $t[227] = 4.19$, $p < .001$), followed by the DAS-Achievement subscale ($\beta = .19$, $t[227] = 2.64$, $p < .01$) in the final equation. In the second regression of the set, when metacognitions were entered on step 2, the explained variance significantly increased ($R^2_{\text{change}} = .10$, $F_{\text{change}}[2, 230] = 19.27$, $p < .001$) with the unique contributions of both metacognition factor. On the third step, addition of the DAS also resulted in a significant contribution to the explained variance ($R^2_{\text{change}} = .04$, $F_{\text{change}}[3, 227] = 5.49$, $p < .005$).

Table 3.19. Statistics for the regression equations with CES-D regressed on BAI, DAS-24 subscales (Achievement, Dependency, Self-Control), NBRS, and PBRs in the British Sample

| Variables | β | t (within set) | df | F_{change} | R^2 |
|-------------------------------|---------|---------------------|--------|---------------------|-------|
| Regression 1 | | | | | |
| Step 1: Control Variables | | | 3, 232 | 33.86*** | .30 |
| Citizenship | .04 | 0.60 | 232 | | |
| BAI | .53 | 9.55*** | 232 | | |
| Age | -.06 | -1.06 | 232 | | |
| Step 2: Depressive Schemata | | | 3, 229 | 11.05*** | .39 |
| Achievement | .25 | 3.41** | 229 | | |
| Dependency | .11 | 1.73 | 229 | | |
| Self-Control | -.02 | -0.32 | 229 | | |
| Step 3: Metacognitive Factors | | | 2, 227 | 10.66*** | .45 |
| NBRS | .25 | 4.19*** | 227 | | |
| PBRs | .06 | 1.17 | 227 | | |
| Regression 2 | | | | | |
| Step 1: Control Variables | | | 3, 232 | 33.86*** | .30 |
| Citizenship | .04 | 0.60 | 232 | | |
| BAI | .53 | 9.55*** | 232 | | |
| Age | -.06 | -1.06 | 232 | | |
| Step 2: Metacognitive Factors | | | 2, 230 | 19.27*** | .40 |
| NBRS | .30 | 5.22*** | 230 | | |
| PBRs | .11 | 2.01* | 230 | | |
| Step 3: Depressive Schemata | | | 3, 227 | 5.49** | .45 |
| Achievement | .19 | 2.64* | 227 | | |
| Dependency | .07 | 1.19 | 227 | | |
| Self-Control | -.03 | -0.40 | 227 | | |

Multiple R = .67***, Adjusted R² = .43

Note. CES-D = Center for Epidemiologic Studies Depression Scale, BAI = Beck Anxiety Inventory, DAS-24 = Dysfunctional Attitude Scale-24, NBRS = Negative Beliefs about Rumination Scale, PBRs = Positive Beliefs about Rumination Scale, Citizenship = 1: UK, 2: Non-UK. *** $p < .001$, ** $p < .005$, * $p < .01$

This set of findings indicated metacognitive beliefs (particularly negative metacognitions about ruminations) explained a significant amount of variance in state depression measured by CES-D above and beyond dysfunctional schemata while controlling for the effects of citizenship, comorbid anxiety, and age. Depressive schemata also explained a significant proportion of variance in depressive symptoms when the effects of the control variables, as well as the metacognitive factors were controlled.

7. Summary and Discussion of the Results Regarding the Hypotheses in the British Study

In support of the results of the Turkish study, and thus, confirming the first hypothesis, the results of the British study revealed that higher levels of metacognitions were associated with higher levels of pathological worry, o-c symptoms, and anxiety after controlling for the comorbid symptomatology and demographic variables (age and gender), and citizenship status for the relevant dependent variable(s). Similar to measures of anxiety, higher levels of metacognitions about rumination were found to be associated with higher levels of state and trait depression, after the covariates were controlled. Note that, there was not an inconsistency between results obtained from two different state measures of depression (BDI and CES-D). More specifically, negative and positive beliefs about rumination were positively associated with both BDI and CES-D after controlling for the covariates.

On the other hand, the second hypothesis with regard to the mediator role of negative beliefs about worry was not supported in the British sample since there was not a significant association between anxious cognitive content and pathological worry to be mediated by negative beliefs about worry or any other variable, after the effects of gender, comorbid symptomatology, and negative beliefs about worry were controlled.

The findings regarding the third hypothesis are summarized in Table 3.20 to show which aspects of metacognition was found to be associated with psychological symptomatology and the best predictor for each dependent variable. These results

represent the metacognitive variables which were found to be significantly associated with a given dependent variable after controlling for the comorbid symptoms and relevant demographic variable(s).

Table 3.20. Summary table for the associations of specific metacognitive domains with dependent measures in the British sample

| Metacognitive Factors | Dependent Variables | | | | | |
|--|---------------------|--------|------|------|-------|------|
| | PSWQ | PIWSUR | BAI | BDI | STAID | CESD |
| Positive beliefs about worry | Yes | Yes* | Yes | - | - | - |
| Negative beliefs about worry | Yes* | Yes | Yes* | - | - | - |
| Lack of cognitive confidence | No | No | No | - | - | - |
| Need to control thoughts | No | Yes | No | - | - | - |
| Cognitive self-consciousness | No | No | No | - | - | - |
| Negative beliefs about rumination | - | - | - | Yes* | Yes* | Yes* |
| Positive beliefs about rumination | - | - | - | Yes | No | Yes |

Note. PSWQ = Penn State Worry Questionnaire, PIWSUR = Padua Inventory Washington State University-Revised, BAI = Beck Anxiety Inventory, BDI = Beck Depression Inventory, STAID = State-Trait Anxiety Inventory Trait form - Depression Subscale, CESD = Center for Epidemiologic Studies Depression Scale. Asterisks (*) in each column indicate the best predictor for the relevant dependent variable.

The domain specific examination indicated that positive and negative beliefs about worry were significantly associated with all of the measures of anxiety. Besides, the other significant associate of o-c symptoms was the need to control thoughts dimension. Neither lack of cognitive confidence nor cognitive self-consciousness emerged as significant predictors of any of those symptoms. Whilst negative beliefs about worry dimension was the best predictor of both pathological worry and anxiety, the best predictor of o-c symptoms was determined as the positive beliefs about worry dimension. As for depression, negative beliefs about rumination dimension was found to be the significant and best associate of all of the depression measures used to measure state and trait depression. Also, positive beliefs about

rumination (PBRS) was a significant associate of state depression measures, whilst it did not significantly predicted the trait depression. This finding could be interpreted as indicating that positive beliefs about rumination may have different effect mechanisms on state and trait depression.

Apart from its unique aspects, the present study also replicates several past studies in the literature. There were some consistencies between results, as well as inconsistencies. To start with, negative and positive beliefs about worry were demonstrated as positively associated with pathological worry in the present British sample, providing support to the previous findings (Cartwright-Hatton & Wells, 1997; Davis & Valentiner, 2000; de Bruin et al., 2007; Papageorgiou & Wells, 1999; Wells & Carter, 1999; Wells & Papageorgiou, 1998). The results also confirmed that need to control thoughts and positive and negative beliefs about worry were significant predictors of obsessive-compulsive symptoms. These metacognitions were theoretically formulated and empirically demonstrated as important components of the model of OCD (Cartwright-Hatton & Wells, 1997; Myers & Wells, 2005; Wells & Mathews, 1994; Wells & Papageorgiou, 1998; Wells, 2000). Not confirming the previous research (Cartwright-Hatton & Wells, 1997; Cohen & Calamari, 2004; Garcia-Montes et al., 2006; Hermans et al., 2003; Janeck et al., 2002; Wells & Papageorgiou, 1998), neither cognitive self-consciousness nor lack of cognitive confidence emerged as significant associates of o-c symptoms in the British sample. As for more global measure of anxiety, both positive and negative beliefs about worry were found to be associated with anxiety. The finding of significant associations between positive and negative beliefs about ruminations and state depression replicated earlier research (Papageorgiou & Wells, 2001b; Papageorgiou & Wells, 2003, Papageorgiou, Wells, & Meina, in preparation).

Another hypothesis given for the anxiety related measures was that metacognitive beliefs would still account for a significant proportion of variance in the symptoms of anxiety even after controlling for anxious cognitive content and demographic variables. The results of the present study demonstrated that after the relevant cognitive content was controlled for these anxiety measures, the same pattern

of findings as presented in Table 3.20 was obtained. In other words, the same metacognitive variables emerged as significant in predicting these anxiety-based dependent variables after controlling for the variance explained by the cognitive content. As for state and trait depression, the patterns of findings did not change after the effects of depressive schemata were partialled out. The only exception of this finding was that although both NBRS and PBRS were significant predictors of CES-D, only NBRS remained significant when the depressogenic schemata were controlled.

These results lead to the conclusion that regardless of the specific metacognitive domains, metacognitions as a set were accounted for an additional variance in pathological worry, o-c symptoms, and anxiety while controlling for anxious cognitive content and other relevant covariates such as comorbid symptoms and demographics. The same conclusion is pertinent for the state and trait depression findings. Note that, instead of depressive thoughts, depressogenic schemata were used in these analyses. In particular, within set analyses revealed that some metacognitive variables were independently predicted some dependent variables above and beyond the independent contribution of cognitive content alone.

Examination of the hypothesis asserting that the relative contribution of metacognitions would be greater than the contribution of anxious cognitive content for anxiety-based analyses revealed that metacognitions explained more variance and caused greater change in all anxiety-based symptom scores than anxious cognitive content. Again, the significance of this difference in magnitude was not statistically tested. However, the cognitive content assessed in this study was more general negative automatic thoughts relevant to anxiety and depression states. Therefore, this part of the research would benefit from replicating these analyses using assessment devices measuring cognitions specifically found in a given anxiety disorder.

In terms of depression as measured by a device which is more relevant to be used in the clinical settings (BDI), positive and negative metacognitions about ruminations again were determined as stronger predictors than dysfunctional depressive schemata. However, when the depression was measured by an assessment

device which is more relevant to non-clinical community sample (CES-D) and by a device measures trait depression (STAI-D), the degree of significance in predicting depression was nearly the same between metacognitions and depressive schemata. Considering also the finding that the metacognitive model of depression was validated in a clinical sample (Papageorgiou & Wells, 2003), it would be asserted that the metacognitive formulization of depression would be more relevant in case of clinical depression rather than sub-clinical levels of depressive symptomatology. Therefore, further research investigating the metacognitive model of depression in clinical vs. non-clinical settings is strongly encouraged.

Finally, the results provided support for the hypothesis regarding state and trait depression. Apart from the above mentioned points about the results of the depression-related analyses, it was found that although dysfunctional attitudes as a set significantly predicted BDI cores after anxiety and metacognitions were controlled, this set of variables were weaker than metacognitive variables. Moreover, none of the DAS-24 subscales contributed individually to the variance in the BDI. In case of trait depression as measured by STAI-D, however, both depressogenic schemata and metacognitive beliefs about rumination had similar beta values and explained an equivalent amount of variance in the STAI-D scores. This was the case for the other state measure, namely for the CES-D. To conclude, the depression hypothesis was totally confirmed only for BDI, whilst metacognitive beliefs about rumination were not associated with the STAI-D and CES-D better than dysfunctional attitudes.

8. Comparison of the Results between Turkish and British Studies

In both samples, the first hypothesis was confirmed in all analyses. However, hypothesis two was not supported for the British sample, whilst it was partially supported in the Turkish sample. Table 3.21 displays the comparison of the Turkish and British results with regard to the third hypothesis. Since different assessment devices were used in depression-based analysis, it was not possible to compare results of depression analyses between these samples.

From these results several conclusions can be drawn. To start with, positive beliefs about worry (MCQ-1) was found to be related with pathological worry and o-c

symptoms in the Turkish sample, but not with anxiety as was the case in the British sample. In other words, whilst it was associated with all of these anxiety measures in the British sample, it was not related with anxiety in the Turkish study. The possible reasons for this finding were discussed in Section 7 for the Turkish part of this Chapter. In the British study, negative beliefs about worry concerning uncontrollability and danger (MCQ-2) was found to be relevant for the pathological worry and anxiety as found in the Turkish study and also for o-c symptoms as different from the Turkish study. That is, negative beliefs about worry did not account for o-c symptoms in the Turkish sample, whilst it was an associate of all other symptoms in both samples. Again, possible reasons for this finding can be found in the Section 7 for the Turkish part.

Table 3.21. Summary table for the associations of specific metacognitive domains with dependent measures in the Turkish and British sample

| Metacognitive Factors | PSWQ | | PI-WSUR | | BAI | |
|-------------------------------------|------|------|---------|------|------|------|
| | T | B | T | B | T | B |
| Positive beliefs about worry | Yes | Yes | Yes | Yes* | No | Yes |
| Negative beliefs about worry | Yes* | Yes* | No | Yes | Yes* | Yes* |
| Lack of cognitive confidence | Yes | No | No | No | No | No |
| Need to control thoughts | No | No | Yes* | Yes | No | No |
| Cognitive self-consciousness | No | No | No | No | No | No |

Note. PSWQ = Penn State Worry Questionnaire, PI-WSUR = Padua Inventory Washington State University-Revised, BAI = Beck Anxiety Inventory, BDI = Beck Depression Inventory, T = Turkish sample, B = British sample. Asterisks (*) in each column indicate the best predictor for the relevant dependent variable.

To further summarize, MCQ-1 and MCQ-2 were significant associates of all measures of anxiety in the British sample, while MCQ-1 was not a predictor of state anxiety and MCQ-2 was not a predictor of o-c symptoms in the Turkish sample. Lack of cognitive confidence (MCQ-3) did not predict any of the anxiety measures in the British study, while it was a predictor of only pathological worry in the Turkish sample. In both samples, need to control thoughts (MCQ-4) was significantly

associated with only o-c symptoms. Finally, cognitive self-consciousness (MCQ-5) did not emerge as a significant associate of any of these psychological symptoms in both samples.

In spite of the fact that cognitive self-consciousness showed significant and positive correlations with all of the anxiety measures in both the Turkish and British samples, as well as with depressive symptoms in the British sample, it did not become a predictor of any of the anxiety and depression measures in both the Turkish and British samples. This result may indicate that not only the tendency to monitor one's own thoughts, but also the content of these thoughts monitored by the individual could be important in predicting psychopathology. In other words, the development and maintenance of psychopathology could depend on both an elevated awareness of thoughts and the content of these thoughts. On the basis of this result, further studies focusing on the relationship patterns between psychopathology and the interaction of cognitive self-consciousness with cognitive content are strongly encouraged.

When holding constant symptom dimensions, it can be concluded that while positive and negative beliefs about worry (MCQ-1 and MCQ-2) were associated with pathological worry in both samples, lack of cognitive confidence (MCQ-3) appeared as a significant predictor of pathological worry only in the Turkish sample. For obsessive-compulsive symptoms, positive beliefs about worry (MCQ-1) and need to control thoughts (MCQ-4) were found to be significant in both samples. On the other hand, negative beliefs about worry (MCQ-2) explained a significant amount of variance in o-c symptoms in only British sample. Interestingly, lack of cognitive confidence (MCQ-3) and cognitive self-consciousness (MCQ-5) were not significant associates of o-c symptomatology not only in the Turkish sample but also in the British sample. For anxiety symptoms, only negative beliefs about worry (MCQ-2) was significant in both samples. It is the positive beliefs about worry (MCQ-1) which was found to be a significant associate of anxiety in only British sample.

When the best predictors were analyzed, it can be concluded that negative beliefs about worry (MCQ-2) was the best predictor of pathological worry and

symptoms of anxiety in both Turkish and the British samples. Whilst the best predictor of o-c symptomatology was need to control thoughts (MCQ-4) in the Turkish sample, the best predictor of this symptom cluster was determined as positive beliefs about worry (MCQ-1) in the British sample.

With regard to hypotheses 4, 5, and 6, in all analyses metacognitions were significantly associated with the symptoms after controlling for covariates and anxious cognitive content or depressive schemata. Metacognitions explained more variance than cognitive content when both cognitive content and metacognitions were significant in both sets of regressions. However, the magnitude of this difference was not tested. In case of depression, the British data provided better evidence for the hypothesis that metacognitions would be stronger predictors than cognitions. Although dysfunctional attitudes as a set significantly predicted depression after anxiety and metacognitions were controlled, this set of variables were weaker than metacognitive variables. However, this result was not confirmed across the measures of depression used in the British study.

CHAPTER IV

CAUSAL ROLE of METACOGNITIONS FOLLOWING STRESS: TWO PROSPECTIVE STUDIES in TURKISH and BRITISH SAMPLES

Consistent with the literature, the results reported in the previous chapters of this thesis support a relationship between metacognitive factors and measures of anxiety and depression. Whilst these data are in accordance with metacognitive theory of psychological disorder (Wells & Matthews, 1994; Wells, 2000), they are cross-sectional in nature and do not inform of the causal status of metacognitions. However, metacognitions are suggested as vulnerability factors in predicting individuals who are likely to develop psychological disorders.

Evidence from cross-sectional designs prevents causal interpretations. This is because an association of a variable with symptoms may be a consequence rather than cause of symptom occurrence. For example, it may well be that metacognitive factors lead to emotional psychopathology, but it is also possible that these metacognitive constructs are just by-products of psychological distress. In addition, a cross-sectional design is methodologically unable to identify the baseline levels of the symptoms in order to study risk factors for the onset of the condition of interest.

On the other hand, the mere existence of a vulnerability factor without existence of a precipitating factor is not a sufficient condition to lead to psychological distress, although it is necessary. Instead, a pre-existing vulnerability factor interacts with stress to lead to psychological disturbance. Thus, a prospective vulnerability-stress study should be carried out in order to draw firmer conclusions regarding the role of metacognitive factors in the etiology of psychopathology.

In this context, the present study attempted to investigate metacognitive factors and life stress in a two-time measurement design, to be able to test the causal role of metacognitions as vulnerability factors in the development of anxiety and depression symptoms. The metacognitive model suggests several possible patterns of result. Metacognitions may contribute to change in symptoms over and above exposure to stress and metacognitions may interact with stress (i.e. be activated by stress) leading to more negative emotions, hence maintaining anxiety and depression.

The specific hypotheses with respect to the aim of the study and the propositions of the metacognitive theory were as follows:

(1) Metacognitive beliefs and processes measured at Time 1 would be positively associated with anxiety and depression at Time 2, when stress occurrences between the two measurement times are controlled, along with the preexisting symptom level.

(2) Metacognitive beliefs and processes measured at Time 1 would prospectively interact with stress to predict change in the severity of symptomatology at Time 2, when the level of preexisting symptom severity measured at Time 1 is controlled.

The psychological symptom domains to be used as outcome variables were state measures of anxiety (Beck Anxiety Inventory; BAI) and depression (Beck Depression Inventory; BDI), which are sensitive to detect change over time. The properties of these scales can be found in Chapter 2. Since the measurement devices of pathological worry (PSWQ) and obsessive-compulsive symptoms (PI-WSUR) used in the cross-sectional part of this study are trait measures which are relatively stable over time, and therefore, unable to detect any state changes in these symptoms, they could not be used to explore whether metacognitive beliefs and processes would predict any change in also these symptom domains.

Stress was measured by Life Experiences Survey-Negative effect of events (LES-N) and Inventory of College Students' Recent Life Experiences (ICSRLE). The former stress questionnaire is used for measuring major life events, whilst the latter is for the assessment of daily hassles. These questionnaires were introduced in detail under the "instruments" subtitle of the method section of this chapter.

The hypotheses of this chapter were separately tested by using Meta-Cognitions Questionnaire-30 (MCQ-30) and positive and negative metacognitive beliefs about rumination scales (PBRS and NBRS) in the British sample. Whilst the MCQ-30 was used to investigate the causal contribution of the metacognitive factors to the prospective change in anxiety symptoms, the NBRS and PBRS were used to examine the causal contribution of metacognitive factors to the change in depressive symptoms. In addition, depression was measured not only by the BDI but also by the Center for Epidemiologic Studies Depression Scale (CES-D, see Chapter 3 for further information about this scale) in the British sample to explore the potential

differences of using clinical and non-clinical scales in testing the predictive role of the same constructs. These measurement devices (NBRS, PBRS, and CES-D) could not be used in the Turkish sample due to the availability problem of the adapted versions of these scales into the Turkish culture.

A. Causal Role of Metacognitions Following Stress: A prospective Study in a Turkish Sample

Method

Subjects

Among the first study participants, 172 subjects agreeing to take part in the second study were contacted again six months later. The sample was composed of 103 females (59.9%) and 69 males (40.1%) the age of whom ranged from 19 to 47 years with a mean of 24.14 ($SD = 5.74$). Whilst 138 (80.2%) of the participants were students, 34 (19.8%) were non-student adults.

Instruments

Along with the BAI and BDI which were also administered at Time 1, the following instruments were specific measurement devices used only at Time 2.

Life Experiences Survey (LES; Sarason, Johnson, & Siegel, 1978). LES is a 57 item self-report measure of major life events that allows respondents to indicate events they have experienced during the past 6 months and 1 year. The scale is composed of two portions: Section 1, which is designed for all individuals, includes 47 specific life events that are common to individuals in a wide variety of situations and three blank spaces in which respondents can indicate other events that they may have experienced. Section 2 contains a list of 10 events designed specifically only for students. Section 1 is appropriate for using with all subjects drawn from the general population, while both sections are relevant for students. The respondents are asked to indicate the changes in their life during the past year stating the occurrence of those events within two 6-month-interval options (0-6 months and/or 7 months-1 year). The respondents are also asked the perceived impact of that particular event on their life as being positive and negative. Response options ranges on a 7-point scale from extremely negative (-3) to extremely positive (+3). Summating the impact ratings of events indicated as being positive by the subject gives the “positive change score” (LES-P), whereas the summation of the negatively indicated events provides

the “negative change score” (LES-N). By adding these two scores, a “total change score” (LES-T) can be obtained, as well. The LES has been shown to have acceptable test-retest reliability over five to six weeks. The test-retest correlations of 0.53, 0.88, and 0.64 were reported for positive, negative, and total change scores, respectively (Sarason et al., 1978). The convergent validity of the LES negative change scores has been supported by significant correlations with STAI-T ($r = 0.29$) and BDI ($r = 0.24$).

The first section of LES was adapted to Turkish culture by Aslanoğlu (1978). In this adaptation study, the translated items were given to a judge group. Some additional items which were suggested by the majority of this judge group as relevant to Turkish culture were embedded in the scale. Similarly, some other items agreed as irrelevant to Turkish culture were either revised or excluded from the scale. The internal consistency of this “adapted” Turkish version of the LES was found to be .68 in Aslanoğlu’s study. Apart from this Cronbach’s alpha coefficient, no other statistics for the reliability and validity of the scale are reported.

Because of little previous psychometric data on the Turkish version of the LES, there is a need to evaluate the psychometrics of this instrument.

Inventory of College Students’ Recent Life Experiences (ICSRLE; Kohn, Lafreniere, & Gurevich, 1990). The ICSRLE is a 4-point, 49-item self-report measure which was designed to assess college students’ daily hassles levels without contamination of general psychological symptoms and subjective distress. In this scale, respondents describe the extent of their experience with an item over the past month. Response options for the scale range from *not at all* part of my life (1) to *very much* part of my life (4). Higher scores indicate higher level of daily hassles. The ICSRLE as a whole has also shown good internal consistency and high correlations with Perceived Stress Scale (PSS). There is no available Turkish version of the ICSRLE.

Procedure

The previous Turkish translation of the LES which was available only for the first section of the instrument was used by making minor revisions in the transformed items so that all items were consistent with the original scale. Besides, some of the items referring the financial stress were updated. Moreover, the items added to the first section in the Turkish adaptation study were not used in this study.

On getting the necessary permissions (see Appendix J), the second section of the LES which is relevant for students and the ICSRLE were translated into Turkish by two independent translators who were bilingual and had strong psychology backgrounds. The translated Turkish items together with the original items were given to two additional judges, who were asked either to choose one of the translations or to suggest their own translations for each item. Finally, two of the judges, one of whom was from the first and the other was from the second step translation group, reviewed and decided on the final forms of the Turkish versions of the second section of the LES and the ICSRLE (see Appendices H and I). The final forms were then translated back into English by a psychology postgraduate student. The back translated versions were very close to the original scale.

In order to contact the same subjects at Time 2, which was six months later, the course schedules of the students taking part in the first study were followed. The non-student participants were again the employees of AIBU. These participants completed the BAI and BDI for the second time, along with the stress measures. The cover page of the Time 2 instruments included informed-consent, explanation about the study, and the personal identification code space to match the participants. While the ICSRLE was only given to the students (because it is a device developed for only students), Section 2 of the LES was not given to the adult sample (because this section is developed only for students). The instruments were administered in a randomized order in order to eliminate the effect of sequencing. The total administration time of the questionnaires was approximately 20 minutes.

Results

I. Psychometric Properties of the LES and ICSRLE in a Turkish Sample

1. Psychometric Properties of the LES

1.1. Reliability. Internal consistency and test-retest reliability coefficients were computed separately for the total, negative (LES-N), and positive (LES-P) scores. The internal consistency of the whole LES was .74. Whilst the Cronbach's alpha coefficient for the LES-N was found to be .79, it was .61 for the LES-P, indicating acceptable reliabilities for both. Twenty four participants were re-tested with the LES. The retest interval ranged from two to three weeks. While the retest

correlation for the total LES score was found to be .64 ($p < .01$), it was .67 for the LES-N and .62 ($p < .01$) for the LES-P scores.

1.2. Convergent Validity. In order to evaluate the convergent validity of the LES total, negative, and positive impact scores, the intercorrelations with BAI, BDI, and ICSRLE were examined. In line with previous research, as can be seen in Table 4.1, there were positive correlations ranging from medium to large between total and negative impact of life events and anxiety, depression, and daily hassles. The correlations between positive impact of life events and these measures were nonsignificant.

Table 4.1. Means (standard deviations) and intercorrelations of the LES (total, negative, and positive effect scores), ICSRLE, anxiety, and depression in the Turkish sample (N = 172 for LES, 142 for ICSRLE)

| | 1 | 2 | 3 | 4 | 5 | 6 |
|-----------|-----------------|----------------|----------------|------------------|------------------|----------------|
| 1. LES-T | 11.88 (9.34) | 0.84* | 0.59* | 0.48* | 0.36* | 0.42* |
| 2. LES-N | | 6.74 (7.53) | 0.05 | 0.54* | 0.47* | 0.58* |
| 3. LES-P | | | 5.14 (5.14) | 0.07 | -0.03 | -0.08 |
| 4. ICSRLE | | | | 85.82 (17.02) | 0.54* | 0.48* |
| 5. BAI | | | | | 11.52 (10.69) | 0.66* |
| 6. BDI | | | | | | 7.99 (7.47) |

LES-T = Life Experiences Scale Total score, LES-N = Life Experiences Scale Negative effect of events score, LES-P = Life Experiences Scale Positive effect of events score, ICSRLE = Inventory of College Students' Recent Life Experiences, BAI = Beck Anxiety Inventory, BDI = Beck Depression Inventory. * $p < 0.01$

2. Psychometric Properties of the ICSRLE

2.1. Reliability. Apart from items 9 and 38, the corrected item-total correlations for the total ICSRLE ranged from .22 to .56. These coefficients denoted that except for two items, the rest of the items in the scale had acceptable correlations with the whole scale. These two items which had poor correlations were removed from the scale and the ICSRLE score was computed using the remaining 47 items.

The reliability of the ICSRLE was determined by computing the internal consistency coefficient, split-half reliability, and test-retest correlations. Cronbach's alpha coefficient for the whole scale which was found to be .91 attested high reliability for the scale corresponding with the relevant literature. The Guttman split-half reliability for the whole ICSRLE was .92, where the Cronbach's alpha coefficient for the first half composed of 24 items was .84, it was .81 for the second half which consisted of 23 items. The test-retest reliability of the ICSRLE was assessed via Pearson correlation on a sub-sample of twenty four participants. The retest coefficient for the ICSRLE was found as .72 ($p < .01$).

2.2. Convergent Validity. To investigate the convergent validity of the ICSRLE, the Pearson correlations of the ICSRLE with BAI, BDI, and LES Total, Negative, and Positive impact of life event scores were computed. As can be seen in Table 4.1, moderate to large positive correlations were obtained between the ICSRLE and anxiety, depression, total and negative impact of life events. However, there was not a significant relationship between daily hassles and positive effect of life events. These results supported the convergent validity of the ICSRLE and were in parallel with previous research findings.

II. Main Analyses for Testing Hypotheses

1. Screening for Data

Prior to testing the main hypotheses of the study, the scores obtained from BAI, BDI, LES-N, and ICSRLE which were the main variables used in the second stage were investigated for the assumptions of multivariate statistics. In addition, Time 1 measurements of these instruments and MCQ-30 and its subscales were investigated for this sample again. The examination of univariate outliers revealed that three subjects on Time 2 BAI and five subjects on Time 2 BDI had extreme scores. Exclusion of these cases from the data left 161 cases for the analyses (three had been already deleted as being outliers in the Study 1), including 96 females (59.6%) and 65 males (40.4%).

The distributions of the second study variables which were used as outcome variables did not diverge from normal for the BDI scores, indicating a symmetrical and normally peaked distribution of the scores, and thus, no failures of normality. However, the BAI scores were found as slightly differing from zero, indicating that the mean of this variable was not exactly in the center of the distribution and

positively skewed. In spite of this, no transformation procedure was used to statistically render this variable to normal. In reaching this decision, the following issues mentioned by Tabachnick and Fidell (2001) were considered: (1) the BAI was used as an outcome variable to predict the residual change observed in it. Therefore, the interpretation of the results would have not been feasible with the transformed scores, (2) the examination of the shapes of the distributions using histograms showed that there was only minor a deviation from normality, and (3) the sample size of the study is not small, indicating that although anxiety had statistically significant skewness, it did not deviate enough from normality to make a substantial difference in the analysis. In addition to this, the LES-N score was also found to be positively skewed. However, since the statistical transformation of life events into a more normal distribution is not theoretically sound and harder to interpret, no statistical procedure was employed for also this variable. Moreover, since the LES was used as a predictor variable according to the hypotheses of the study, and since the sample size is large, the effect of skewness is less important.

2. Descriptive Statistics and Correlational Analysis

Intercorrelations among the Time 2 variables are presented in Table 4.1. In addition to this, means and standard deviations of anxiety and depression measured at Time 1 and Time 2 were computed and the variability between these symptom measures was investigated by means of paired sample *t* tests for the total sample, males, and females separately. Pearson correlations between these Time 1 and Time 2 symptoms were calculated, as well. The results can be seen in Table 4.2.

For the total sample and male subjects, anxiety and depressive symptoms demonstrated significant variability between two measurement times. On the other hand, these symptom measures remained stable for female. It should be noted with caution for variables showing significant variability that the average change in scores was in the downward direction, indicating that the symptom levels considered in this study decreased between two administration times. However, the direction of the change should not prevent testing the hypotheses of the study, as participants' level of anxiety and depression are not expected to necessarily increase or decrease. Besides, these results represent only the average scores, instead of the status of all participants. Moreover, it is reported that average scores of measurement devices

assessing transient state moods like BDI tend to reduce after repeated administrations (Sharpe & Gilbert, 1998).

Table 4.2. The mean differences and relationships between Time 1 and Time 2 symptom measures for total sample, male, and female in the Turkish sample

| | | Time 1 Mean (sd) | Time 2 Mean (sd) | <i>t</i> | <i>r</i> |
|-----------|-----|---------------------|---------------------|----------|----------|
| TOTAL | BAI | 12.37 (11.43) | 10.14 (9.08) | 2.78** | 0.53**** |
| (N = 161) | BDI | 8.43 (6.42) | 6.74 (5.47) | 3.53**** | 0.48**** |
| MALE | BAI | 12.38 (12.52) | 9.35 (9.19) | 2.33* | 0.57**** |
| (N = 65) | BDI | 9.54 (6.82) | 6.65 (5.35) | 3.65**** | 0.47**** |
| FEMALE | BAI | 12.36 (10.70) | 10.68 (9.02) | 1.66 | 0.50**** |
| (N = 69) | BDI | 7.68 (6.05) | 6.79 (5.58) | 1.51 | 0.51**** |

Note. BAI = Beck Anxiety Inventory, BDI = Beck Depression Inventory. **** $p < 0.001$, *** $p < 0.005$, ** $p < 0.01$, * $p < 0.05$

Table 4.3. Zero-order and partial correlations between Time 1 metacognitive variables and Time 2 anxiety and depression symptoms in the Turkish sample (N = 161 for zero order, 158 for partial correlations)

| | Time 2 Dependent Measures | | | |
|--------|---------------------------------|--------------------------|------------------------------|--------------------------|
| | BAI | | BDI | |
| | Time 1 BAI not controlled | Time 1 BAI controlled | Time 1 BDI not controlled | Time 1 BDI controlled |
| MCQ-30 | 0.32** | 0.13 | 0.26** | 0.13 |
| MCQ-1 | 0.17* | 0.07 | 0.14 | 0.09 |
| MCQ-2 | 0.36** | 0.17* | 0.31** | 0.16* |
| MCQ-3 | 0.15 | 0.08 | 0.15 | 0.03 |
| MCQ-4 | 0.21** | 0.05 | 0.13 | 0.03 |
| MCQ-5 | 0.09 | 0.02 | 0.09 | 0.09 |

MCQ-30 = Meta-Cognitions Questionnaire-30, MCQ-1 = Positive beliefs about worry, MCQ-2 = Negative beliefs about worry concerning uncontrollability and danger, MCQ-3 = Lack of cognitive confidence, MCQ-4 = Need to control thoughts, MCQ-5 = Cognitive self-consciousness, BAI = Beck Anxiety Inventory, BDI = Beck Depression Inventory. ** $p < 0.01$, * $p < 0.05$

Table 4.3 displays the zero-order correlations between metacognitive beliefs which were measured at Time 1 and the symptoms of anxiety and depression as measured at Time 2. The partial correlations between Time 1 metacognitions and Time 2 anxiety and depression when the baseline level of these symptoms measured at Time 1 was controlled are provided in the same table, as well. As can be seen in this table, positive and negative beliefs about worry and need to control thoughts were prospectively and positively correlated with Time 2 anxiety. However, when the baseline level of anxiety was controlled, only negative beliefs about worry concerning uncontrollability and danger remained significantly and positively related with the Time 2 anxiety. The only metacognitive variable prospectively and positively correlated with depression was again negative beliefs about worry concerning uncontrollability and danger both before and after the baseline depression level was controlled.

3. Overview of Main Analyses

In order to test the causal effect of metacognitive factors within a prospective study framework, metacognitions and baseline levels of anxiety and depression were measured at Time 1. Six months later, again the measures of anxiety and depression were taken. In addition to this, stressful major life events between these two measurement times (LES-N) and daily hassles of the last month (ICSRLE) were also assessed. Measurements for the metacognitive factors were not repeated at Time 2 since a vulnerability factor exists well before a change in the symptom level occurs.

The hypotheses of the study were tested by conducting a series of moderated regression analyses. In these regressions anxiety (BAI) and depression (BDI), which were measured at Time 2, was used as dependent or criterion variable. For each criterion variable, the baseline symptom levels (Time 1 score) and demographic characteristics were controlled in the first step. By entering the baseline score first, the other predictor variables were essentially used to predict residual change score in these affective measures from Time 1 to Time 2. In order to examine the causal effect of metacognition(s) after controlling for the negative effect of major life events, the LES-N was entered on the second step and the subscales of MCQ-30 were forced to enter simultaneously on the third step using stepwise selection. On the last step, two-way interaction terms formed by multiplying together the LES-N and each of the MCQ-30 scales (LES-NxMCQ-1, LES-NxMCQ-2, LES-NxMCQ-3,

LES-NxMCQ-4, and LES-NxMCQ-5) were entered using stepwise procedure to probe possible interactions between metacognitions and stress. Prior to these regression analyses, all continuous variables (including control, predictor, and moderator variables) were centered. The centered values of the variables were used to compute the interaction terms, as well. This moderated regression model was repeated one more time using daily hassles (ICSRLE) instead of negative effect of life events to examine the moderating effect of metacognitive variables on the relationship between daily hassles and anxiety and depression symptoms.

In these analyses, the presence of a significant interaction effect indicates that the association between a given stress and symptom measure is significantly different across the levels of the relevant metacognitive variable. In other words, a significant interaction demonstrates that the slope of the regression line that represents the association between a given stress and psychological symptom measure for one level of the relevant metacognitive variable is significantly different from the slope for the other level of this metacognitive variable. On the other hand, based only on this significant interaction effect, it is *not* possible to know whether either of the simple slopes is significantly different from zero. That is to say, we cannot know whether the relationship between the stress and psychological symptom measures is significant for individuals having high levels of the relevant metacognition, and/or for individuals having low levels of this metacognition. In order to obtain this information and to facilitate the generation of the simple regression lines, post-hoc probing of the significant interaction effects should be tested (Aiken & West, 1991; Cohen & Cohen, 1983, Cohen, Cohen, West, & Aiken, 2003; Holmbeck, 2002).

For these reasons, when a significant interaction effect was found as a result of the above described moderated regression models, subsequent post-hoc regression analyses were also conducted to test whether the simple regression slopes of a given symptom measure on stress were statistically different from zero for low and high values of the relevant metacognitive variable. In order to perform these simple slope analyses following the procedures described by Aiken and West (1991), it is necessary to calculate above and below conditional values of the moderator variable (i.e., 1 SD above and below the mean of the relevant metacognitive variable), and their interactions with the independent variable (the relevant stress variable) on the centered values. Then, using the relevant symptom measure as the criterion variable,

two separate post-hoc regression analyses one of which was for the above (high) and the other was for the below (low) conditional value of the moderator variable were conducted. In these analyses, after controlling for the effects of covariates (centered Time 1 symptom measure, gender, and centered age) on step 1, the main effect of the stress variable (centered), one of the conditional metacognition variable, and the interaction of these two were simultaneously entered into the regression equation as a block on step 2. This post-hoc regression was repeated one more time with the other conditional value of the metacognition variable. Using the two equations generated from these regression analyses for high and low values of the moderator variable, the simple slopes for the high and low levels of the independent variable (i.e., 1 SD above and below the mean of the relevant stress variable) were plotted in figure form.

4. Main Analyses: Results of the Multiple Hierarchical Regression Analyses Testing the Hypotheses

4.1. Causal role of metacognitive factors on anxiety in the Turkish sample

The first regression analysis was conducted to identify predictors of change in anxiety symptoms. In the first step, Time 1 anxiety (BAI) and demographic characteristics (gender and age) were entered into the equation to control the baseline anxiety level and individual differences issue from demographic characteristics. The negative effect of life events (LES-N) as the independent variable was entered on the second and the MCQ-30 subscales as the moderator variables were entered on the third steps, followed by the stepwise entry of the two way interaction terms of stress and metacognition obtained multiplying LES-N and MCQ-30 subscales together on the fourth step.

Table 4.4 displays the results of this analysis after each step of this moderated regression. Because stepwise procedure was used in the third and last steps, metacognitive variables and interactions which significantly entered into the regression equation could be reported. After step one, the control variables as a set emerged as significant in predicting Time 2 anxiety with $R^2 = .28$, $F(3, 157) = 20.79$, $p < .001$. In the second step, after the baseline levels of the anxiety was partialled out, negative effects of major life events explained significant additional variance caused by the residual change of the BAI ($R^2_{\text{change}} = .10$, $F_{\text{change}}[1, 156] =$

23.80, $p < .001$). In the third step, higher levels of negative beliefs about worry concerning uncontrollability and danger (MCQ-2) measured at Time 1 prospectively predicted the increase in anxiety symptoms at Time 2, when the effects of negative life events between the two measurement times were controlled, along with the preexisting anxiety severity ($R^2_{\text{change}} = .02$, $F_{\text{change}} [1, 155] = 5.09$, $p < .05$). However, none of the interaction products between metacognitions and negative effect of life events emerged as significant.

The previous regression model was repeated using the daily hassle (ICSRLE) scores instead of the LES-N. When this full model was conducted, the interaction between lack of cognitive confidence (MCQ-3) and ICSRLE was found to be significant, though the main effect of MCQ-3 did not emerge as significant with the stepwise entry method used on the third step. Thus, a reduced regression model was run so that the MCQ-3 could be forced to enter into the regression equation to be able to interpret this significant interaction effect obtained from the full model (i.e., both of the main effects have to be in the equation to investigate an interaction effect). In this reduced regression, after controlling for the effects of Time 1 BAI, gender, and age on the first step, the ICSRLE was entered on the second and the MCQ-3 was forced to enter on the third steps, followed by the interaction term between these two variables on the fourth step (see Table 4.4). Note that all other interaction terms found to be non-significant in the full model were removed on the fourth step in this reduced model. After step one, the control variables significantly predicted Time 2 anxiety ($R^2 = .30$, $F [3, 129] = 18.75$, $p < .001$). In the second step, after controlling for the level of Time 1 symptoms, daily hassles explained significant additional variance in the residual change score ($R^2_{\text{change}} = .10$, $F_{\text{change}} [1, 128] = 21.32$, $p < .001$). On the third step, the MCQ-3 did not appear as a significant prospective associate of the change in anxiety scores, after the effects of the control variables and daily hassles were partialled out. On the last step, as found in the full model, the interaction between lack of cognitive confidence and daily hassles made a further significant contribution to explain the residual change in BAI scores from Time 1 to Time 2 ($R^2_{\text{change}} = .02$, $F_{\text{change}} [1, 126] = 4.83$, $p < .05$). The obtained significant interaction indicated that the association between daily hassles and anxiety symptoms is not the same across the levels of lack of cognitive confidence.

Table 4.4. Statistics for the regression equations with Time 2 BAI regressed on metacognition and stress variables after controlling for Time 1 BAI in the Turkish sample

| Variables | β | t (within set) | df | F_{change} | R^2 |
|--|---------|---------------------|--------|---------------------|-------|
| Regression 1 | | | | | |
| Step 1: Control Variables | | | 3, 157 | 20.79*** | .28 |
| BAI-1 | .53 | 7.81*** | 157 | | |
| Gender | .08 | 1.13 | 157 | | |
| Age | .03 | 0.34 | 157 | | |
| Step 2: Main Effect | | | 1, 156 | 23.80*** | .38 |
| LES-N | .32 | 4.88*** | 156 | | |
| Step 3: Main Effect | | | 1, 155 | 5.09* | .40 |
| MCQ-2 | .16 | 2.26* | 155 | | |
| Step 4: Interaction Effect | | | | | |
| None | | | | | |
| Multiple R = .63***, Adjusted R ² = .38 | | | | | |
| Regression 2 | | | | | |
| Step 1: Control Variables | | | 3, 129 | 18.75*** | .30 |
| BAI-1 | .53 | 7.21*** | 129 | | |
| Gender | .16 | 1.96 | 129 | | |
| Age | .11 | 1.44 | 129 | | |
| Step 2: Main Effect | | | 1, 128 | 21.32*** | .40 |
| ICSRLE | .33 | 4.62*** | 128 | | |
| Step 3: Main Effect | | | 1, 127 | 0.01 | .40 |
| MCQ-3 | -.01 | -0.06 | 127 | | |
| Step 4: Interaction Effect | | | 1, 126 | 4.83* | .43 |
| MCQ3 x ICSRLE | .15 | 2.20* | 126 | | |
| Multiple R = .65***, Adjusted R ² = .40 | | | | | |

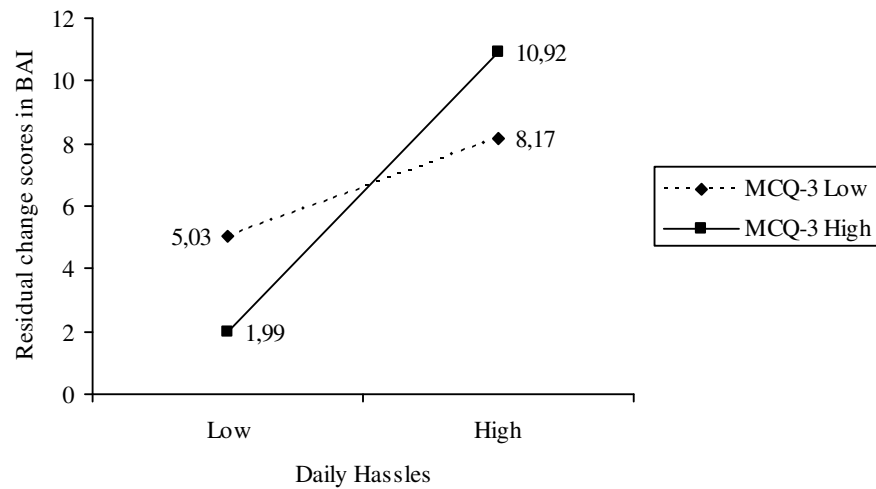
Note. BAI-1 = Beck Anxiety Inventory Time 1, LES-N = Life Experiences Scale Negative effect of events score, MCQ-1 = Positive beliefs about worry, MCQ-2 = Negative beliefs about worry concerning uncontrollability and danger, MCQ-3 = Lack of cognitive confidence, MCQ-4 = Need to control thoughts, MCQ-5 = Cognitive self-consciousness, ICSRLE = Inventory of College Students' Recent Life Experiences, Gender = 1: Male, 2: Female. *** $p < 0.001$, ** $p < 0.005$, * $p < 0.05$

That is, the slope of the regression line that represents the association between daily hassles and anxiety for one level of the lack of cognitive confidence is significantly different from the slope for the other level of the lack of cognitive confidence.

Since this interaction term was found to be significant, subsequent post-hoc regression analyses were also performed to test whether the simple regression slopes of anxiety on daily hassles were statistically different from zero for low and high values of lack of cognitive confidence. In order to conduct these simple slope analyses, the above and below conditional values of lack of cognitive confidence (i.e., 1 SD above and below the mean) and their interactions with daily hassles were calculated on the centered values. Then, using anxiety as the criterion variable, two separate post-hoc regression analyses one of which was for the above (high) and the other was for the below (low) conditional value of the lack of cognitive confidence were conducted.

In these analyses, after controlling for the effects of covariates (centered Time 1 anxiety, gender, and centered age) on step 1, the main effect of daily hassles (centered), one of the conditional values of lack of cognitive confidence, and the interaction of these two were simultaneously entered into the regression equation as a block on step 2. This post-hoc regression was repeated one more time with the other conditional value of lack of cognitive confidence. These regression analyses revealed that the simple slope of anxiety on daily hassles was significant when lack of cognitive confidence was high ($\beta = .52$, $t [126] = 4.65$, $p < .001$). The direction of the relationship indicated that anxiety tends to be higher at higher levels of daily hassles when the level of lack of cognitive confidence is high. However, the simple slope of anxiety on daily hassles was not significantly different from zero at low levels of lack of cognitive confidence ($\beta = .18$, $t [126] = 1.82$, $p = .07$).

Using the two equations generated from these regression analyses for high and low values of lack of cognitive confidence, the simple regression slopes for the high and low levels of daily hassles (i.e., 1 SD above and below the mean) were plotted (see Figure 4.1).



Note. MCQ-3= Lack of cognitive confidence, BAI = Beck Anxiety Inventory.

Figure 4.1. Interaction between negative impact of life events and lack of cognitive confidence in predicting residual change scores in BAI in the Turkish sample

These findings together with the nature of the interaction as depicted in Figure 4.1 indicated that individuals who had low levels of cognitive confidence (i.e., they scored high in lack of cognitive confidence) seemed to experience greater intensifications of their anxious mood from Time 1 to Time 2 under conditions of high daily hassles than under conditions of low daily hassles. On the other hand, the anxious mood did not differ from Time 1 to Time 2 under conditions of low or high daily hassles if individuals had high levels of cognitive confidence (i.e., they scored low in lack of cognitive confidence).

4.2. Causal role of metacognitive factors on depression in the Turkish sample

The regression model described above in detail was repeated with the Time 2 BDI as the outcome variable in order to determine the causal role of metacognitive beliefs and/or processes on change scores in depression between two measurement times. The results of the first regression analysis performed with LES-N as independent variable can be seen in Table 4.5. In this analysis, the control variables (centered Time 1 BDI, gender, and centered age) as a set significantly predicted Time 2 depression on the first step ($R^2 = .24$, $F [3, 157] = 16.81$, $p < .001$). In the

second step, the LES-N explained significant additional variance caused by the residual change of the BDI scores ($R^2_{\text{change}} = .12$, $F_{\text{change}} [1, 156] = 30.34$, $p < .001$). On step 3, higher levels of negative beliefs about worry concerning uncontrollability and danger (MCQ-2) prospectively predicted the increase in depression symptoms, when the effects of negative life events between two measurement times were controlled, along with the preexisting depression severity ($R^2_{\text{change}} = .02$, $F_{\text{change}} [1, 155] = 4.97$, $p < .05$). On the last step, however, the negative impact of life events and metacognition variables did not have a significant interaction to explain the change in depression symptoms from Time 1 to Time 2.

The second regression analysis was conducted using the daily hassle (ICSRLE) scores as the independent variable (see Table 4.5). On step one, Time 1 depression, gender, and age as a set made a significant contribution to the explained variance in Time 2 depression scores ($R^2 = .28$, $F [3, 129] = 17.02$, $p < .001$). After controlling for the baseline level of depression and demographic properties on step 1,

Table 4.5. Statistics for the regression equations with Time 2 BDI regressed on metacognition and stress variables after controlling for Time 1 BDI in the Turkish sample

| Variables | β | t (within set) | df | F_{change} | R^2 |
|--|---------|---------------------|--------|---------------------|-------|
| Regression 1 | | | | | |
| Step 1: Control Variables | | | 3, 157 | 16.81*** | .24 |
| BDI-1 | .50 | 7.09*** | 157 | | |
| Gender | .06 | 0.86 | 157 | | |
| Age | -.06 | -0.75 | 157 | | |
| Step 2: Main Effect | | | 1, 156 | 30.34*** | .37 |
| LES-N | .37 | 5.51*** | 156 | | |
| Step 3: Main Effect | | | 1, 155 | 4.97* | .39 |
| MCQ-2 | .15 | 2.23* | 155 | | |
| Step 4: Interaction Effect | | | | | |
| None | | | | | |
| Multiple R = .62***, Adjusted R ² = .37 | | | | | |

Table 4.5. (cont' d)

| Variables | β | t (within set) | df | F_{change} | R^2 |
|--|---------|---------------------|--------|---------------------|-------|
| Regression 2 | | | | | |
| Step 1: Control Variables | | | 3, 129 | 17.02*** | .28 |
| BDI-1 | .52 | 6.60*** | 129 | | |
| Gender | .14 | 1.78 | 129 | | |
| Age | .08 | 0.91 | 129 | | |
| Step 2: Main Effect | | | 1, 128 | 9.90** | .34 |
| ICSRLE | .25 | 3.15** | 128 | | |
| Step 3: Main Effect | | | | | |
| None | | | | | |
| Step 4: Interaction Effect | | | | | |
| None | | | | | |
| Multiple R = .58***, Adjusted R ² = .31 | | | | | |

Note. BDI-1 = Beck Depression Inventory Time 1, LES-N = Life Experiences Scale Negative effect of events score, MCQ-1 = Positive beliefs about worry, MCQ-2 = Negative beliefs about worry concerning uncontrollability and danger, MCQ-3 = Lack of cognitive confidence, MCQ-4 = Need to control thoughts, MCQ-5 = Cognitive self-consciousness, ICSRLE = Inventory of College Students' Recent Life Experiences, Gender = 1: Male, 2: Female. *** $p < 0.001$, ** $p < 0.005$, * $p < 0.05$

the ICSRLE accounted for a significant amount of variance resulting from the residual change of depressive symptoms ($R^2_{\text{change}} = .05$, $F_{\text{change}} [1, 128] = 9.90$, $p < .005$). On the third step, none of the metacognitive variables appeared as significant predictors of change in depression scores, when the effect of daily hassles was partialled out. On the last step, none of the interaction products between daily hassles and metacognitive variables significantly associated with the change in the BDI scores.

5. Summary and Discussion of the Results Regarding the Hypotheses in the Turkish Study

The aim of this section was to examine metacognitive factors and life stress in a two-time measurement design to be able to test the causal role of metacognitions as a vulnerability factor in the development of anxiety and depression symptoms. In order for this occur, a series of moderated regression analyses investigating the main and interaction effects of metacognitions and stress on Time 2 measurements after

controlling for the baseline levels of anxiety and depression, and demographic variables were conducted.

In terms of anxiety, the first hypothesis of this section of the study was confirmed for negative metacognitive beliefs about worry. That is, higher levels of negative beliefs about worry concerning uncontrollability and danger (MCQ2) measured at Time 1 prospectively predicted increase in anxiety symptoms at Time 2, when the effects of negative life events between the two measurement times were controlled, along with the preexisting anxiety severity. With regard to the second hypothesis, results revealed that the only significant interaction effect was for lack of cognitive confidence with daily hassles in predicting change in anxiety scores. In particular, the inquiry for the nature of this significant interaction showed that individuals who had low levels of cognitive confidence (i.e. they scored high in lack of confidence) seemed to experience greater intensifications of their anxious mood from Time 1 to Time 2 under conditions of high daily hassles than under conditions of low daily hassles.

In terms of depression, the results showed that higher levels of negative beliefs about worry (MCQ2) measured at Time 1 prospectively predicted increase in depressive symptoms at Time 2, when the effect of negative life events between the two measurement times was controlled, along with the preexisting depression severity. However, none of the metacognitive variables were prospectively significant predictors after the baseline depression and daily hassles were controlled. Metacognitive beliefs and processes did not interact with negative effects of life events or daily hassles to predict the residual change in depression scores.

In general, the main effects of negative impact of life events and daily hassles were found to be significantly associated with change in both anxiety and depression scores in the present Turkish sample. This consistent finding across all analyses indicated that the symptom severity of individuals who experienced higher levels of stress in the form of either major life events or daily hassles tended to be intensified from Time 1 to Time 2.

Another steady finding across the analyses was that negative beliefs about worry concerning uncontrollability and danger appeared as a causal factor in the development of both anxiety and depression when the negative effect of life events, baseline levels of symptomatology, and individual differences (age and gender) were

controlled. Although the prospective metacognitive predictors of anxiety have not been investigated in the metacognition literature yet, this finding could be accepted as consistent with various cross-sectional studies demonstrating negative beliefs about worry as more generic element of metacognition in understanding various types of emotional disorders (e.g., Cartwright-Hatton & Wells, 1997; Wells & Papageorgiou, 1998). On the other hand, metacognitive variables failed individually to prospectively predict anxiety and depression when the effect of daily hassles was controlled. The reason for this can be attributed to the sample characteristics. The mainly student sample of this study may have experienced more daily hassles but they have not necessarily experienced critical life events between the two administration times. The other reason might be that the daily hassles scale includes items tapping to some degree metacognitive appraisals of academic and cognitive performance such as dissatisfaction with reading and mathematical skills. In other words, the scores of the daily hassles could have been affected by metacognitive evaluations of the participants.

From the result that lack of cognitive confidence interacted with daily hassles to predict the change in anxiety after the baseline level of anxiety was controlled, it could be asserted that because of the low levels of confidence in memory, individuals underestimate their ability to cope with threat arising from daily troubles. This might be the reason for the elevated levels of anxiety when the individual encounters greater levels of daily hassles. This result was also in support of metacognitive theory suggesting that people with emotional disorders are “locked-into” repeated cycles of dysfunctional self-processing, which consequently results in loss of coping resources and impaired control over processing (Wells & Matthews, 1994, 1996; Wells, 2000). Similarly, Davis and Valentiner (2000) demonstrated that lack of cognitive confidence predicted the BAI scores after controlling for trait anxiety and depression and covariance shared by the other dimensions of MCQ. In addition, the present finding can be accepted as consistent with the result reached in chapter three indicating that lack of cognitive confidence was a significant associate of pathological worry in the Turkish sample since worry is said to be the cognitive dimension of anxiety. Based on these findings, it could be expected that lack of cognitive confidence would be a causal metacognitive vulnerability factor for the development of anxiety. Thus, the finding that lack of cognitive confidence

prospectively interacted with daily hassles to predict change in anxiety scores can be accepted as an important finding.

Some limitations belong to the prospective part of this study should also be acknowledged. First, instead of focusing on specific disorders, only general anxiety and depressive mood were assessed in this study. Thus, similar prospective designs should be used for testing the causal effects of metacognitive variables in the development of specific disorders. Second, the MCQ-30 is a device which is more relevant to anxiety than depression. Thus, metacognitive measurement devices specifically developed to assess the metacognitive beliefs seen in depression (such as NBRS and PBRS) should be used to study the causal effect of metacognition in the development of depression. Therefore, this limitation was eliminated in the British part of this chapter. Finally, the study of metacognitions in anxiety and depression should be examined in clinical samples.

B. Causal Role of Metacognitions Following Stress: A prospective Study in a British Sample

Method

Subjects

After excluding subjects who had missing values above the acceptable levels, the Time 2 measurements were obtained from 108 participants over an assessment interval ranging from five to six months in the British sample. The mean age of participants was 22.86 years ($SD = 6.3$; range = 18-59), and the sample included 80 female (74.1%) and 28 male (25.9%).

This sample consisted of 91 (84.3%) UK citizens and 17 (15.7%) non-UK citizens. Although the citizenship ratio in favor of British participants, independent samples *t*-tests revealed no differences between UK and non-UK groups for the Time 2 depression (BDI and CES-D). However, the British group scored significantly higher on anxiety as measured by the BAI ($t [106] = 2.08, p < .05$) than the non-British group. The effects size was found to be .40 ($r = .20$), which indicates a small difference.

Instruments

Along with the BAI, BDI, and CES-D which were also administered at Time 1, the LES (see Appendix V) and ICSRLE (see Appendix W) were used as the Time

2 instruments of the study. Similar to the Turkish part, metacognitions relevant to anxiety was assessed by the MCQ-30 in the British part of the study, as well. As different from the Turkish part, PBRS and NPRS were utilized as measures of metacognitions relevant to depression in the British sample. In addition, depression was measured by CES-D, as well as BDI in the British study.

Procedure

British participants who had taken part in the first study were asked whether they would like to participate in the second stage of the study using their e-mail addresses they had provided in the first stage if they had agreed to be contacted for the second stage. If they again consented to take part, they used a second link to a website where participants would find the information sheet, consent form, and the questionnaires. Participants who complete the questionnaires on the second occasion were entered into another £50 prize draw. The instruments were presented in a randomized order in order to eliminate the effect of sequencing. The total administration time for the instruments was approximately 30 minutes for this second part of the study.

Results

1. Screening for data

The data was screened to find out extreme cases and the normality of the variables. These analyses were separately done for both Time 1 and Time 2 data using the 108 participants taking part in both of these stages. The examination of univariate outliers revealed that one subjects on Time 1 BAI and one subjects on Time 1 BDI had extreme scores in this sample. Exclusion of these cases from the data left 106 cases for the analyses, including 79 females (74.5%) and 27 males (25.5%). Since these two subjects were UK citizens, the new UK vs. non-UK ratio became 89 (84%) UK vs. 17 (16%) non-UK citizens. Thus, the statistical differences between the UK and non-UK groups were investigated for this sample again via independent samples *t*-tests. The results revealed the same pattern of findings as found for the previous non-reduced sample, apart from the finding that the difference between the UK and non-UK groups on the BAI became non-significant, although it was significant before the exclusion of these two outlier cases.

The distributions of the Time 2 anxiety (BAI) and depression (BDI) which were used as outcome variables and negative effect of life events (LES-N) were found as positively skewed. In spite of this, no transformation procedure was used to statistically render these variables to normal. The same reasons given in the Turkish part of the study under the same title were used to reach this decision (see p. 155-156).

2. Descriptive statistics and Correlational Analysis

Means, standard deviations, and intercorrelations of the Time 2 variables are presented in Table 4.6. As can be seen from this correlation matrix, there were significant and positive associations among Time 2 variables.

Table 4.6. Means (standard deviations) and intercorrelations of Time 2 variables in the British sample (N = 106)

| | 1 | 2 | 3 | 4 | 5 |
|-----------|----------------|----------------|-----------------|----------------|------------------|
| 1. BAI | 8.64 (7.43) | 0.58* | 0.55* | 0.41* | 0.41* |
| 2. BDI | | 7.04 (6.31) | 0.75* | 0.43* | 0.42* |
| 3. CES-D | | | 14.43 (7.74) | 0.40* | 0.47* |
| 4. LES-N | | | | 5.46 (6.49) | 0.42* |
| 5. ICSRLE | | | | | 79.43 (14.74) |

Note. BAI = Beck Anxiety Inventory, BDI = Beck Depression Inventory, CES-D = Center for Epidemiologic Studies Depression Scale, LES-N = Life Experiences Scale Negative effect of events score, ICSRLE = Inventory of College Students' Recent Life Experiences. * $p < 0.01$

Table 4.7 presents the variability of anxiety and depression measures from Time 1 and Time 2 using paired samples *t* tests for the total sample, males, and females separately. In addition to this, Pearson correlations between Time 1 and Time 2 symptoms are presented in the same table. As can be seen, none of the differences between Time 1 and Time 2 measurements for the total British sample, male, or female emerged as significant. This result indicated that the mean scores on these symptom measures did not significantly change during the course of the study. On the other hand, this stability in mean scores does not prevent testing the

hypotheses of the study since linear combination of scores on these measures are examined instead of the average scores in the regression analyses.

Table 4.7. The mean differences and relationships between Time 1 and Time 2 symptom measures for total sample, male, and female in the British sample

| | | Time 1 Mean (sd) | Time 2 Mean (sd) | <i>t</i> | <i>r</i> |
|--------------------|-------|---------------------|---------------------|----------|----------|
| TOTAL (N = 106) | BAI | 9.22 (6.84) | 8.64 (7.43) | 0.76 | 0.39*** |
| | BDI | 7.00 (6.04) | 7.04 (6.30) | -0.07 | 0.51*** |
| | CES-D | 14.33 (9.21) | 14.43 (8.74) | -0.10 | 0.35*** |
| MALE (N = 27) | BAI | 8.27 (5.91) | 5.80 (6.52) | 1.91 | 0.42* |
| | BDI | 7.02 (7.20) | 6.96 (6.71) | 0.08 | 0.83*** |
| | CES-D | 14.52 (10.05) | 14.07 (8.30) | 0.29 | 0.59** |
| FEMALE (N = 79) | BAI | 9.54 (7.13) | 9.61 (7.51) | -0.07 | 0.37** |
| | BDI | 6.99 (5.65) | 7.07 (6.21) | -0.10 | 0.37** |
| | CES-D | 14.27 (8.97) | 14.56 (8.93) | -0.23 | 0.27* |

Note. BAI = Beck Anxiety Inventory, BDI = Beck Depression Inventory, CES-D = Center for Epidemiologic Studies Depression Scale. *** $p < 0.001$, ** $p < 0.005$, * $p < 0.05$

Table 4.8 shows the zero-order correlations between Time 1 metacognitive beliefs and processes relevant to anxiety (MCQ-30) and Time 2 anxiety (BAI) in the British sample. In addition, the partial correlations between metacognitions and anxiety after controlling for the baseline level of anxiety as measured at Time 1 were calculated (see Table 4.8). As can be seen from this table, only negative beliefs about worry concerning uncontrollability and danger prospectively and positively correlated with Time 2 anxiety. However, when the baseline level of anxiety was controlled, none of the relationships between metacognitions and Time 2 anxiety symptoms was significant.

The zero-order correlations between Time 1 metacognitive beliefs relevant to depression (PBRS and NBRs) and Time 2 depression (BDI and CES-D) are presented in Table 4.9. In addition, the partial correlations between these metacognitions and depressive symptoms after controlling for the baseline level of depression can be found in the same table. These correlations indicated that only

negative beliefs about rumination prospectively and positively correlated with Time 2 depression (both BDI and CES-D). However, when the baseline level of depression was controlled, neither of the relationships between metacognitions relevant to depression and Time 2 depressive symptoms was significant.

Table 4.8. Zero-order and partial correlations between Time 1 metacognitive variables (MCQ-30) and Time 2 anxiety in the British sample (N = 106 for zero-order, 103 for partial correlations)

| | Time 2 BAI | |
|--------|---------------------------|-----------------------|
| | Time 1 BAI not controlled | Time 1 BAI controlled |
| MCQ-30 | 0.24* | 0.10 |
| MCQ-1 | 0.16 | 0.06 |
| MCQ-2 | 0.33** | 0.14 |
| MCQ-3 | 0.03 | 0.02 |
| MCQ-4 | 0.08 | 0.01 |
| MCQ-5 | 0.18 | 0.10 |

MCQ-30 = Meta-Cognitions Questionnaire-30, MCQ-1 = Positive beliefs about worry, MCQ-2 = Negative beliefs about worry concerning uncontrollability and danger, MCQ-3 = Lack of cognitive confidence, MCQ-4 = Need to control thoughts, MCQ-5 = Cognitive self-consciousness, BAI = Beck Anxiety Inventory. ** $p < 0.01$, * $p < 0.05$

Table 4.9. Zero-order and partial correlations between Time 1 metacognitive variables (PBRS and NBRS) and Time 2 depression measures in the British sample (N = 106 for zero-order, 103 for partial correlations)

| | Time 2 Depression Measures | | | |
|------|----------------------------|-----------------------|-----------------------------|-------------------------|
| | BDI | | CES-D | |
| | Time 1 BDI not controlled | Time 1 BDI controlled | Time 1 CES-D not controlled | Time 1 CES-D controlled |
| PBRS | -0.01 | -0.17 | 0.09 | 0.03 |
| NBRS | 0.26* | -0.05 | 0.25* | 0.07 |

PBRS = Positive Beliefs about Rumination Scale, NBRS = Negative Beliefs about Rumination Scale, BDI = Beck Depression Inventory, CES-D = Center for Epidemiologic Studies Depression Scale. * $p < 0.01$

3. Overview of Main Analyses

To test the causal effects of metacognitive factors in the British sample, the same analysis strategies and procedures were used as described above in the Turkish part of the study (see p. 158). To summarize, Time 2 measures of anxiety (BAI) and depression (BDI or CES-D) were separately used as dependent or criterion variables. For each criterion variable, the baseline symptom levels (Time 1 score) and demographic characteristics were controlled for in the first step. In order to examine the causal effect of metacognition(s) after controlling for the effect of life events, either the LES-N or ICRSLE was entered on the second step, followed by stepwise entry of the relevant metacognitions (MCQ-30 subscales for measures of anxiety and PBRS and NBRS for measures of depression) on the third step. To investigate the buffering role of metacognitions in the relationship between stress and psychopathology, the two-way interaction terms formed by multiplying together the LES-N or ICRSLE and each of the relevant metacognition variables were entered using stepwise procedure on the last step. The centered values of the relevant variables were used in the first, second, and third steps, and in order to compute the interaction terms.

4. Main Analyses: Results of the Multiple Hierarchical Regression

Analyses Testing the Hypotheses

4.1. Causal role of metacognitive factors on anxiety in the British sample

The first regression analysis was performed to determine the associates of change in anxiety symptoms. In the first step, Time 1 anxiety (BAI) and demographic characteristics (gender and age) were entered into the equation to control the baseline anxiety level and demographic variables. Whilst the negative effect of life events (LES-N) as the independent variable was entered into the equation on the second step, the MCQ-30 subscales as the moderator variables were entered on the second step using stepwise entry. These steps were followed by the stepwise entry the two way interaction terms of LES-N and MCQ-30 subscales as a set on the fourth step.

As can be seen in Table 4.10, the control variables as a set emerged as significant in predicting Time 2 anxiety on the first step, $R^2 = .19$, $F(3, 102) = 7.98$, $p < .001$. In the second step, the LES-N explained significant additional variance

caused by the residual change of the BAI scores ($\underline{R}^2_{\text{change}} = .13$, $\underline{F}_{\text{change}} [1, 101] = 18.95$, $p < .001$). On step 3, none of the metacognitive variables was individually significant in predicting the residual change in anxiety scores. Likewise, none of the interactions between metacognitions and negative effect of life events emerged as significant on the last step.

The pattern of results obtained from the second regression model that was repeated using the daily hassle (ICSRLE) scores instead of the LES-N (see Table 4.10) was similar to the previous regression. After step one, the control variables explained 19% of the variance in Time 2 anxiety ($\underline{F} (3, 102) = 7.98$, $p < .001$). In the second step, daily hassles accounted for significant additional variance in the residual change score ($\underline{R}^2_{\text{change}} = .08$, $\underline{F}_{\text{change}} [1, 101] = 11.02$, $p < .005$). On the third step, metacognitive variables did not appear as significant associates of change in anxiety from Time 1 to Time 2. On the last step, there were not any interactions contributing significantly to the regression equation.

Table 4.10. Statistics for the regression equations with Time 2 BAI regressed on metacognition and stress variables after controlling for Time 1 BAI in the British sample

| Variables | β | t (within set) | df | $\underline{F}_{\text{change}}$ | \underline{R}^2 |
|--|---------|---------------------|--------|---------------------------------|-------------------|
| Regression 1 | | | | | |
| Step 1: Control Variables | | | 3, 102 | 7.98*** | .19 |
| BAI-1 | .37 | 4.08*** | 102 | | |
| Gender | .19 | 2.00* | 102 | | |
| Age | -.04 | -0.39 | 102 | | |
| Step 2: Main Effect | | | 1, 101 | 18.95*** | .32 |
| LES-N | .37 | 4.35*** | 101 | | |
| Step 3: Main Effect | | | | | |
| None | | | | | |
| Step 4: Interaction Effect | | | | | |
| None | | | | | |
| Multiple R = .56***, Adjusted R ² = .29 | | | | | |

Table 4.10. (cont' d)

| Variables | β | t (within set) | df | F_{change} | R^2 |
|--|---------|---------------------|--------|---------------------|-------|
| Regression 2 | | | | | |
| Step 1: Control Variables | | | 3, 102 | 7.98*** | .19 |
| BAI-1 | .37 | 4.08*** | 102 | | |
| Gender | .19 | 2.00* | 102 | | |
| Age | -.04 | -0.39 | 102 | | |
| Step 2: Main Effect | | | 1, 101 | 11.02** | .27 |
| ICSRLE | .30 | 3.32** | 101 | | |
| Step 3: Main Effect | | | | | |
| None | | | | | |
| Step 4: Interaction Effect | | | | | |
| None | | | | | |
| Multiple R = .52***, Adjusted R ² = .24 | | | | | |

Note. BAI-1 = Beck Anxiety Inventory Time 1, LES-N = Life Experiences Scale Negative effect of events score, MCQ-1 = Positive beliefs about worry, MCQ-2 = Negative beliefs about worry concerning uncontrollability and danger, MCQ-3 = Lack of cognitive confidence, MCQ-4 = Need to control thoughts, MCQ-5 = Cognitive self-consciousness, ICSRLE = Inventory of College Students' Recent Life Experiences, Gender = 1: Male, 2: Female. *** $p < 0.001$, ** $p < 0.005$, * $p < 0.05$

4.2. Causal role of metacognitive factors on depression in the British sample

To evaluate the causal role of metacognitive factors on the variation of depression scores from Time 1 to Time 2, positive and negative beliefs about rumination (PBRs and NBRs) were used in the British sample as the metacognitive factors relevant to depression. The regression model described above was repeated with the Time 2 BDI as the outcome variable and the LES-N as independent variable. Following the control variables (Time 1 BDI, gender, and age), the LES-N was forced to enter on step 2. The PBRs and NBRs, and the two way interaction terms between the independent and moderator variables (PBRs x LES-N and NBRs x LES-N) were entered using stepwise procedure on the step 3 and 4, respectively. As can be seen in Table 4.11, after excluding the variance accounted for by the control variables as a set ($R^2 = .28$, $F [3, 102] = 13.04$, $p < .001$), the LES-N explained significant additional variance in the residual change in BDI scores ($R^2_{\text{change}} = .09$,

$F_{\text{change}} [1, 101] = 14.41, p < .001$). On the third step, neither PBRS nor NBRS made a significant contribution to the explained variance. Similarly, neither of the interactions between metacognitive variables and LES-N was significant.

When this regression model was repeated using daily hassles as the independent variable instead of the LES-N (see Table 4.11), Time 1 depression, gender, and age as a set made a significant contribution to the explained variance in Time 2 depression scores on step one ($R^2 = .28, F [3, 102] = 13.04, p < .001$). On the second step, higher levels of daily hassles was found to be associated with higher levels of residual depression ($R^2_{\text{change}} = .07, F_{\text{change}} [1, 101] = 10.00, p < .005$). On step 3, higher levels of positive beliefs about rumination prospectively predicted the decrease in depression symptoms, when the effects of daily hassles between two measurement times were controlled, along with the baseline depression severity ($R^2_{\text{change}} = .03, F_{\text{change}} [1, 100] = 4.23, p < .05$). On the last step, interactions between metacognitions and daily hassles did not contribute significantly to the explained variance.

Table 4.11. Statistics for the regression equations with Time 2 BDI regressed on metacognition and stress variables after controlling for Time 1 BDI in the British sample

| Variables | β | t (within set) | df | F_{change} | R^2 |
|--|---------|---------------------|--------|---------------------|-------|
| Regression 1 | | | | | |
| Step 1: Control Variables | | | 3, 102 | 13.04*** | .28 |
| BDI-1 | .50 | 5.85*** | 102 | | |
| Gender | -.03 | -0.29 | 102 | | |
| Age | -.13 | -1.50 | 102 | | |
| Step 2: Main Effect | | | 1, 101 | 14.41*** | .37 |
| LES-N | .32 | 3.80** | 101 | | |
| Step 3: Main Effect | | | | | |
| None | | | | | |
| Step 4: Interaction Effect | | | | | |
| None | | | | | |
| Multiple R = .61***, Adjusted R ² = .34 | | | | | |

Table 4.11. (cont' d)

| Variables | β | t (within set) | df | F_{change} | R^2 |
|--|---------|---------------------|--------|---------------------|-------|
| Regression 2 | | | | | |
| Step 1: Control Variables | | | 3, 102 | 13.04*** | .28 |
| BDI-1 | .50 | 5.85*** | 102 | | |
| Gender | -.03 | -0.29 | 102 | | |
| Age | -.13 | -1.50 | 102 | | |
| Step 2: Main Effect | | | 1, 101 | 10.00** | .34 |
| ICSRLE | .27 | 3.16** | 101 | | |
| Step 3: Main Effect | | | 1, 100 | 4.23* | .37 |
| PBRs | -.17 | -2.06 | 100 | | |
| Step 4: Interaction Effect | | | | | |
| None | | | | | |
| Multiple R = .61***, Adjusted R ² = .34 | | | | | |

Note. BDI-1 = Beck Depression Inventory Time 1, LES-N = Life Experiences Scale Negative effect of events score, PBRs = Positive Beliefs about Rumination Scale, ICSRLE = Inventory of College Students' Recent Life Experiences, Gender = 1: Male, 2: Female. *** $p < 0.001$, ** $p < 0.005$, * $p < 0.05$

This set of regression analyses were repeated with CES-D as the dependent variable instead of the BDI. The full model conducted with the LES-N as the independent variable revealed that the interaction between NBRS and LES-N emerged as significant in prospectively predicting the CES-D scores. However, the main effect of the NBRS was not found to be significant with the stepwise entry method used on the third step. Consequently, a reduced regression model was run so that the NBRS could also be entered into the regression equation to be able to interpret this significant interaction obtained from the full model. In this reduced regression, after controlling for the effects of Time 1 CES-D, gender, and age on the first step, the LES-N was entered on the second step, followed by the forced entry of the NBRS on the third step. The non-significant interaction term between the PBRs and LES-N in the full model was taken out on the fourth step in the reduced model, and only the interaction term between the NBRS and LES-N was entered into the equation (see Table 4.12). After step one, the control variables as a set emerged as significant in predicting Time 2 depression ($R^2 = .12$, $F [3, 102] = 4.77$, $p < .005$). In the second step, LES-N explained significant additional variance caused by the

residual change of the CES-D ($\underline{R}^2_{\text{change}} = .10$, $\underline{F}_{\text{change}} [1, 101] = 13.59$, $p < .001$). On the third step, NBRS did not emerge as a significant prospective associate of the change in depression scores, after controlling for the effects of the control variables and negative life events. As seen in the full model, the interaction term between the NBRS and LES-N appeared as significant on the last step of the reduced model, as well ($\underline{R}^2_{\text{change}} = .07$, $\underline{F}_{\text{change}} [1, 99] = 10.06$, $p < .005$).

When the full regression model was repeated using daily hassles as the independent variable instead of the LES-N (see Table 4.12), the control variables as a set significantly contributed to the explained variance in Time 2 CES-D scores on step one ($R^2 = .12$, $F [3, 102] = 4.77$, $p < .005$). After controlling for the level of Time 1 symptoms, daily hassles explained significant additional variance in the residual change score ($\underline{R}^2_{\text{change}} = .12$, $\underline{F}_{\text{change}} [1, 101] = 15.60$, $p < .001$). However, neither of the metacognitive variables appeared as significant predictors of change in depression scores on the third step. Also, daily hassle variable did not reveal any significant interaction effect with metacognition variables in predicting change seen in the CES-D scores on the last step.

Table 4.12. Statistics for the regression equations with Time 2 CES-D regressed on metacognition and stress variables after controlling for Time 1 CES-D in the British sample

| Variables | β | t (within set) | df | $\underline{F}_{\text{change}}$ | \underline{R}^2 |
|--|---------|---------------------|--------|---------------------------------|-------------------|
| Regression 1 | | | | | |
| Step 1: Control Variables | | | 3, 102 | 4.77** | .12 |
| CES-D-1 | .35 | 3.75*** | 102 | | |
| Gender | .03 | 0.35 | 102 | | |
| Age | .02 | 0.19 | 102 | | |
| Step 2: Main Effect | | | 1, 101 | 13.59*** | .23 |
| LES-N | .34 | 3.67*** | 101 | | |
| Step 3: Main Effect | | | 1, 100 | 0.98 | .24 |
| NBRS | .11 | 0.99 | 100 | | |
| Step 4: Interaction Effect | | | 1, 99 | 10.06** | .31 |
| NBRSxLES-N | -.28 | -3.17** | 99 | | |
| Multiple R = .55***, Adjusted R ² = .26 | | | | | |

Table 4.12. (cont' d)

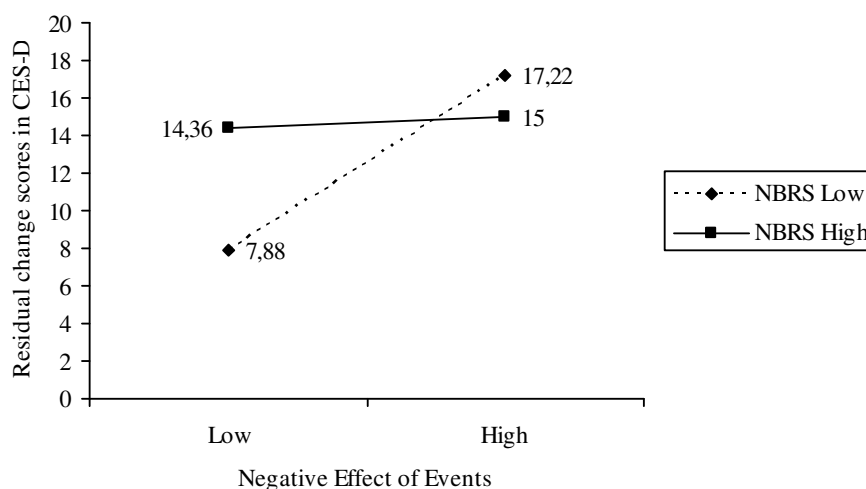
| Regression 2 | | | | | |
|----------------------------|-----|---------|--------|----------|-----|
| Step 1: Control Variables | | | 3, 102 | 4.77** | .12 |
| CES-D-1 | .35 | 3.75*** | 102 | | |
| Gender | .03 | 0.35 | 102 | | |
| Age | .02 | 0.19 | 102 | | |
| Step 2: Main Effect | | | 1, 101 | 15.60*** | .24 |
| ICSRLLE | .39 | 3.95*** | 101 | | |
| Step 3: Main Effect | | | | | |
| None | | | | | |
| Step 4: Interaction Effect | | | | | |
| None | | | | | |

Multiple R = .49***, Adjusted R² = .21

Note. CES-D-1 = Center for Epidemiologic Studies Depression Scale Time 1, LES-N = Life Experiences Scale Negative effect of events score, NBRS = Negative Beliefs about Rumination Scale, ICSRLLE = Inventory of College Students' Recent Life Experiences, Gender = 1: Male, 2: Female. *** $p < 0.001$, ** $p < 0.005$, * $p < 0.05$

Because the interaction term between negative beliefs about rumination (NBRS) and negative effect of major life events (LES-N) was found to be significant in predicting the residual change seen in depression scores (CES-D), subsequent post-hoc regression analyses were also performed to test whether the simple regression slopes of depression on negative effect of major life events were statistically different from zero for low and high values of negative beliefs about rumination. So as to carry out these simple slope analyses, the above and below conditional values of NBRS (i.e., 1 SD above and below the mean) and their interactions with LES-N were calculated on the centered values. Then, using CES-D as the criterion variable, two separate post-hoc regression analyses one of which was for the above (high) and the other was for the below (low) conditional value of NBRS were conducted. In these analyses, after controlling for the effects of covariates (centered Time 1 CES-D, gender, and centered age) on step 1, the main effect of LES-N (centered), one of the conditional values of NBRS, and the interaction of these two were simultaneously entered into the regression equation as a block on step 2. This post-hoc regression was repeated one more time with the other conditional value of the NBRS.

These regression analyses revealed that the simple slope of depression on negative effect of major life events was significant when NBRs was low ($\beta = .53$, t [99] = 5.00, $p < .001$). The direction indicated a positive relationship between the level of depression and negative effect of life events when the level of negative beliefs about rumination is low. However, the simple slope of depression on negative effect of life events was not significantly different from zero at high levels of negative beliefs about rumination ($\beta = .04$, t [99] = 0.28, $p = .78$). Using the two equations generated from these regression analyses for high and low values of negative beliefs about rumination, the simple regression slopes for the high and low levels of negative effect of life events (i.e., 1 SD above and below the mean) were plotted as depicted in Figure 4.2.



Note. NBRs = Negative beliefs about rumination, CES-D = Center for Epidemiologic Studies Depression Scale.

Figure 4.2. Interaction between negative effect of life events and negative beliefs about rumination in predicting residual change scores in CES-D in the British sample

Depending on these results and the nature of the interaction it can be stated that when people who have low levels of negative beliefs about rumination experience high levels of negative life events, the level of depressive symptoms as measured by CES-D is significantly greater than that of individuals experiencing low

levels of negative life events. In other words, individuals seem to experience greater intensifications in their depressive mood from Time 1 to Time 2 under conditions of high levels of negative effect of major life events than low levels of negative effect of life events, when the level of negative beliefs about rumination is low. On the other hand, the level of change in depressive symptoms was not significantly different from Time 1 to Time 2 under conditions of low or high negative effects of life events if individuals had high levels of negative beliefs about rumination.

5. Summary and Discussion of the Results Regarding the Hypotheses in the British Study

The British section of the study shared the same aim and hypotheses with the Turkish section. To sum up, the causal role of metacognitions in the development of anxiety and depression following stress was examined using a prospective design. For this purpose, a series of moderated regression analyses were performed on anxiety and depression as the dependent variables, life stress including negative effect of major life events (LES-N) and daily hassles (ICSRLE) as the independent variables, and metacognitions as the moderator variables.

In terms of anxiety, the British data did not support the first hypothesis of the study. In other words, metacognitive variables which are said to be relevant to anxiety (subscales of the MCQ-30) did not prospectively predict anxiety, after controlling for the baseline level of anxiety, demographic variables, and stress occurrences between Time 1 and Time 2. On the other hand, correlational analyses revealed that negative beliefs about worry concerning uncontrollability and danger prospectively and positively correlated with Time 2 anxiety. In view of the second hypothesis, none of the metacognitive variables prospectively interacted with stress to predict change in the severity of anxiety symptoms at Time 2, when the level of preexisting symptom severity and individual differences were controlled.

To investigate the causal role of metacognitions on depression in the British sample, metacognitive beliefs specifically relevant to depression, namely, positive beliefs about ruminations (PBRS) and negative beliefs about ruminations (NBRS) were employed in the analyses. Besides, two different measures of depression one of which is developed for assessing the severity of depression in clinical settings (BDI) and the other is developed for assessing the level of depressive symptoms in non-

clinical settings and general population for research purposes (CES-D) were utilized as the dependent variables in these analyses. Preliminary correlational analyses indicated that NBRS prospectively and positively correlated with both Time 2 BDI and CES-D. In connection with the first hypothesis of the study, when the BDI used as the dependent variable, neither PBRS nor NBRS was found to be a significant prospective associate of depression after controlling for the negative effect of major life events. The PBRS, however, appeared as a significant prospective associate of the BDI after controlling for daily hassles. It should be noted with caution that the direction of this association was in the negative direction, indicating that higher levels of positive beliefs about ruminations predicted a decrease in depression symptoms. Regarding the second hypothesis for the analyses using the BDI as the dependent variable, neither of the interactions between metacognitive and stress variables significantly explained the variance seen in the depression scores from Time 1 to Time 2.

When the analyses employing the CES-D as the dependent variable were reviewed in terms of the first hypothesis of the study, it was seen that the main effects of the PBRS and NBRS were not significant in predicting the residual change in depression scores after controlling for the LES-N and ICSRLE. In terms of the second hypothesis, the interaction between negative beliefs about ruminations (NBRS) and negative effect of major life events (LES-N) was found to be significant in predicting the residual change seen in the severity of depression scores (CES-D), when the baseline level of symptom severity measured at Time 1, gender, and age were controlled. According to this significant interaction, individuals who had low levels of negative beliefs about ruminations experienced greater intensifications in their depressive mood from Time 1 to Time 2 under conditions of high levels of negative effect of major life events than low levels of negative effect of life events. If individuals had high levels of negative beliefs about rumination, however, the level of change in depressive symptoms did not significantly differ from Time 1 to Time 2 under conditions of low or high negative effects of life events.

The main effects of negative impact of life events and daily hassles were found to be significantly and positively associated with change in both anxiety and depression scores in the British sample as akin to the finding reached in the Turkish sample.

When the results of the study were examined in general, it should be emphasized that contrary to the data from the Turkish sample, metacognitive variables failed individually to prospectively predict anxiety after controlling for stress in the British sample. Likewise, metacognitions did not interact with stress to predict change in anxiety scores. Lack of significant associations in the British sample may have been the result of several reasons. First, the dependent variable (BAI) consisted of a group of general anxiety symptoms instead of a specific symptom category representing a specific anxiety disorder. Thus, such a general anxiety measure could be sensitive to the effects of many non-specific factors such as sample characteristics, cultural differences, and administration time and procedure, etc.

The other reasons could be set in terms of the different factors affecting the stability, variability, severity, and prevalence of anxiety symptomatology and stress in the Turkish and British cultures, and the measurement equivalency of the BAI between these two groups. In particular, it is interesting to note that whilst Turkish participants' anxiety (and also depression) symptoms showed significant variability during the course of the study, the measures of these symptoms remained stable between Time 1 and Time 2 in the British sample. Such a finding may indicate that Turkish people might have been experiencing more fluctuations in their mood compared to British people probably because of the fast changing environmental sources (economy, politics) in Turkey which is a developing country. Cross-cultural issues of this kind are considered in detail in the Chapter 5.

On the other hand, it should be kept in mind that the initial correlative examination of the data revealed a significant and positive relationship between negative beliefs about worry as measured at Time 1 and the Time 2 anxiety. At that point, it could be noted that although the individual contributions of metacognitive variables to the development of anxiety could have been readily examined in the present data *before* controlling for the effect of stress occurrences between the two measurement times, the aim of the present research was limited only to test the causal role of metacognitions together with stress factors in the framework of a vulnerability-stress model. Therefore, instead of concluding that metacognitions are not prospective associates of anxiety, this phenomenon should be evaluated in future

studies using relatively less conservative designs and in the context of specific anxiety disorders.

Even though the metacognitive beliefs specific to depression were used in the analyses conducted in the British sample, the results did not support the expectations of the study. In general, the PBRS and NBRS were not successful in prospectively predicting neither BDI nor CES-D, after controlling for baseline level of depression, stress experiences, and demographic variables. Moreover, neither PBRS nor NBRS interacted with stress to predict residual depression. Yet again, the initial positive correlations between NBRS and Time 2 BDI and CES-D could be evaluated as a sign of the necessity for the further studies examining the prospective association of NBRS and PBRS with depression before controlling for the effect of stress and baseline symptomatology.

As reported above, two exceptional findings to this pattern of results were obtained. First, the PBRS was shown as a significant prospective associate of the BDI after controlling for daily hassles. However, this relationship was not in the expected direction, indicating that elevated levels of positive beliefs about ruminations was associated with a decrease in depressive symptoms, instead of an increase. In metacognitive model of depression (Papageorgiou & Wells, 2003; Wells, 2000), higher levels of positive beliefs about ruminations are expected to contribute further to the intensification of depressive symptomatology since beliefs of this kind increase the motivation to engage in persistent rumination as a response to depressed mood. Several studies conducted on depressed patients (Papageorgiou & Wells, 2001a, 2001b, 2003; Watkins & Moulds, 2005) and non-depressed normal populations (Papageorgiou & Wells, 2001b, 2003) revealed that individuals who have positive beliefs about rumination engage in rumination as a coping strategy. In particular, depressed patients had elevated scores on the PBRS compared to non-clinical controls (Papageorgiou & Wells, 2001b; Watkins & Moulds, 2005). Taken together, one reason for this inconsistent finding obtained from the current non-clinical sample might have been the decreased depression severity or variance in depression scores as measured by the BDI which is a measurement device developed for the assessment of severity of depression in the clinical settings. Another explanation could be that whilst positive beliefs about rumination may function as a preventive coping strategy rather than a vulnerability factor to depression in non-

clinical groups, this processing style might function as a risk factor for the development of depressive mood in clinical-settings and depression-prone groups, when it is investigated prospectively. As emphasized by Papageorgiou and Wells (2003), the fit for the metacognitive model of depression to their non-clinical sample was not as good as it was shown in the depressive patients.

The second exceptional finding was that the NBRS coupled with the LES-N to predict the change in the CES-D scores from Time 1 to Time 2. In spite of that, the direction was not in accord with the theoretical accounts (Matthews & Wells, 2004; Papageorgiou & Wells, 2003; Wells, 2000) and research on clinical and non-clinical groups (Papageorgiou & Wells, 2001a, 2001b, 2003, 2004). In the present data, the nature of this significant interaction indicated that when people possessing *low* levels of negative beliefs about rumination come across with high levels of negative life events between two assessment times, the augmentation in their level of depressive symptomatology was significantly higher compared to individuals come across with low levels of negative life events. However, the level of change in depressive symptoms was not significantly different from Time 1 to Time 2 under conditions of low or high negative effects of life events, if individuals had *high* levels of negative beliefs about rumination. All the same, the predictions of the metacognitive theory suggest somewhat different pattern of interaction signifying that when people have *high* levels of negative beliefs about rumination experience high levels of negative life events between Time 1 and Time 2, the increase in their depressive symptoms should be significantly higher than individuals experiencing low levels of negative life events. The reason for this finding might be that the present sample was drawn from a student population which is relatively free from ruminations. Since ruminative style of thinking is likely to be elevated in a clinically depressed sample, people from a non-clinical population may have responded in a negative way to express that they do not have ruminations, and thereby, they do not have negative beliefs about rumination. Still, future research to clarify the possible reasons for this contradictory pattern of finding reached in this study is strongly encouraged.

A comparison between the Turkish and British samples is possible only in terms of anxiety since different assessment devices were used between these cultural groups to examine the development of depression. When the prospective data from Turkish and British parts are taken into consideration as a whole, it is interesting to

conclude that the results obtained from the Turkish sample were more in accord with the metacognitive theory than the results obtained from the British sample.

A number of limitations should be considered when evaluating the results of the prospective part of this study. First, a study of this kind could benefit from the investigation of metacognitive factors in the development of specific anxiety disorders. Yet, only general anxiety symptoms were assessed in the context of this study. A further limitation in relation to examination of depression is the lack of a clinical comparison group since negative and positive beliefs in response to ruminations seem to be relatively more significant factors to causally affect the severity of depressive mood in clinically depressed groups rather than in normal samples which are relatively free from depressive symptomatology. For these reasons, replication of this study in patient samples is strongly encouraged for a broader generalization of the current findings.

CHAPTER V

COMPARISON of TURKISH vs. BRITISH SAMPLES on METACOGNITIVE FACTORS: A PRELIMINARY CROSS-CULTURAL INVESTIGATION

Since the role of metacognition in explaining the origins and maintenance mechanisms for psychopathology in different cultures is still unknown, there is a strong need for studies investigating the cross-cultural validation of metacognitive theory. Such kinds of bicultural comparisons would give a preliminary insight about universal and culture specific dimensions of metacognitive theory. In this vein, this chapter attempted to undertake a preliminary cross-cultural examination of the metacognitive factors using both Turkish and English samples.

To accomplish this aim, the sample of the present study was drawn from Turkey and United Kingdom, because it was considered that these two countries represent diverse features in terms of their cultural composition and as such they constitute appropriate analysis units for comparison. van de Vijver and Leung (1997) claimed that such a selection criterion maximizes the likelihood of identifying differences between cultures if they truly exist. To illustrate, apart from many other sources of difference across cultures, one of the more emphasized and studied dimension is the collectivist-individualistic values embedded in cultural structure, which may act as predisposing factors in the development of psychological distress. According to Kağıtçıbaşı (1996a; 1996b), the self can be both “autonomous” and “related” especially in cultures which individualist and traditionally collectivist values are jointly granted. Consistently, it was demonstrated that both individualist and collectivist tendencies are high in Turkish society (Göregenli, 1997). On the other hand, the British culture can be accepted as an individualistic culture rather than a collectivist one. Within the framework of the aims of the present research, it may be asserted that individualistic values, which are related with autonomous self, augment worry since worry may have a function such as coping with future threat. Also, social values of this kind may lead the individual to worry/ruminate about the possible sources and consequences of negative emotional mood so that the distress

can be solved without any need to get help from others. The two analysis units selected for the current study may also differ in terms of their environmental sources that may affect the level and content of worry/rumination. In this case, environmental sources of stress may function as a precipitating factor rather than a predisposing factor. The interaction of stress as a precipitating factor with metacognition as a predisposing factor was considered in the previous chapter. By environmental sources is meant every possible system issues of a country including economy, health, education, employment, justice, etc. These systems which are the markers of the development level of a country may greatly affect the life quality and the level of stress people encounter during their daily routine.

On the other hand, if the analysis units are highly dissimilar, they might be different in many other aspects as well, which causes various alternative interpretations about the observed results (van de Vijver & Leung, 1997). Thus, it might be stated that while Turkish and British cultures differ from each other as one having an East and the other having a West historical background, they cannot be described as extremely different since Turkey is a developing country synthesizing the East and West cultures into its nature. To illustrate, instead of an absolute individualistic or collectivistic value, Turkish culture shelters both of these values. Similarly, it is difficult to label Turkey as totally weaker or different than British culture in terms of its environmental sources. Instead, individual factors seem to be chief determinants of the effects of this kind. For example, not the quantitative nature of the stress but perceived quality and individual coping sources are important in determining the effects of these environmental sources.

In any case, considering the potential confounding effects of the other variables on which the Turkish and British samples are differ, the present Turkish and British samples which included only Turkish and British students (non-UK participants were totally taken out from the British group of the sample) were matched on the basis of their similarity on gender, age, course year, marital status, and income levels so that these two groups would be as homogenous as possible in terms of their demographic characteristics and to increase the external validity of the study. Besides, all the relevant sources of confounding factors, including the relevant cognitive content dimension, were controlled to increase internal validity, as well.

Two specific research questions were asked within the framework of this chapter. First, whether metacognitive scores of Turkish and British samples would significantly differ from each other, after controlling for the levels of pathological worry, o-c symptoms, anxiety, and depression, as well as the effect of cognitive content. In other words, are mean differences between Turkish and British students on metacognitive factors likely to have occurred by chance, or do these differences represent truly existed disparities between cultures? When seeking an answer to this research question, the emotional symptom levels of the Turkish and British samples were fixed as if these groups were asymptomatic or all subjects scored the same on the covariates because the psychological symptom levels of these two groups, which can potentially and significantly be different, might function as possible confounding factors, leading to artificial differences in metacognitive scores between these two cultures.

Within this context, the present study may also provide preliminary information in terms of the differences between the Turkish and British samples on the other main variables of the study, namely, pathological worry, obsessive-compulsive (o-c) symptoms, anxiety, depression, and anxious and depressive automatic thoughts. By comparing these two samples in terms of also these symptom measures, the differences and similarities in their symptom profiles can be drawn.

The second main question of this section of the study was that whether there are different patterns of relationships between metacognitive factors and emotional symptomatology as a function of culture. In other words, do some aspects of metacognition predict some specific types of psychological symptomatology in one culture whilst it is not a significant associate of the given emotional distress in the other culture? By seeking answer to this question, it is possible to gain insight whether certain types of metacognitive components would be more important for one of these two cultures than the other to explain certain types of symptom categories.

Method

Subjects

To increase the likelihood of meeting statistical assumptions of comparison based analyses, to eliminate the problem of unequal sample sizes between these two cultures, and to obtain two similar samples in terms of the participants' particular set of demographic characteristics so that the possibility of identifying true differences

stemming from metacognitive factors enhances, the present Turkish and British samples were matched on the basis of their gender, age, course year, marital status, and income level, using SPSS crosstabs function. As a result, the sample of the cross-cultural part of the study consisted of 334 Turkish and British students comprising 169 (50.6%) Turkish and 165 (49.4%) British subjects. While Turkish participants included 98 females (58%) and 71 males (42%), British participants constituted of 105 females (63.6%) and 60 males (36.4%). Mean age of the Turkish sample was 21.5 years ($SD = 2.29$; range: 17-33 years), mean age of the British sample was 21.23 years ($SD = 2.9$; range: 17-34 years). As a whole, this sample was composed of 203 (60.8%) females and 131 (39.2%) males. The age of the total sample ranged from 17 to 34 years with a mean of 21.37 ($SD = 2.61$).

Instruments

The instruments used for cross-cultural comparisons were chosen among the same instruments which were administered for both Turkish and British samples. These instruments were the MCQ-30 to measure metacognitive factors, the PSWQ to assess pathological worry, the PI-WSUR to evaluate obsessive-compulsive (o-c) symptoms, the BAI to measure symptoms of anxiety, the BDI to assess depressive symptomatology, and CCL to assess cognitions relevant to anxiety and depression. The psychometric properties of these questionnaires were introduced in Chapter 2 and 3.

Procedure

As the same Turkish and British samples were used in order to statistically compare them after matching, information about procedures used for collecting these samples and other relevant issues can be found in Chapter 3.

Results

1. Cross-Cultural Measurement Equivalence of the Variables

In cross-cultural research, it is important to demonstrate that the instruments administered for data collection are equally reliable (van de Vijver & Leung, 1997). No matter how the utility and psychometric qualities of questionnaires are shown to be satisfactory in a given culture with studies specifically devoted to this aim, this may not necessarily require that the reliability of these scales are equal across cultures. For these reasons, equivalence of reliability coefficients which are

independently obtained from the total Turkish and British (UK citizens) student samples of the study were tested using the formula given by Vijver and Leung (1997; p. 60; see Table 5.1). The non-matched original student samples were used so that the sample would be as representative as possible for such a comparison which is very sensitive to small differences in the reliability coefficients.

Table 5.1. The equality of reliability coefficients in the Turkish and British samples

| Instrument | Turkish (N = 457) | British (N = 195) | Significance of the Difference |
|------------|----------------------|----------------------|-----------------------------------|
| MCQ-1 | .89 | .90 | 1.10 |
| MCQ-2 | .78 | .89 | 2.00* |
| MCQ-3 | .89 | .89 | 0.00 |
| MCQ-4 | .73 | .78 | 1.22 |
| MCQ-5 | .79 | .89 | 1.91* |
| PSWQ | .91 | .93 | 1.29 |
| PI-WSUR | .93 | .91 | 1.29 |
| BAI | .93 | .91 | 1.29 |
| BDI | .88 | .89 | 1.09 |
| CCL-A | .84 | .87 | 1.23 |
| CCL-D | .90 | .92 | 1.25 |

Note. MCQ-1 = Positive beliefs about worry, MCQ-2 = Negative beliefs about worry concerning uncontrollability and danger, MCQ-3 = Lack of cognitive confidence, MCQ-4 = Need to control thoughts, MCQ-5 = Cognitive self-consciousness, PSWQ = Penn State Worry Questionnaire, PI-WSUR = Padua Inventory Washington State University-Revised, BAI = Beck Anxiety Inventory, BDI = Beck Depression Inventory, CCL-A = Cognitions Checklist Anxiety Subscale, CCL-D = Cognitions Checklist Depression Subscale. Critical Difference = 1.33. *p < .01

According to the results (see Table 5.1), apart from the negative beliefs about worry and cognitive self-consciousness scales, the reliability coefficients of positive beliefs about worry, lack of cognitive confidence, need to control thoughts, pathological worry, o-c symptom, anxiety, depression, and anxious and depressive thoughts measures were found to be equivalent between the Turkish and British samples. The reliability of negative beliefs about worry and cognitive self-consciousness scales were significantly higher in the British sample. Therefore, before conducting main analyses it would be valuable to note that results to be

obtained from comparisons of these two samples on negative beliefs about worry and cognitive self-consciousness should be evaluated with caution and as preliminary source of information.

2. Descriptive Statistics

Mean scores and standard deviations of the MCQ-30 and its subscales, PSWQ, PI-WSUR, BAI, BDI, CCL-A, and CCL-D are presented for the Turkish and British samples separately in Table 5.2. The difference observed between the Turkish and British samples on the MCQ-30 scores was discussed in Chapter 2 based on descriptive comparisons between the current data and the original study (Wells & Cartwright-Hatton, 2004). Supporting this observation statistically, independent samples *t*-tests revealed that Turkish participants scored significantly higher than British participants on the MCQ-30 and its subscales. In addition, except depressive symptoms, the differences on the other measures between Turkish and British samples were also found to be significant. Whilst the mean of British participants on pathological worry was significantly higher than that of Turkish participants, the Turkish sample scored higher than the British sample on the o-c symptoms and anxiety. Moreover, British participants had higher scores on the anxious and depressive cognitions than the Turkish participants.

Since the mean differences between samples, particularly on the subscales of the MCQ and some of the other study variables, seem small in magnitude, the effect sizes were calculated using Cohen's formula to find out the standardized magnitude of these differences. As can be followed from Table 5.2, the effect size values indicated that the magnitude for the significant differences between Turkish and British samples were small for lack of cognitive confidence, medium for the total metacognition scores, positive and negative beliefs about worry, and cognitive self-consciousness, and large for need to control thoughts. Among the symptom measures, the largest magnitudes of the difference between the Turkish and British samples belong to obsessive-compulsive symptoms. Whilst the difference on pathological worry was small, the differences on anxiety, and anxious and depressive cognitions were medium. No significant difference between depression levels of these two samples emerged.

Table 5.2. Means (standard deviations) and mean differences between Turkish and British samples on the main study variables (N = 334)

| Variables | Turkish (N = 169) | British (N = 165) | t value | Effect size <i>d</i> |
|-----------------|-------------------|-------------------|----------|-------------------------|
| 1. MCQ-30 Total | 64.17 (11.45) | 55.65 (14.95) | 5.86*** | 0.64 |
| MCQ-1 | 12.13 (4.04) | 11.01 (4.17) | 2.49* | 0.27 |
| MCQ-2 | 12.31 (3.63) | 10.69 (4.53) | 3.61*** | 0.40 |
| MCQ-3 | 11.22 (4.30) | 9.79 (4.19) | 3.08** | 0.34 |
| MCQ-4 | 12.91 (3.44) | 10.05 (3.52) | 7.53*** | 0.83 |
| MCQ-5 | 15.60 (3.29) | 14.11 (4.80) | 3.32** | 0.36 |
| 2. PSWQ | 45.61 (12.65) | 48.74 (13.84) | -2.15* | -0.24 |
| 3. PI-WSUR | 37.39 (20.52) | 17.17 (13.90) | 10.52*** | 1.16 |
| 4. BAI | 9.57 (7.09) | 8.60 (7.60) | 3.16** | 0.35 |
| 5. BDI | 14.45 (11.20) | 10.91 (9.13) | 1.20 | - |
| 6. CCL-A | 5.13 (5.54) | 8.54 (6.44) | -5.20*** | -0.57 |
| 7. CCL-D | 8.47 (8.00) | 11.57 (9.25) | -3.28** | -0.36 |

Note. MCQ-30 = Meta-Cognitions Questionnaire-30, MCQ-1 = Positive beliefs about worry, MCQ-2 = Negative beliefs about worry concerning uncontrollability and danger, MCQ-3 = Lack of cognitive confidence, MCQ-4 = Need to control thoughts, MCQ-5 = Cognitive self-consciousness, PSWQ = Penn State Worry Questionnaire, PI-WSUR = Padua Inventory Washington State University-Revised, BAI = Beck Anxiety Inventory, BDI = Beck Depression Inventory, CCL-A = Cognitions Checklist Anxiety Subscale, CCL-D = Cognitions Checklist Depression Subscale. *** $p < .001$, ** $p < .005$, * $p < .05$

3. Correlational Analyses

The intercorrelations of the variables of this mixed sample were computed (See Table 5.3). As can be seen, age did not significantly correlated with any of these variables in the correlation matrix, apart from gender. None of the correlations between gender and symptom measures, except o-c symptoms- emerged as significant, as well. The significant correlation between gender and o-c symptoms indicated that men scored higher than women on o-c symptoms. The intercorrelations among all main variables were significant, except the relationship between need to control thoughts and anxious automatic thoughts.

4. Overview of Main Analyses

In order to explore whether metacognitive scores of Turkish and British samples would significantly differ from each other, a between-subjects multivariate analysis of covariance (MANCOVA) was conducted on the five factors of the MCQ-30 as the dependent variables, group (Turkish = 0, British = 1) as the independent variable, and PSWQ, PI-WSUR, BAI, and CCL-Total scores as the control variables. The pathological worry, o-c symptom, and anxiety levels of Turkish and British participants, as well as the content of thoughts, were controlled because metacognition scores may differ between groups depending on the confounding effects of these symptoms, and thus, any observed diversities in terms of metacognitions may not represent an actual difference between the Turkish and British groups. On the other hand, the effect of BDI was not controlled because it was shown that there was not a significant difference between Turkish and British students on the depression scores.

Also, the patterns of relationships between metacognitive factors and psychological symptomatology as a function of the Turkish vs. British group were examined by carrying out a series of hierarchical multiple regression analyses. In other words, moderating effect of the group variable (Turkish and British samples) on the relationship between metacognitive factors and psychological symptoms was investigated. In these regressions pathological worry (PSWQ), o-c symptoms (PI-WSUR), anxiety (BAI), or depression (BDI) was used as the dependent or criterion variable. For each criterion variable, the demographic characteristics of participants (gender and age) and the other relevant symptom dimension(s) and cognitive content relevant for a given criterion variable were controlled in the first step. Considering the cross-cultural nature of the study, gender and age were treated as covariates regardless of the significance status of their correlation with dependent variables. The MCQ-30 subscales and cultural group variable (Turkish = 0, British = 1) were forced to enter simultaneously on the second step. With respect to the procedure described by Cohen and Cohen (1983) individual variables within a set were not interpreted unless the set as a whole was significant to reduce Type I errors.

Table 5.3. Intercorrelations among metacognitive factors, worry, obsessional, anxious, and depressive symptoms, anxious and depressive cognitions, age, and gender (N = 334)

| | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|
| 1. MCQ-1 | 0.32** | 0.15** | 0.29** | 0.38** | 0.33** | 0.30** | 0.26** | 0.20** | 0.21** | 0.18** | -0.18** | 0.02 |
| 2. MCQ-2 | - | 0.27** | 0.46** | 0.45** | 0.60** | 0.42** | 0.44** | 0.48** | 0.25** | 0.39** | -0.03 | 0.08 |
| 3. MCQ-3 | | - | 0.27** | 0.17** | 0.16** | 0.22** | 0.17** | 0.19** | 0.19** | 0.22** | -0.06 | 0.03 |
| 4. MCQ-4 | | | - | 0.54** | 0.18** | 0.47** | 0.30** | 0.29** | 0.07 | 0.19** | -0.25** | -0.02 |
| 5. MCQ-5 | | | | - | 0.24** | 0.31** | 0.24** | 0.26** | 0.18** | 0.24** | -0.15** | -0.01 |
| 6. PSWQ | | | | | - | 0.23** | 0.31** | 0.42** | 0.22** | 0.42** | 0.06 | -0.01 |
| 7. PI-WSUR | | | | | | - | 0.42** | 0.31** | 0.14* | 0.12* | -0.12* | 0.05 |
| 8. BAI | | | | | | | - | 0.44** | 0.27** | 0.33** | -0.01 | 0.09 |
| 9. BDI | | | | | | | | - | 0.40** | 0.64** | -0.02 | 0.05 |
| 10. CCL-A | | | | | | | | | - | 0.52** | -0.06 | 0.03 |
| 11. CCL-D | | | | | | | | | | - | -0.03 | -0.03 |
| 12. Gender | | | | | | | | | | | - | -0.14** |
| 13. Age | | | | | | | | | | | | - |

Note. MCQ-1 = Positive beliefs about worry, MCQ-2 = Negative beliefs about worry concerning uncontrollability and danger, MCQ-3 = Lack of cognitive confidence, MCQ-4 = Need to control thoughts, MCQ-5 = Cognitive self-consciousness, PSWQ = Penn State Worry Questionnaire, PI-WSUR = Padua Inventory Washington State University-Revised, BAI = Beck Anxiety Inventory, BDI = Beck Depression Inventory, CCL-A = Cognition Checklist-Anxiety subscale, CCL-D = Cognition Checklist-Depression subscale, Gender = 1: Male, 2: Female. ** $p < .01$, * $p < .05$

On the last step, two-way interactions between each of the MCQ-30 scales and cultural group variable (Group x MCQ-1, Group x MCQ-2, Group x MCQ-3, Group x MCQ-4, and Group x MCQ-5) were entered as a set using stepwise procedure to probe possible interactions between metacognitions and cultural group. The centered values of the continuous variables were used in the first and second steps, and in order to compute the interaction terms. Even though the cultural group variable as a dichotomous variable could also be centered, a dummy variable coding system (0 versus 1) was used to simplify the interpretation (Cohen & Cohen, 1983; Cohen et al., 2003; Holmbeck, 2002).

When a significant interaction effect was found, subsequent post-hoc regression analyses were also conducted to test whether the simple regression slopes of a given symptom measure on metacognitions were statistically different from zero for the Turkish and British groups. In order to perform these simple slope analyses, two new conditional moderator variables were computed and then two regressions by integrating each of these new variables were conducted following the procedure described by Aiken and West (1991; for a detailed description see also p. 185). Since culture group variable is a dichotomous variable instead of a continuous variable, a similar but somewhat different procedure was employed to calculate the conditional values of this moderator variable in the present analysis. Instead of above and below conditional values of the moderator variable using 1 SD above and below the mean, two new conditional group variables as Turkish group and British group were created. Then, their interactions with the independent variable (the relevant metacognitive variable) were computed on the centered values. With these new variables, two separate post-hoc regression analyses one of which was for the Turkish and the other was for the British group were conducted. In these analyses, after controlling for the effects of the covariates (the comorbid symptomatology, cognitive content relevant for the given criterion variable, gender, and age) on step 1, one of the conditional group variable, the main effect for relevant metacognition, and the interaction of these two were simultaneously entered into the regression equation as a block on step 2. This post-hoc regression was repeated one more time with the other conditional group variable. Using the two equations generated from these regression analyses for the Turkish and British groups, the simple slopes for the high

and low levels of the independent variable (i.e., 1 SD above and below the mean of the relevant metacognitive variable) were plotted in figure form.

5. Main Analyses: Results of the Multivariate Analysis of Covariance: A Comparison of Metacognitive Factors between Turkish and British Samples

A between-subjects multivariate analysis of covariance (MANCOVA) was conducted on the five factors of the MCQ-30, namely positive beliefs about worry, negative beliefs about worry concerning uncontrollability and danger, lack of cognitive confidence, need to control thoughts, and cognitive self-consciousness, as the dependent variables and PSWQ, PI-WSUR, BAI, and CCL-Total scores as the control variables. The independent variable was culture group (N = 169 for the Turkish group, N = 165 for the British group). Using the Wilks' Λ criterion, the overall results indicated that there were significant differences between Turkish and British groups on the combination of these five dependent variables, $F(5, 324) = 7.87, p < .001, \eta^2 = .11$. Examination of follow-up univariate ANOVA's revealed that whilst the Turkish and British groups were not significantly different from each other on the positive beliefs about worry dimension, the differences between these two samples on the other metacognitive components emerged as significant (see Table 5.4). The Turkish group had higher scores on the negative beliefs about worry concerning uncontrollability and danger ($F[1, 324] = 19.08, p < .001, \eta^2 = .06$), lack of cognitive confidence ($F[1, 324] = 10.11, p < .005, \eta^2 = .03$), need to control thoughts ($F[1, 324] = 23.29, p < .001, \eta^2 = .07$), and cognitive self-consciousness ($F[1, 324] = 6.76, p < .05, \eta^2 = .02$) than the British group. The eta squared values indicated that for need to control thoughts and negative beliefs about worry the effect size were moderate, whilst it was small for the cognitive self-consciousness and lack of cognitive confidence (see Table 5.4).

Table 5.4. Multivariate analysis of variance for Turkish and British samples

| Source | Means | | df | F | η^2 |
|---------------------------------|---------|---------|--------|----------|----------|
| | Turkish | British | | | |
| Overall test | - | - | 5 | 7.87*** | 0.11 |
| MCQ-30 | | | | | |
| 1. Positive beliefs | 12.13 | 11.01 | 1, 324 | 2.80 | 0.01 |
| 2. Uncontrollability and danger | 12.31 | 10.69 | 1, 324 | 19.08*** | 0.06 |
| 3. Lack of cognitive confidence | 11.22 | 9.79 | 1, 324 | 10.11** | 0.03 |
| 4. Need to control thoughts | 12.91 | | 1, 324 | 23.29*** | 0.07 |
| 5. Cognitive self-consciousness | 15.60 | 14.11 | 1, 324 | 6.76* | 0.02 |

Note. MCQ-30 = Meta-Cognitions Questionnaire-30. *** $p < 0.001$, ** $p < 0.005$, * $p < 0.05$

6. Main Analyses: Results of the Multiple Hierarchical Regression Analyses

6.1. Roles of metacognitive factors on pathological worry in Turkish vs. British sample

The first regression analysis was conducted to identify metacognitive predictors of pathological worry in this mixed sample consisting of Turkish and British participants. In the first step, demographic characteristics (gender and age), o-c symptoms (PI-WSUR), depression (BDI), and anxious cognitions (CCL-A) were entered into the equation to control the variance explained by individual differences resulting from demographic characteristics and comorbid symptomatology. The MCQ-30 subscales as independent variables and culture group as the moderator variable were entered on the second step, followed by the stepwise entry of the set of two way interaction terms between them on the third step.

Table 5.5 displays the results of this analysis after each step of this moderated regression. Because stepwise procedure was used in the last step, interactions which were significantly entered into the regression equation could be reported. After step one, the control variables as a set emerged as significant in predicting the pathological worry levels of this culturally mixed sample with $R^2 = .20$, $F(5, 328) =$

16.07, $p < .001$. In the second step, the metacognitive variables and LES-N as a set explained a significant great portion of additional variance in the scores of the PSWQ ($R^2_{\text{change}} = .30$, $F_{\text{change}} [6, 322] = 31.10$, $p < .001$). Examination of this set revealed that the variables making significant individual contributions to the variance were respectively as follows: negative beliefs about worry ($\beta = .55$, $t [322] = 10.40$, $p < .001$), being in the British group ($\beta = .31$, $t [322] = 5.96$, $p < .001$), and positive beliefs about worry ($\beta = .20$, $t [322] = 4.49$, $p < .001$).

Table 5.5. Statistics for the regression equation with PSWQ regressed on metacognition and culture group after controlling for gender, age, PI-WSUR, and BDI

| Variables | β | t (within set) | df | F_{change} | R^2 |
|----------------------------|---------|---------------------|--------|---------------------|-------|
| Step 1: Control Variables | | | 5, 328 | 16.07** | .20 |
| Gender | .08 | 1.61 | 328 | | |
| Age | -.02 | -0.35 | 328 | | |
| PI-WSUR | .12 | 2.23* | 328 | | |
| BDI | .36 | 6.33** | 328 | | |
| CCL-A | .07 | 1.30 | 328 | | |
| Step 2: Main Effects | | | 6, 322 | 31.10** | .49 |
| Group | .31 | 5.96** | 322 | | |
| MCQ-1 | .20 | 4.49** | 322 | | |
| MCQ-2 | .55 | 10.40** | 322 | | |
| MCQ-3 | .03 | 0.76 | 322 | | |
| MCQ-4 | -.07 | -1.30 | 322 | | |
| MCQ-5 | -.04 | -0.84 | 322 | | |
| Step 3: Interaction Effect | | | | | |
| None | | | | | |

Multiple R = .70**, Adjusted R² = .47

Note. PSWQ = Penn State Worry Questionnaire, PI-WSUR = Padua Inventory Washington State University-Revised, BDI = Beck Depression Inventory, CCL-A = Cognitions Checklist Anxiety Subscale, MCQ-1 = Positive beliefs about worry, MCQ-2 = Negative beliefs about worry concerning uncontrollability and danger, MCQ-3 = Lack of cognitive confidence, MCQ-4 = Need to control thoughts, MCQ-5 = Cognitive self-consciousness, Gender = 1: Male, 2: Female, Group = 0: Turkish, 1: British. ** $p < .001$, * $p < .005$

Inspection of this set of findings indicated that the main effects of culture (being in the British group) and intensified negative and positive beliefs about worry were associated with increased pathological worry after controlling for comorbid symptomatology, demographic characteristics, and anxious cognitions. However, the relationship pattern between metacognitions and pathological worry did not change as a function of the present sample drawn from the Turkish and British university students. This result seems to warrant the conclusion that these metacognitive variables have a culturally generic role in explaining pathological worry like that found in GAD. Furthermore, it should be emphasized that this pattern of results was quite similar to those obtained separately from Turkish and British samples, indicating a consistent relevance of positive and negative metacognitive beliefs about worry in pathological worry.

6.2. Roles of metacognitive factors on obsessive-compulsive symptoms in Turkish vs. British sample

In order to examine metacognitive associates of obsessive-compulsive symptoms in the Turkish and British participants, demographic characteristics (gender and age), pathological worry (PSWQ), depression (BDI) and anxious cognitive content (CCL-A) were entered into the equation in the first step, followed by the simultaneous entry of the MCQ-30 subscales and culture group on the second step, and the stepwise entry of the set of two way interactions of metacognitions and group on the third step. As can be seen in Table 5.6, on the first step, the covariates set with the individual contributions of pathological worry and depression were significantly predicted o-c symptoms ($R^2 = .12$, $F [5, 328] = 9.24$, $p < .001$). After excluding the variance explained by the covariates, metacognitions and culture group variables as a set explained markedly significant additional variance in PI-WSUR score ($R^2_{\text{change}} = .32$, $F_{\text{change}} [6, 322] = 30.35$, $p < .001$). Independent predictors in this equation were being in the Turkish group ($\beta = -.46$, $t [322] = -8.96$, $p < .001$) and need to control thoughts ($\beta = .18$, $t [322] = 3.17$, $p < .005$), respectively. In other words, Turkish participants, and individuals with greater levels of need to control their thoughts showed intensified levels of o-c symptoms. On the third step, the interaction between metacognitive variable of cognitive self-consciousness and culture group made a further significant contribution to the explained variance ($R^2_{\text{change}} = .01$, $F_{\text{change}} [1, 321] = 4.08$, $p < .05$). This significant interaction indicated

that the relationship between cognitive self-consciousness and o-c symptomatology depends on the cultural group.

Table 5.6. Statistics for the regression equation with PI-WSUR regressed on metacognition and culture group after controlling for gender, age, PSWQ, and BDI

| Variables | β | t (within set) | df | F_{change} | R^2 |
|----------------------------|---------|---------------------|--------|---------------------|-------|
| Step 1: Control Variables | | | 5, 328 | 9.24*** | .12 |
| Gender | -.12 | -2.21 | 328 | | |
| Age | .03 | 0.48 | 328 | | |
| PSWQ | .13 | 2.23* | 328 | | |
| BDI | .25 | 4.19*** | 328 | | |
| CCL-A | .01 | 0.03 | 328 | | |
| Step 2: Main Effects | | | 6, 322 | 30.35*** | .44 |
| Group | -.46 | -8.96*** | 322 | | |
| MCQ-1 | .08 | 1.54 | 322 | | |
| MCQ-2 | .10 | 1.50 | 322 | | |
| MCQ-3 | -.01 | -0.09 | 322 | | |
| MCQ-4 | .18 | 3.17** | 322 | | |
| MCQ-5 | -.02 | -0.42 | 322 | | |
| Step 3: Interaction Effect | | | 1, 321 | 4.08* | .45 |
| Group x MCQ-5 | -.16 | -2.02* | 321 | | |

Multiple R = .67***, Adjusted R² = .43

Note. PI-WSUR = Padua Inventory Washington State University-Revised, PSWQ = Penn State Worry Questionnaire, BDI = Beck Depression Inventory, CCL-A = Cognitions Checklist Anxiety Subscale, MCQ-1 = Positive beliefs about worry, MCQ-2 = Negative beliefs about worry concerning uncontrollability and danger, MCQ-3 = Lack of cognitive confidence, MCQ-4 = Need to control thoughts, MCQ-5 = Cognitive self-consciousness, Gender = 1: Male, 2: Female, Group = 0: Turkish, 1: British. *** $p < .001$, ** $p < .005$, * $p < .05$

Subsequent post-hoc regression analyses were run to test whether the simple regression slopes of o-c symptoms on cognitive self-consciousness were statistically different from zero for the Turkish and British samples. For this aim, the conditional group variables and their interactions with cognitive self-consciousness were calculated and two separate regression analyses, one of which was for the Turkish and the other was for the British sample were conducted as described in overview of main analyses section. In these analyses, after controlling for the effect of the same covariates used in the main regression (gender, age, pathological worry, depression,

and anxious cognitions) on step 1, the significant contribution of centered cognitive self-consciousness on o-c symptomatology was examined. The regression analyses conducted for the Turkish and British samples revealed that the regression of o-c symptoms on cognitive self-consciousness was significantly different from zero for the Turkish sample ($\beta = .22$, $t [325] = 2.81$, $p < .01$), but it was not significantly different from zero for the British sample ($\beta = .03$, $t [325] = 0.51$, $p = .61$), after controlling for the covariates. Using the two equations generated from these regression analyses for the Turkish and British groups, the simple regression slopes for the high and low levels of cognitive self-consciousness (i.e., 1 SD above and below the mean) were plotted as depicted in Figure 5.1.

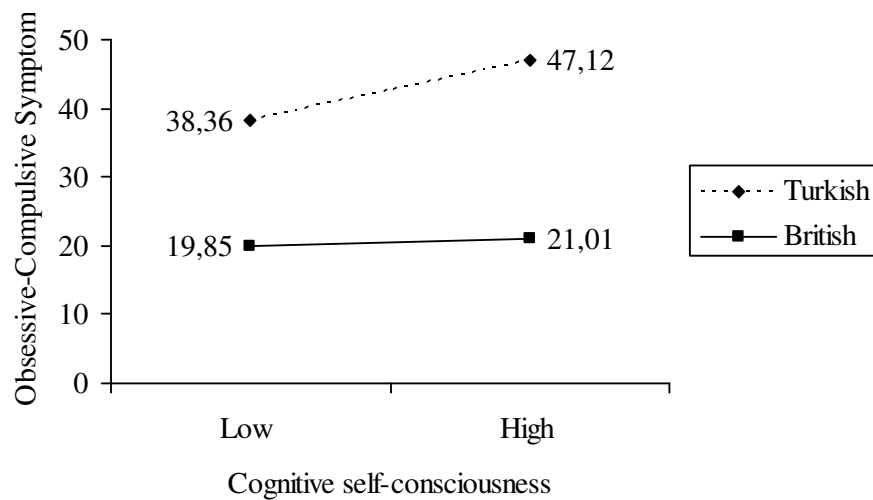


Figure 5.1. Interaction between cognitive self-consciousness and cultural group in predicting obsessive-compulsive symptoms

These findings together with the nature of the interaction as depicted in Figure 5.1 revealed that Turkish individuals who had high levels of cognitive self-consciousness (monitoring) experienced more obsessive-compulsive symptoms than individuals whose cognitive self-consciousness is low. However, the level of o-c symptoms did not differ between British participants possessing high or low levels of cognitive self-consciousness.

6.3. Roles of metacognitive factors on anxiety symptoms in Turkish vs. British sample

The results of the analysis conducted to determine metacognitive predictors of anxiety symptoms in a combination of Turkish and British samples can be seen in Table 5.7. On step 1, control variables (gender, age, and symptoms of depression, and anxious cognitive content) as a set explained a significant proportion of the variance with $R^2 = .21$, $F(4, 329) = 21.61$, $p < .001$. On the second step, group and metacognitive variables as a set led to a significant increase in the explained variance ($R^2_{\text{change}} = .09$, $F_{\text{change}}[6, 323] = 7.00$, $p < .001$).

Table 5.7. Statistics for the regression equation with BAI regressed on metacognition and culture variables after controlling for gender, age, and BDI

| Variables | β | t (within set) | df | F_{change} | R^2 |
|---------------------------|---------|---------------------|--------|---------------------|-------|
| Step 1: Control Variables | | | 4, 329 | 21.61*** | .21 |
| Gender | .02 | 0.30 | 329 | | |
| Age | .07 | 1.34 | 329 | | |
| BDI | .39 | 7.25*** | 329 | | |
| CCL-A | .12 | 2.18* | | | |
| Step 2: Main Effects | | | 6, 323 | 7.00*** | .30 |
| Group | -.11 | -2.10* | 323 | | |
| MCQ-1 | .10 | 1.90 | 323 | | |
| MCQ-2 | .21 | 3.42** | 323 | | |
| MCQ-3 | -.01 | -0.19 | 323 | | |
| MCQ-4 | .09 | 1.45 | 323 | | |
| MCQ-5 | -.05 | -0.77 | 323 | | |

Step 3: Interaction Effect
None

Multiple R = .55***, Adjusted R² = .28

Note. BAI = Beck Anxiety Inventory, BDI = Beck Depression Inventory, CCL-A = Cognitions Checklist Anxiety Subscale, MCQ-1 = Positive beliefs about worry, MCQ-2 = Negative beliefs about worry concerning uncontrollability and danger, MCQ-3 = Lack of cognitive confidence, MCQ-4 = Need to control thoughts, MCQ-5 = Cognitive self-consciousness, Gender = 1: Male, 2: Female, Group = 0: Turkish, 1: British. *** $p < .001$, ** $p < .005$, * $p < .05$

The strongest associate of anxiety symptoms in this sample was negative beliefs about worry ($\beta = .21$, $t [323] = 3.42$, $p < .001$), followed by culture group ($\beta = -.11$, $t [323] = -2.10$, $p < .05$), indicating that holding negative beliefs about worry and being in the Turkish group were linked to the increased anxiety symptomatology. On the last step, none of the interactions between metacognitive variables and culture group was found to be significant.

This set of findings pointed out that the significant relationship patterns between symptoms of anxiety and some aspects of metacognition as stated above did not change as a function of culture. From this result it might be stated that the role of metacognitive variables (particularly negative beliefs about worry) in explaining anxiety symptoms can be generalized across the Turkish and British groups.

6.4. Roles of metacognitive factors on depressive symptoms in Turkish vs. British sample

For this regression equation, gender, age, anxiety, and depressive cognitive content were entered on step 1 to control their effects, group (Turkish vs. British) and metacognitive variables were forced to enter on step 2 and the two way cross products between them on step 3. As can be seen in Table 5.8, the control variables as a set with the significant individual contribution of depressive cognitive content ($\beta = .56$, $t [329] = 13.19$, $p < .001$) and anxiety symptoms ($\beta = .25$, $t [329] = 5.80$, $p < .001$) were significant in predicting depression symptoms ($R^2 = .47$, $F [4, 329] = 73.50$, $p < .001$). On step 2, group and metacognitions as a set explained significant additional variance in BDI scores ($R^2_{\text{change}} = .04$, $F_{\text{change}} [6, 323] = 4.62$, $p < .001$). In this step, the individual contribution of group was not significant ($\beta = -.09$, $t [323] = -1.98$, $p = .049$), whilst negative beliefs about worry ($\beta = .18$, $t [323] = 3.48$, $p < .005$) was the significant unique associate of depressive symptomatology, indicating that higher levels of negative beliefs about worry was related with increased depressive symptoms. On the third step, none of the interactions between metacognitive variables and culture group made a further significant contribution to the explained variance.

Table 5.8. Statistics for the regression equation with BDI regressed on metacognition and culture variables after controlling for gender, age, and BAI

| Variables | β | t (within set) | df | F_{change} | R^2 |
|----------------------------|---------|---------------------|--------|---------------------|-------|
| Step 1: Control Variables | | | 4, 329 | 73.50** | .47 |
| Gender | .01 | 0.22 | 329 | | |
| Age | .05 | 1.33 | 329 | | |
| BAI | .25 | 5.80** | 329 | | |
| CCL-D | .56 | 13.19** | 329 | | |
| Step 2: Main Effects | | | 6, 323 | 4.62** | .51 |
| Group | -.09 | -1.98 | 323 | | |
| MCQ-1 | -.01 | -0.17 | 323 | | |
| MCQ-2 | .18 | 3.48* | 323 | | |
| MCQ-3 | -.03 | -0.75 | 323 | | |
| MCQ-4 | .06 | 1.04 | 323 | | |
| MCQ-5 | -.02 | -0.41 | 323 | | |
| Step 3: Interaction Effect | | | | | |
| None | | | | | |

Multiple R = .72**, Adjusted R² = .50

Note. BDI = Beck Depression Inventory, BAI = Beck Anxiety Inventory, CCL-D = Cognitions Checklist Depression Subscale, MCQ-1 = Positive beliefs about worry, MCQ-2 = Negative beliefs about worry concerning uncontrollability and danger, MCQ-3 = Lack of cognitive confidence, MCQ-4 = Need to control thoughts, MCQ-5 = Cognitive self-consciousness, Gender = 1: Male, 2: Female, Group = 0: Turkish, 1: British. ** $p < .001$, * $p < .005$

7. Summary and Discussion of the Results Regarding the Research Questions

In accordance with the first research question of this section, the differences between metacognitive scores of Turkish and British samples were evaluated by means of a MANCOVA analysis. Apart from the positive beliefs about worry dimension, the differences between the Turkish and British samples on negative beliefs about worry, lack of cognitive confidence, need to control thoughts, and cognitive self-consciousness emerged as significant, after controlling for the level of psychological symptomatology. The Turkish group showed a tendency to score significantly higher on these metacognitions than the British group. Since this study is the first attempt to comparatively examine the metacognitive factors in the Turkish and British samples, this result should be accepted as an exploratory finding proving

representative descriptive values for a Turkish sample compared to a Western sample.

Table 5.9. Summary table for the main and interaction effects of metacognitions and group variable representing Turkish and British samples

| | | Dependent Variables | | | |
|----------------------------|----------------------|---------------------|-------------|-------------|-------------|
| | | PSWQ | PIWSUR | BAI | BDI |
| MAIN EFFECTS | Group | Yes | Yes* | Yes | No |
| | MCQ-1 | Yes | No | No | No |
| | MCQ-2 | Yes* | No | Yes* | Yes* |
| | MCQ-3 | No | No | No | No |
| | MCQ-4 | No | Yes | No | No |
| | MCQ-5 | No | No | No | No |
| INTERACTION EFFECTS | Group x MCQ-1 | No | No | No | No |
| | Group x MCQ-2 | No | No | No | No |
| | Group x MCQ-3 | No | No | No | No |
| | Group x MCQ-4 | No | No | No | No |
| | Group x MCQ-5 | No | Yes | No | No |

Note. PSWQ = Penn State Worry Questionnaire, PI-WSUR = Padua Inventory Washington State University-Revised, BAI = Beck Anxiety Inventory, BDI = Beck Depression Inventory, MCQ-1 = Positive beliefs about worry, MCQ-2 = Negative beliefs about worry concerning uncontrollability and danger, MCQ-3 = Lack of cognitive confidence, MCQ-4 = Need to control thoughts, MCQ-5 = Cognitive self-consciousness. Asterisks (*) in each column indicate the best predictor for the relevant dependent variable.

With regard to the second research question, a series of moderated regression analyses were carried out. The main effects of metacognitive variables, culture group, and their interaction effects on the dependent measures of the study were summarized in Table 5.9. Since the main effect steps were found to be significant as a set in all of these moderated regressions, interpretation of the individual variables in these sets could be possible. In this mixed sample composed of matched Turkish and British students, the main effects of positive and negative beliefs about worry were found to be positively associated with the pathological worry, after controlling for age, gender, comorbid symptoms, and the relevant cognitive content. This result

accords nicely with the findings shown separately for the Turkish and British samples in Chapter 3, as well as with the current literature (Cartwright-Hatton & Wells, 1997; Davis & Valentiner, 2000; de Bruin et al., 2007; Papageorgiou & Wells, 1999; Wells & Carter, 1999; Wells & Papageorgiou, 1998). For o-c symptomatology, the only main effect which came into the significance degree in this mixed sample was the need to control thoughts. This finding has a particular importance in terms of the cross-cultural validity of the metacognitive model of OCD since the need to control thoughts was accepted as a marker for the component of the model concerning beliefs about rituals. In many studies it was found to be positively associated with o-c symptoms (de Bruin, et al., 2007; Gwilliam et al., 2004; Myers & Wells, 2005; Hermans, et al., 2003; Wells & Papageorgiou, 1998). Besides, negative beliefs about worry concerning uncontrollability and danger was the only individual predictor for also both anxiety and depression levels of this sample including British and Turkish participants. In this mixed sample, it was again found to be a significant and best predictor of pathological worry, anxiety, and depression, except for o-c symptoms.

On the other hand, even though beliefs about uncontrollability and danger of worry has been shown as the other central marker of the metacognitive beliefs implicated by the metacognitive model of OCD (Cartwright-Hatton & Wells, 1997; Myers & Wells, 2005; Wells & Papageorgiou, 1998), it was consistently found not to be a significant associate of o-c symptoms in the Turkish sample and also in this mixed sample including Turkish participants, no matter the fact that there was a strong relationship between negative beliefs about worry and o-c symptoms in the correlation matrixes produced throughout the study for the Turkish participants. This inconsistent result with the literature might have been observed for the reason that the variance obsessive-compulsive symptoms share with worry as reported in the relevant literature (Burns et al., 1996; Turner et al., 1992; Wells & Morrison, 1994; Wells & Papageorgiou, 1998) was controlled in order to obtain more specific results about each, without the contamination of the other. As reported in Section 7 for the Turkish part of Chapter 3, the analyses conducted for o-c symptoms in the Turkish sample was run one more time by the way of not controlling for the variance shared by worry to test the effect of not controlling for this overlap on the associate status of metacognitions for o-c symptoms in the Turkish sample. Interestingly, when the level

of pathological worry was not controlled for, the effect of negative beliefs about worry appeared to be a stronger associate of o-c symptoms in the Turkish sample. Considering also the consistently significant correlation between these two constructs, it would be advisable to avoid concluding that negative beliefs about worry concerning uncontrollability and danger is not an associate of o-c symptoms in Turkish sample until more is known about this issue.

When the results of this section are reviewed in terms of the main effects of cultural group variable representing Turkish vs. British sample, it is evident that group main effects were significant associates of pathological worry, o-c symptoms, and anxiety, after controlling for the covariates. In other words, it can be concluded that the level of pathological worry, o-c symptoms, and anxiety were significantly different between these cultural groups. On the other hand, the main effect of cultural group was not significant in predicting depression scores, indicating that the depressive symptom scores observed in this sample was independent from the effect of being Turkish or British. This result was in accordance with the *t*-test results given in Table 5.1. When we consider the statistically equal reliabilities of these symptom measures between these two cultural groups, it could be asserted that the main effects of cultural group on these symptom measures were likely to represent truly existed disparities between cultures.

According to the cultural group main effect results of these regression analyses together with *t*-test findings, the British participants were shown to be more prone to pathological worry, whilst it was the Turkish participants found to be more prone to o-c symptoms and anxiety. With this respect, the members of the British culture, who might be assumed more individualistic than Turkish culture, could be expected to hold greater levels of worry than the members of Turkish culture since worry may have a greater function for them. At this juncture, the confounding factor is the fact that Turkish culture shelters not only collectivistic values but also individualistic ones (Göregenli, 1997). In support of this notion, the effect size statistic showed that this significant difference between two samples on pathological worry was small. In fact, the effect of culture on the overt representations of a concept of interest requires a closer examination. Besides, either individualistic or collectivist values by themselves does not necessarily associated with normality or abnormality. In other words, under certain conditions, either of these may interact

with other factors to cause psychological distress. Therefore, only the “individualistic vs. collectivist” viewpoint by itself is far away from taking into account the specific and non-specific individual factors that are known as dominating the development of psychopathology more than general social concepts. It is clear that culture and society in which individual has grown up have potential effects on the components of psychological health. However, in the field of clinical psychology, individual factors that may develop under certain conditions independently from the certain values of society may be more crucial in understanding psychopathology.

The other side of the medallion says something different that Turkish participants found to be more prone to o-c symptoms and anxiety. If these two cultural groups are to be different, it is expected that both worry and anxiety measures should be elevated simultaneously within the same group, while, on contrast, decreasing in the other group. This expectation is based on the fact that worry is accepted as the cognitive component of anxiety states (Borkovec, 1985; Mathews, 1990; Wells & Matthews, 1994). In the present case, although the cognitive component of anxiety was significantly elevated in the British group, the measures of anxiety were elevated in the Turkish group. In addition to this, the anxious cognitive content of the British participants were found to be significantly greater than that of Turkish participants, even though the o-c and anxiety symptoms of Turkish sample was significantly higher than that of British sample. Another baffling result was that the average level of cognitive self-consciousness was found to be higher in the Turkish sample than that of British sample. Even though all of these symptom measures have separate characteristics (for example, worry was not merely the cognitive component of anxiety, but a separate research identity), several explanations could be raised with regard to these patterns of findings.

One explanation for these differences between symptoms can be raised in terms of the environmental sources which have a potential to affect the level of stress and anxiety people encounter during their daily routine. To illustrate, the issues to be dealt with by a prototypical average university student would differ between Turkey and United Kingdom. To clarify this point, the Turkish and British samples were compared in terms of the positive and negative effects of life events (LES-P and LES-N, respectively) and daily hassles (ICSRLE) levels. These scores were only available for subjects who participated in the second part of the study, and were

randomly taken into the current sample. There were 53 (40.2%) Turkish and 79 (59.8%) British participants to compare on the stress measures. Independent samples *t*-tests revealed that whilst there were no differences on the positive and negative effects of life events between Turkish and British participants, Turkish participants scored significantly higher than British participants on the daily hassles ($t [130] = 2.59, p < .05$). The items in this scale revolve around topics of academic difficulties, time pressure, academic alienation, problems in romantic relationships, social mistreatment, interpersonal difficulties, and some other assorted annoyances. On the other hand, again, not the quantitative nature of the stress sources but the level of subjective distress and individual coping strategies are important in determining the effects of these environmental sources. Besides, the perceived stress may be a consequence rather than cause of symptom occurrence. The daily hassles scale used in the present study, however, is developed to overcome problems of contamination of stress measures with general psychological symptoms and subjective distress.

If we accept both “individualism vs. collectivism” and “high and low environmental sources” as an independent continuum, it is impossible to definitely place all of the participants from one culture at one extreme and all of the participants from the other culture at the other extreme end of a given continuum. In other words, not all Turkish students have the collectivistic values, but some have the individualistic ones. Similarly, some students have both collectivist and individualist values. The same is convincing for a British student, as well. Moreover, it is not possible to claim that students from Turkey always experience more environmental difficulties than British students. Therefore, these explanations could be accepted as making contribution to understand the possible compounding factors affecting these results in an unknown magnitude and direction.

The non-significant interaction effects in the regression analyses of this section are important in terms of supporting the universality of the metacognitive theory. Rather than the intergroup differences on metacognitive dimensions as reported in the MANCOVA and *t*-test results, the interactions between cultural group and metacognitions should be accepted as the indicators of differing importance of metacognitive factors across cultures. A significant between-group difference on a metacognitive dimension does not inform us about the importance of that variable to one group but unimportance of it to the other. Still, this metacognitive variable can

be associated with the given symptom dimension in each group, even though one group scored higher than the other on this metacognitive variable. On the other hand, a significant group and metacognition interaction provide us with the answer to the question “do some aspects of metacognition predict some specific types of psychological symptomatology in one culture whilst it is not a significant associate of the given emotional distress in the other culture?” The present findings indicated that all but one interaction between cultural groups and the metacognitive dimensions were not accounted for variability in pathological worry, o-c symptoms, anxiety, and depression. The only interaction effect found to be significant was between cultural group and cognitive self-consciousness to predict obsessive-compulsive symptomatology. In parallel with the studies in which OCD patients have been shown as scoring significantly higher than other anxiety and normal control groups on cognitive self-consciousness (Cartwright-Hatton & Wells, 1997; Cohen & Calamari, 2004; Garcia-Montes et al., 2006; Hermans et al., 2003; Janeck et al., 2002), this finding showed that Turkish individuals who have high levels of cognitive self-consciousness had more obsessive compulsive symptoms than individuals whose cognitive self-consciousness is low. However, the level of o-c symptoms did not differ between British participants possessing high or low levels of cognitive self-consciousness. Any further comparisons between Turkish and British samples were avoided considering the unequal measurement reliability between these two groups in terms of cognitive self-consciousness.

One of the important limitations of this part of the research is concerned with the external validity of the study. In other words, since we do not know how representative the Turkish and British samples of the present study of their own cultures, caution should be taken for the generalization of results. It should be clearly stated that these two samples were drawn from Turkish and British college students, and they do not represent the whole structure of their culture. Furthermore, even within-sample characteristics might be heterogeneous. For example, the Turkish sample was composed of students both from an urban and rural university located at Ankara and Bolu, respectively. Although the non-UK citizens were excluded from the British sample in the present section, still it is likely that the within group differences that were not used as covariates in the analyses may effect the results. The other limitation concerns the unequal measurement reliability on negative beliefs

about worry and cognitive self-consciousness between Turkish and British samples. Therefore, any results including one of these two variables should be evaluated with a great caution and only as preliminary source of information. As van de Vijver and Leung (1997) stated, this difference may be caused by various sources such as administration problems (e.g., differences in procedures), lack of appropriateness of the instrument (e.g., construct inequivalence), subject characteristics (e.g., cross-cultural differences in test-wisness), and differential response styles (e.g., social desirability). Further studies are recommended to clarify these issues.

CHAPTER VI

DISCUSSION

The overall aim of this thesis was to investigate the cross-cultural validity of metacognitive theory using both cross-sectional and prospective designs in Turkish and British samples. To achieve this aim, positive and negative beliefs about worry and rumination, lack of cognitive confidence, need to control thoughts, and cognitive self-consciousness were investigated as metacognitive variables. Pathological worry, obsessive-compulsive (o-c) symptoms, and anxiety and depressive symptoms were the measures of psychopathology used in the study.

This chapter begins with an overview of the results presented in the thesis and will move onto the discussion of how these results have implications for research and clinical settings. The chapter will end with the limitations of the thesis and future suggestions. The details for the findings and more inclusive discussions of these findings can be found in the relevant chapters.

1. Overview of Results

In chapter one, the basic concepts including definitions and types of metacognition and the self-regulatory executive functions (S-REF) model that provides basis for the development of metacognitive theory were introduced. The metacognitive models of GAD, OCD, and depression were presented following the introduction of the cognitive characteristics of these disorders and the overlapping and distinguishing features among these cognitions. At a rudimentary level, the metacognitive theory states that thinking is composed of multiple components including beliefs about thinking, thinking processes, and content of thoughts, which have an effect on the way thinking is organized. Therefore, this theory is accepted as a generic and multilevel information processing theory. The empirical support for and clinical implications of these metacognitive models were also reviewed. The major differences between cognitive and metacognitive theories were described, followed by the general focus of metacognition-based therapy.

In chapter two, the psychometric qualities of two commonly used research instruments in the study of worry and metacognitive factors in psychopathology were reported. These instruments are the Penn State Worry Questionnaire (PSWQ; Meyer et al., 1990) and the Meta-Cognitions Questionnaire-30 (MCQ-30; Wells & Cartwright-Hatton, 2004). Overall, the results suggest that both scales are psychometrically sound measures that possess acceptable reliability, temporal stability, and substantial validity in a non-clinical sample drawn from a non-Western culture. Psychometric analyses of these questionnaires set the stage for the measurements of the present study and provided basis for the assessment of worry like that found in GAD and metacognitions in Turkey.

In chapter three, metacognitive and cognitive associates of pathological worry, obsessive-compulsive symptoms, anxiety, and depression were examined separately in the Turkish and British samples using a cross-sectional design. More precisely, the following issues were addressed both in Turkish and British samples. To begin with, the relationship patterns between metacognitive variables and symptoms of emotional disorders were determined. In addition, to gain more insight into the mechanisms underlying emotional disorders, these relationship patterns were examined by focusing on the individual contribution of metacognitions as relative to cognitive contents. Further, a more conservative test for the propositions of metacognitive model of GAD was conducted in the Turkish sample. Finally, the effects of comorbid symptomatology and demographic variables were partialled out throughout the analyses so that the answers to these questions would be purely specific to the addressed issues. At this juncture, this part of the study has unique characteristics in terms of two aspects. First, it is the first attempt to determine the relative contribution of cognitive content versus metacognition to emotional symptoms. Second, this study is the first attempt investigating the main principles of the metacognitive theory in a Turkish sample, along with the replication of previous findings in both samples.

In the Turkish sample, higher levels of metacognitions were associated with higher levels of pathological worry, o-c symptoms, anxiety, and depressive symptoms. Positive beliefs about worry predicted pathological worry and o-c symptoms. Except for o-c symptoms, negative beliefs about worry was associated with pathological worry, anxiety, and depression. Besides, this variable was the best

predictor of these symptoms among the other metacognitive variables. This pattern repeats itself in other findings shortly to be presented. Whilst lack of cognitive confidence predicted only pathological worry, need to control thoughts appeared as the predictor for only o-c symptomatology, but became the strongest predictor of it. Cognitive self-consciousness did not emerge as significantly associated with any of those symptom measures. The same metacognitive variables appeared as independent predictors of the same symptom measures after the contribution of cognitive content to the explained variance was excluded. For pathological worry, the contribution of anxious cognitions became nonsignificant after the effects of metacognitions are controlled. In other cases, cognitive content variable remained as a significant predictor of symptoms after metacognitions were controlled. Yet, metacognitions explained slightly more variance than cognitive content in anxiety-based analyses. On the other hand, depressive cognitive content was a stronger predictor of depressive symptomatology than metacognitions. In the Turkish sample, negative beliefs about worry partially mediated the relationship between anxious cognitive content and pathological worry, while controlling for positive beliefs about worry, the overlap between pathological worry and o-c symptoms, and age and gender. In general, the findings obtained from the Turkish part were in keeping with earlier research and provide support for the metacognitive theory.

In the British sample, positive beliefs about worry was positively associated with all of the anxiety measures, whereas it was not related with general anxiety score in the Turkish study. In the British study, negative beliefs about worry was also found to be relevant for o-c symptoms as different from the Turkish study. Lack of cognitive confidence did not predict any of the anxiety measures in the British study, while it was a predictor of only pathological worry in the Turkish sample. In both samples, need to control thoughts was significantly associated with only o-c symptoms. Finally, as it was the case in the Turkish sample, cognitive self-consciousness did not emerge as a significant associate of any of the psychological symptoms in the British sample, as well. These set of findings were inconsistent with studies and theoretical accounts emphasizing that higher levels of cognitive self-consciousness would be associated with higher levels of psychopathology, in particular, with o-c symptomatology (Cartwright-Hatton & Wells, 1997; Cohen &

Calamari, 2004; de Bruin et al., 2007; Garcia-Montes et al., 2006; Hermans et al., 2003; Janeck et al., 2002; Wells, 2000; Wells & Matthews, 1994). The result obtained from the current study may indicate that not only the tendency to monitor one's own thoughts, but also the content of the thoughts monitored by the individual could be important in predicting the development and maintenance of certain types of disorders, particularly those related with intrusive thoughts. Thus, further studies focusing on the relationship patterns between psychopathology and the interaction of cognitive self-consciousness with cognitive content are strongly encouraged. Moreover, in the British sample, higher levels of positive and negative metacognitions about rumination were found to be associated with higher levels of state and trait depression, after the covariates were controlled. The same metacognitive variables emerged as independent predictors of the anxiety-based dependent variables and depression after controlling for the variance explained by the anxious cognitive content for anxiety and depressogenic schemata for depression.

Four conclusions are in order with respect to the findings of the chapter three. First, elevated levels of metacognitions are associated with elevated levels of psychopathology as measured by the total scores of the MCQ-30. Second, there were specific metacognitive dimensions which were more relevant for particular symptom categories. Third, metacognitions were independent associates of the symptoms after the effect of cognitive content was partialled out. Finally, Type-2 worry mediated the relationship between anxious thoughts and pathological worry in the Turkish sample.

In chapter four, the causal role of metacognitions in the development of anxiety and depressive symptoms following stress was investigated. Two sources of evidence were sought. First, the individual contributions of the metacognitions to the change taken place six month apart in the measures of anxiety and depression after controlling for the effect of stress were examined. Second, prospective interactions of metacognitions with stress to predict change in the severity of symptomatology were investigated. This chapter was designed so that the present study whose primary aim was to test the validity of metacognitive theory in a Turkish sample does not suffer from the limitations resulting from a correlational design. Besides, the metacognitive theory suggests metacognition as a vulnerability factor in the etiology of psychopathology, along with its effect on the maintenance mechanisms. Therefore, a prospective design was just what is needed to test the causal role of metacognitions.

Prior to the main analyses of this chapter, the reliabilities and convergent validities of the Life Experiences Survey (LES; Sarason et al., 1978) and Inventory of College Students' Recent Life Experiences (ICSRLE; Kohn et al., 1990) were examined as the stress measures of the study. Because of little previous psychometric data on the Turkish version of the LES, there was a need to evaluate the psychometrics of this instrument. The results supported the reliability and validity of the LES and ICSRLE in the Turkish sample and were in parallel with previous research findings (Kohn et al., 1990; Sarason et al., 1978).

In the Turkish sample, findings of the main analyses revealed that negative beliefs about worry concerning uncontrollability and danger served as a causal factor in the development of both anxiety and depression over and above exposure to negative major life events. However, metacognitive variables failed individually to prospectively predict anxiety and depression when the effect of daily hassles was controlled. In addition, the residual change in anxiety scores from Time 1 to Time 2 could be predicted from the interaction of lack of cognitive confidence with daily hassles. Consistent with the relevant literature (e.g., Davis & Valentiner, 2000), this result indicated that because of the low levels of confidence in memory, individuals may underestimate their ability to cope with threat arising from daily troubles, leading to the elevated levels of anxiety when the individual encounters greater levels of daily hassles.

In the British sample, interestingly, metacognitive variables relevant to anxiety did not prospectively predict anxiety above and beyond exposure to stress. Similarly, metacognitive variables did not interact with stress to predict change in the severity of anxiety symptoms at Time 2. The case was not quite different for the causal role of metacognitions in the development of depression. The metacognitive variables relevant for depressive mood were not found to be significant prospective associates of depression after controlling for the negative effect of major life events. Again, the interactions between metacognitive and stress variables did not significantly explain the variance seen in the depression scores from Time 1 to Time 2 as measured by the BDI. There were two exceptions to this pattern of findings. First, positive beliefs about rumination served as a significant prospective associate of the BDI after controlling for daily hassles. Second, negative beliefs about rumination coupled with the negative effect of major life events to predict the change

in the CES-D scores from Time 1 to Time 2. However, the directions of these relationships were not in accord with the theoretical accounts and research on clinical and non-clinical groups. Taken together, the results obtained from the Turkish sample were more consistent with the metacognitive theory than the results obtained from the British sample.

In chapter five, the preliminary cross-cultural comparisons between Turkish and British samples were reported. The samples were matched in terms of their demographic characteristics. Also, the reliability equivalences of the measurement devices were evaluated. Apart from negative beliefs about worry and cognitive self-consciousness, the remaining scales were demonstrated as equally reliable in both groups. After these preliminary stages, one comparison was made in terms of the differences on the metacognitive components between samples, after controlling the effects of cognitive content, psychopathology measures, and demographics. The differences were found to be in all but one (positive beliefs about worry) metacognitive factor. Two of these significant differences were in terms of the subscales determined as not equally reliable between groups, therefore, should be evaluated with caution. The other two differences were found to be in terms of lack of cognitive confidence and need to control thoughts. Establishing representative descriptive values in a Turkish sample as relative to a Western sample, Turkish participants revealed a tendency to score higher on these subscales than British sample. The second comparison was made to clarify whether metacognitive factors would predict psychopathology as a function of cultural group or not. Apart from the interaction between cognitive self-consciousness (which is one of the two unequally reliable subscales between groups) and cultural group in predicting o-c symptoms, all of the other interaction effects between metacognitions and cultural group were not responsible for the variance in any of these psychological symptom measures. This group of findings indicated to universal characteristics of metacognitions which were legitimate in both samples of the present study.

In this mixed sample composed of matched Turkish and British students, the main effect of negative beliefs about worry was found to be positively associated with the pathological worry, and anxiety and depression after controlling for age, gender, comorbid symptoms, and the relevant cognitive content. It should be acknowledged that this dimension of metacognition was shown to be associated with

most, though not all, of the symptom dimensions in both cross-sectional and longitudinal parts of the present study. To summarize, apart from o-c symptoms, it was associated with the remaining measures of anxiety and depression in the Turkish sample. Also, it was found to be the best predictor of all of these symptom dimensions. Similarly, it was a significant associate of all measures of anxiety in the British sample. Again, except for o-c symptoms, it served as the best predictor of the other symptoms of interest. Furthermore, it was shown as a causal factor in the development of anxiety and depressive symptoms in the Turkish sample. In the mixed sample, it was again found to be a significant and best predictor of pathological worry, anxiety, and depression, except for o-c symptoms. In the light of these findings, it seems that negative beliefs about worry is a more generic element of metacognition in understanding various types of emotional disorders. This finding was nicely accord with numerous studies in the metacognition literature (e.g., de Bruin et al., 2007; Wells & Carter, 1999; Wells & Papageorgiou, 1998). As stated by Wells (2007), worry can be considered as an element of most types of disorder because the metacognitions underlying it are nonspecific, basic pathological mechanisms and processes. In addition, negative beliefs about worry involve the appraisals of worry as being uncontrollable and dangerous, and as such seem relevant for understanding of various types of anxiety disorders.

For o-c symptomatology, the only significant main effect in this mixed sample was again the need to control thoughts. This finding has a particular importance in terms of the cross-cultural validity of the metacognitive model of OCD since the need to control thoughts has been accepted as a marker for the component of the model concerning beliefs about rituals. Another finding was that whilst the pathological worry was significantly higher in the British participants, the Turkish sample were scored higher on the o-c symptom, anxiety, and depression measures than the British sample. Whilst for anxiety and worry the magnitude of the difference was statistically small, it was quite large for o-c symptoms in the Turkish sample.

It is important to note that the present data yielded quite consistent results with the metacognitive theory and were well in line with those obtained in previous studies of metacognitive research in non-clinical samples. This seems to warrant the conclusion that even though there are differences between samples in terms of the degree of relationship between metacognitions and psychological symptom groups,

specific metacognitive variables were important in predicting psychopathology in both groups. Furthermore, there was evidence attained in the Turkish sample for the causality of certain metacognitive variables as individually and coupling with stress to predict development of anxiety and depression over time, and after controlling for comorbid symptoms and demographic characteristics.

2. Implications for Research

The measurement of metacognitive factors in this thesis was mainly based on the Meta-Cognitions Questionnaire-30 (MCQ-30) which is an instrument developed for use in the assessment of metacognitions in research and clinical settings. The psychometric analyses for the MCQ-30 in the Turkish sample produced quite promising findings. In general, the MCQ-30 was found to be related with all measures of psychopathology used in this study. However, there is a need for studies focusing on the psychometrics of the Turkish version of this scale in the clinical samples to determine its discriminant validity and to show that the MCQ-30 was sensitive to factors other than general emotional vulnerability. In addition, its sensitivity to treatment effects should be examined. Thus, replication of this study in patient samples is strongly encouraged for a broader generalization of the current findings.

Since the dimensions of the MCQ-30 are more relevant to anxiety than depression, in the British sample negative beliefs about rumination scale (NBRS; Papageorgiou et al., in preparation) and positive beliefs about rumination scale (PBRs; Papageorgiou & Wells, 2001b) were used as the metacognitive measures relevant for depression. It was not possible to use them in the Turkish sample because the Turkish adaptation studies for these additional questionnaires have not been done yet. As a result of measuring depression related metacognitions using different questionnaires in the British part, it could not be possible to compare the samples in terms of the depression results. Thus, there is a strong need for studies focusing on the psychometrics of the Turkish version of the NBRS and PBRs in both non-clinical and clinical samples. By doing so, assessment of metacognitive beliefs specific to depression could be possible to test the metacognitive theory for depression more effectively in Turkish samples and to evaluate the treatment outcome of a metacognition-focused therapy for depression.

When the dependent variable depression was measured by the BDI, which is a device more relevant to be used in the clinical settings, the PBRs and NBRs were determined as stronger predictors than dysfunctional depressive schemata. However, when the depression was measured by the CES-D, which is an assessment device more relevant to non-clinical community samples, and by the STAI-D which measures trait depression, the degree of significance in predicting depression was nearly the same between metacognitions and depressive schemata. In addition to these cross-sectional results, whilst the PBRs was not found as a prospective predictor of the CES-D after controlling for daily hassles, it became a significant predictor when the dependent variable was the BDI. For these reasons, whether the metacognitive formulation of depression could be more relevant to clinical depression rather than sub-clinical levels of depressive symptomatology need to be investigated by future studies in clinical vs. non-clinical settings.

The best prospective metacognitive predictors of anxiety and depression before controlling for the effect of life events and/or baseline symptom level could have been readily examined in the present data. However, the aim of the present research was limited only to test the causal role of metacognitions together with stress factors in the framework of a vulnerability-stress model, which is a quite conservative causal test for a given variable. Therefore, the unique contributions of metacognitive factors before controlling for stress and baseline symptoms might also be investigated. Moreover, rather than specific disorders, only general anxiety and depressive mood were reviewed in the prospective part of this study. Consequently, it is recommended to use similar prospective designs to understand the causal role of metacognitive factors in the development of specific disorders.

3. Implications for Clinical Settings

Although a growing body of cognitive therapy literature has emphasized that many other categories of cognition have the potential to provide a basis for understanding factors that presumably underlie the development and maintenance of emotional disorders, the main focus of the cognitive approach has been limited by the consideration of the content of thoughts and beliefs (Nelson et al., 1999; Papageorgiou & Wells, 1999; Wells & Purdon, 1999; Wells, 2000; Wells, 2004). In parallel to this notion, studies investigating the treatment efficiency of cognitive treatments for emotional disorders have indicated that many people still do not

benefit significantly from the therapy rationales focusing on restructuring the negative content of the cognition (e.g., Durham & Allan, 1993; Fisher & Durham, 1999). For these reasons, it has been suggested that revised frameworks for conceptualizing cognition in emotional disorders would be necessary in order to increase the treatment efficiency through improving our current level of understanding for the nature of cognition in the emotional disturbances (Wells & Purdon, 1999). The work reported in this thesis has suggested that metacognitive beliefs and processes play an individual predictor role above and beyond the cognitions in explaining psychological symptoms in both Turkish and British samples.

With regard to the results of the Turkish part of the study, it is possible to state that patients across the spectrum of emotional disorders are likely to benefit from metacognition-based interventions. On the other hand, in order to establish more precise conclusions in relation to specific clinical implications, many aspects of the present study should be replicated in patient samples. Therefore, the topic of metacognition is open to clinical research and might potentially become a focus of clinical practice in Turkey.

Based on the main propositions of the metacognitive theory, several disorder-specific metacognitive treatment protocols are available (Wells, 1997, 2000, see also Chapter 1). On the other hand, metacognitions are proposed as generic factors underlying vulnerability to and maintenance of a broad range of emotional disorders. In particular, metacognition has a unique importance to disorders characterized by uncontrollable thought intrusions. In addition, the metacognitive theory gives central importance to worry as a general factor contributing to emotional disorders. For these reasons, there are some common therapy objectives to be considered in a metacognition-focused therapy approach.

As mentioned in chapter one, the cognitive attentional syndrome (CAS) is viewed as responsible for perseverative negative thinking or intrusive thoughts such as worry, obsessions, and rumination, as well as increased self-focused attention, dysfunctional self-beliefs, monitoring for threat, and use of maladaptive coping strategies. This syndrome arises as a consequence of maladaptive metacognitive knowledge base. More specifically, metacognitive knowledge comprises declarative (explicit) metacognitions which are in the form of positive and negative beliefs about

cognitions and procedural (implicit) metacognitive strategies and plans guiding the processing. For example, many people who hold negative metacognitive beliefs believe that worry is uncontrollable, even though the fact that it can be easily controlled, when appropriate strategies are chosen.

In therapy, in addition to the general non-metacognitive beliefs which are offered cognitive theories of emotional disorders, assessment and restructuring of the explicit and implicit metacognitions should be targeted. According to the results of the Turkish parts of this study, the explicit metacognitions were found to be positive and negative beliefs about worry when dealing with pathological worry. In addition, negative beliefs about worry partially mediated the relationship between anxious cognitive content and pathological worry. As for o-c symptomatology, the explicit metacognition of positive beliefs about worry was a significant associate of o-c symptoms, as well as some evidence coming from further analyses that negative beliefs about worry could also be related with o-c symptoms in the Turkish sample. Besides, more global symptom measures of anxiety and depression were predicted both cross-sectionally and prospectively by negative beliefs about worry. These explicit metacognitive beliefs can be elicited by means of verbal strategies such as questioning advantages and disadvantages, behavioural experiments, and verbal reattribution. These techniques are the same with cognitive therapy but the focus is metacognitive beliefs, which is different.

Whilst lack of cognitive confidence was shown to be the implicit metacognition associated with pathological worry, need to control thoughts was the implicit metacognitive predictor of o-c symptoms in the Turkish sample. In addition, lack of cognitive confidence was found to be causally associated with the development of anxiety symptoms in case of high levels of daily hassles. Metacognitions of implicit type can be elicited by questioning and/or observation of attentional strategies, memory, and thinking processes, and by determining assumptions in relation to the effects of specific coping responses during problematic situations. It is important to modify these implicit routines, as well as modification of content because plans for processing determine cognitive and behavioural responses that maintain the dysfunctional processing and prevent disconfirmation of faulty knowledge.

Another general objective of the metacognitive focused therapy is to restructure the self-knowledge by activating metacognitive mode and using the usual processing strategies to collect disconfirmatory information which is not accessible within the object mode. Activation of metacognitive mode can be accomplished by using attention training technique (ATT) and detached mindfulness (DM) strategy which is a detachment from thoughts while keeping objective awareness of them by observing the thoughts as merely events or objects in mind.

On activating the metacognitive mode, the next stages in the therapy are to diminish perseverative negative thinking and self-focused attention tendencies, strengthen alternative plans for dealing with thoughts, increase flexible control over allocation of cognitive sources such as attention, and manipulate coping behaviours to improve adaptive self-knowledge. In other words, the aim is to interrupt the CAS. Worry postponement experiments, DM, and ATT are useful therapeutic intervention strategies to reach this aim. The patient should be educated about constructing new plans and alternative coping strategies that guide attention and about the functional ways of controlling cognition. By interrupting the CAS emotional disorders will be effectively treated.

To conclude, the essence of the metacognitive theory can be summarized as increasing the patient's ability to relate his/her thoughts in a different way. This theory emphasizes the importance of metacognitive beliefs and cognitive attentional syndrome including metacognitive regulations. Consequently, thinking styles and metacognition become the main focus of metacognition-based treatment. In general, it might be stated that modifying dysfunctional metacognitive beliefs and maladaptive metacognitive thought control strategies should ameliorate negative emotional responses (Wells, 2000). By doing so, metacognitive therapy aims to develop cognitive theory in a way that focuses on information processing aspects of cognition. Since metacognitive knowledge and plans affect the processing operations with regard to depressive and anxious thoughts, the therapist should attempt not only to modify the content of thoughts, but also underlying metacognitions and their associated processing operations should be targeted. This can be more effectively accomplished by taking the multidimensional nature of the thoughts into account.

4. Research Limitations and Future Directions

Throughout this thesis, the possible confounding factors were controlled as much as possible to be able to draw valid inferences when reporting the independent variables as accounting for the results. In spite of this, there are some other factors that may potentially decrease the internal validity of the study. For example, a prospective design was used to test the causal effects of metacognition in combination with stress factors. Consequently, the same measurement devices were administered twice. Even though this happened five to six months apart, it is not possible to know whether there was a testing or carry-over effect between these two administrations. Besides, there might have been a statistical regression in the scores since the average change in scores was in the downward direction in the Turkish sample. It is reported that average scores of measurement devices assessing transient state moods tend to reduce after repeated administrations (Sharpe & Gilbert, 1998). The usage of different data collection procedures in the Turkish and British studies is also another source of limitation which has a potential effect on the validity of results comparing the Turkish and British samples.

One of the main aims of this study was to test the unique contributions of “cognitive content” or “metacognitions” to measures of anxiety and depression while controlling for their intercorrelations. The cognitive content was assessed in terms of negative automatic thoughts specific to global anxiety and depression states. However, it would be better to assess the specific cognitive contents relevant to pathological worry (such as specific worry domains) and obsessive-compulsive symptoms (such as obsessional beliefs, responsibility, etc.). Therefore, this part of the research would benefit from replicating these analyses using assessment devices devoted to measure cognitions specifically found in a given anxiety disorder.

One of the important limitations with regard to cross-cultural aims of this research is concerned with the external validity of the study. In other words, since we do not know how representative the Turkish and British samples of the present study of their own cultures, caution should be taken for the generalization of results. It should be clearly stated that these two samples were drawn from Turkish and British college students, and they do not represent the whole structure of their culture. Furthermore, even within-sample characteristics may be heterogeneous. For example, the Turkish sample was composed of students both from an urban and rural

university located at Ankara and Bolu, respectively. As for the British sample, although the effect of citizenship was controlled throughout analyses and non-UK citizens were excluded from the British sample in the analyses particularly comparing the two cultural groups, still it is likely that the within group differences that were not used as covariates in the analyses might have been effected the results. In addition, even though the Turkish and British samples were matched prior to the analyses comparing the two cultural groups so that the sample characteristics between groups would be as homogenous as possible, this was not equal to use a matched random assignment of subjects because the matching in the current study was made among the available subjects who had already participated in the study.

The other drawback pertains to the unequal measurement reliability on negative beliefs about worry and cognitive self-consciousness between Turkish and British samples. Therefore, the results including one of these two variables should be evaluated with a caution and only as preliminary source of information. As van de Vijver and Leung (1997) stated, this difference may be caused by various sources such as administration problems (e.g., differences in procedures), lack of appropriateness of the instrument (e.g., construct inequivalence), subject characteristics (e.g., cross-cultural differences in test-wiseness), and differential response styles (e.g., social desirability). Further studies are recommended to clarify these issues.

As was argued above, another limitation of this thesis concerns the fact that the results relied on non-clinical subjects. Therefore, it remains to be explored whether these findings particularly those obtained from the Turkish sample can be replicated in clinical populations including patients with OCD, GAD, and depression. The implications of the current findings for the Turkish sample warranted that metacognitive variables are legitimate targets of scientific analysis in clinical settings.

5. General Conclusion

A gradually increasing importance has now been attached to the metacognitive theory in clinical psychology field. Specifically, the study of clinical aspects of metacognition is a new undertaking in Turkey. Although this thesis is a preliminary cross-cultural investigation of this theory in our country, it provides evidence for the applicability of metacognition concept into Turkish culture and sets

the stage for metacognitive research from a clinical psychology perspective in Turkey. The present study could be accepted as profitable for the metacognition field, as well. In particular, the attempt to investigate the individual role of metacognitions above and beyond the role of cognitive content using cross-sectional designs and the attempt to examine the causal role of metacognitions as predisposing factors following stress using prospective designs in the Turkish and British samples can be evaluated the unique aspects of this thesis. Furthermore, four questionnaires have been acquired into Turkish culture. In all main analyses, the confounding factors were controlled as much as possible so that the results can be attributed to the effect of independent variables. In spite of the above reported limitations of the study, the results warrant further research endeavors around this topic. In addition, the work reported in this thesis could contribute to the way that Turkish clinicians conceptualize and treat a broad range of emotional disorders, and may serve as a baseline to aid clinicians and researchers in making judgments about relevant issues. It seems that professionals in the area of clinical psychology should expand the range of questions that are asked about cognition.

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APPENDICES

APPENDIX A

TURKISH VERSION OF THE PENN STATE WORRY QUESTIONNAIRE

Her bir ifadenin sizi ne ölçüde tanımladığını, aşağıda verilen ölçekten yararlanarak değerlendiriniz ve uygun olan numarayı ilgili maddenin yanındaki boşluğa yazınız.

- | | 1 | 2 | 3 | 4 | 5 |
|-----|-----------------------|---|--|---|-------------------------|
| | Beni hiç tanımlamıyor | | Beni biraz tanımlıyor | | Beni çok iyi tanımlıyor |
| ___ | 1. | | Herşeyi yapmaya yeterli zamanım yoksa, bunun için endişelenmem. | | |
| ___ | 2. | | Endişelerim beni bunaltır. | | |
| ___ | 3. | | Yaşamakta olduğum şeyler hakkında endişelenme eğiliminde değilimdir. | | |
| ___ | 4. | | Bir çok durum beni endişelendirir. | | |
| ___ | 5. | | Yaşamakta olduğum şeyler hakkında endişelenmemem gerektiğini biliyorum ama kendime engel olamıyorum. | | |
| ___ | 6. | | Baskı altında olduğumda çok endişelenirim. | | |
| ___ | 7. | | Her zaman birşeyler hakkında endişeleniyorum. | | |
| ___ | 8. | | Endişe verici düşünceleri aklımdan kolaylıkla atarım. | | |
| ___ | 9. | | Bir işi bitirir bitirmez, yapmak zorunda olduğum tüm diğer şeyler hakkında endişelenmeye başlarım. | | |
| ___ | 10. | | Asla herhangi bir şey için endişelenmem. | | |
| ___ | 11. | | Bir konu ile ilgili olarak yapabileceğim daha fazla bir şey olmadığında, artık o konu hakkında endişelenmem. | | |
| ___ | 12. | | Tüm yaşamım boyunca endişeli biri olmuşumdur. | | |
| ___ | 13. | | Yaşamakta olduğum şeyler hakkında endişeleniyor olduğumu farkederim. | | |
| ___ | 14. | | Bir kez endişelenmeye başladığımda, bunu durduramam. | | |
| ___ | 15. | | Sürekli olarak endişeliyimdir. | | |
| ___ | 16. | | Tamamen yapıp bitirene kadar tasarladığım işler hakkında endişelenirim. | | |

APPENDIX B

TURKISH VERSION OF THE META-COGNITIONS QUESTIONNARE-30

Bu anket insanların kendi düşünceleri hakkında sahip oldukları inançları ile ilgilidir. Aşağıda, insanların ifade ettikleri bazı inançlar listelenmiştir. Lütfen her maddeyi okuyunuz ve bu ifadeye genellikle ne kadar katıldığınızı uygun numarayı daire içine alarak belirtiniz.

Lütfen tüm maddelere cevap veriniz, doğru ya da yanlış cevap yoktur.

| | Katılmıyorum | Biraz katılıyorum | Oldukça katılıyorum | Tamamen katılıyorum |
|---|--------------|-------------------|---------------------|---------------------|
| 1. Endişelenmek gelecekte olabilecek sorunları engellemeye yardımcı olur | 1 | 2 | 3 | 4 |
| 2. Endişelerim benim için tehlikelidir | 1 | 2 | 3 | 4 |
| 3. Düşüncelerim hakkında çok düşünürüm | 1 | 2 | 3 | 4 |
| 4. Endişelenerek kendi kendimi hasta edebilirim | 1 | 2 | 3 | 4 |
| 5. Bir sorun üzerinde düşündüğüm esnada, zihnimin nasıl çalıştığının farkında olurum | 1 | 2 | 3 | 4 |
| 6. Endişe verici bir düşünceyi kontrol altına almazsam, ve sonra bu düşüncem gerçekleşirse, bu benim hatam olur | 1 | 2 | 3 | 4 |

| | Katılmıyorum | Biraz katılıyorum | Oldukça katılıyorum | Tamamen katılıyorum |
|---|--------------|-------------------|---------------------|---------------------|
| 7. Planlı kalabilmek için endişelenmem gerekir | 1 | 2 | 3 | 4 |
| 8. Kelime ve isimlerle ilgili hafızama güvenim azdır | 1 | 2 | 3 | 4 |
| 9. Durdurmak için ne kadar uğraşsam da, endişe verici düşüncelerim devam eder | 1 | 2 | 3 | 4 |
| 10. Endişelenmek işleri zihnimde bir düzene koymama yardımcı olur | 1 | 2 | 3 | 4 |
| 11. Endişe verici düşüncelerimi görmezden gelmek elimde değildir | 1 | 2 | 3 | 4 |
| 12. Düşüncelerimi izler, takip altında tutarım | 1 | 2 | 3 | 4 |
| 13. Düşüncelerimi her zaman kontrolüm altında tutabilmem gerekir | 1 | 2 | 3 | 4 |
| 14. Hafızam beni zaman zaman yanıltabilir | 1 | 2 | 3 | 4 |
| 15. Endişelerim beni deliye döndürebilir | 1 | 2 | 3 | 4 |
| 16. Düşüncelerimin sürekli farkındayım | 1 | 2 | 3 | 4 |

| | Katılmıyorum | Biraz katılıyorum | Oldukça katılıyorum | Tamamen katılıyorum |
|---|--------------|-------------------|---------------------|---------------------|
| 17. Hafızam zayıftır | 1 | 2 | 3 | 4 |
| 18. Zihnimin nasıl çalıştığına çok dikkat ederim | 1 | 2 | 3 | 4 |
| 19. Endişelenmek yaşadıklarımın başatmeme yardımcı olur | 1 | 2 | 3 | 4 |
| 20. Düşüncelerimi kontrol altına alamamak bir zayıflık işaretidir | 1 | 2 | 3 | 4 |
| 21. Endişelenmeye başladığımda, bunu durduramam | 1 | 2 | 3 | 4 |
| 22. Bazı düşünceleri kontrol altına almadığım için cezalandırılacağım | 1 | 2 | 3 | 4 |
| 23. Endişelenmek sorunları çözmeme yardımcı olur | 1 | 2 | 3 | 4 |
| 24. Yerlerle ilgili hafızama güvenim azdır | 1 | 2 | 3 | 4 |
| 25. Bazı düşünceleri akıldan geçirmek kötüdür | 1 | 2 | 3 | 4 |
| 24. Yerlerle ilgili hafızama güvenim azdır | 1 | 2 | 3 | 4 |
| 25. Bazı düşünceleri akıldan geçirmek kötüdür | 1 | 2 | 3 | 4 |

| | Katılmıyorum | Biraz katılıyorum | Oldukça katılıyorum | Tamamen katılıyorum |
|---|--------------|-------------------|---------------------|---------------------|
| 26. Hafızama güvenmem | 1 | 2 | 3 | 4 |
| 27. Düşüncelerimi kontrol altına alamazsam, iş göremez hale gelirim | 1 | 2 | 3 | 4 |
| 28. İyi çalışmak için, endişelenmem gerekir | 1 | 2 | 3 | 4 |
| 29. Olaylarla ilgili hafızama güvenim azdır | 1 | 2 | 3 | 4 |
| 30. Düşüncelerimi sürekli incelerim | 1 | 2 | 3 | 4 |

APPENDIX C

**TURKISH VERSION OF THE PADUA INVENTORY-WASHINGTON
STATE UNIVERSITY REVISION**

Aşağıdaki ifadeler, günlük hayatta herkesin karşılaşabileceği düşünce ve davranışlar ile ilgilidir. Her bir ifade için, bu tür düşünce ve davranışların sizde yaratacağı rahatsızlık düzeyini göz önüne alarak size en uygun olan cevabı seçiniz. Cevaplarınızı aşağıdaki gibi derecelendiriniz:

0 = Hiç 1 = Biraz 2 = Oldukça 3 = Çok 4 = Çok Fazla

| | Hiç | Biraz | Oldukça | Çok | Çok fazla |
|--|-----|-------|---------|-----|-----------|
| 1. Paraya dokunduğum zaman ellerimin kirlendiğini hissederim | 0 | 1 | 2 | 3 | 4 |
| 2. Vücut sıvıları (ter, tükürük, idrar gibi) ile en ufak bir temasın bile giysilerimi kirleteceğini ve bir şekilde bana zarar vereceğini düşünürüm | 0 | 1 | 2 | 3 | 4 |
| 3. Bir nesneye yabancıların yada bazı kimselerin dokunduğunu biliyorsam, ona dokunmakta zorlanırım | 0 | 1 | 2 | 3 | 4 |
| 4. Çöplere veya kirli şeylere dokunmakta zorlanırım | 0 | 1 | 2 | 3 | 4 |
| 5. Kirlenmekten ya da hastalanmaktan korktuğum için umumi tuvaletleri kullanmaktan kaçınırım. | 0 | 1 | 2 | 3 | 4 |
| 6. Hastalıklardan veya kirlenmekten korktuğum için umumi telefonları kullanmaktan kaçınırım | 0 | 1 | 2 | 3 | 4 |
| 7. Ellerimi gerektiğinden daha sık ve daha uzun süre yıkarım | 0 | 1 | 2 | 3 | 4 |
| 8. Bazen kendimi, sırf kirlenmiş olabileceğim ya da pis olduğum düşüncesiyle yıkanmak ya da temizlenmek zorunda hissediyorum | 0 | 1 | 2 | 3 | 4 |

| | Hiç | Biraz | Orduka | Çok | Çok fazla |
|---|-----|-------|--------|-----|-----------|
| 9. Mikrop bulaşmış veya kirli olduğunu düşündüğüm bir şeye dokunursam hemen yıkanmam veya temizlenmem gerekir | 0 | 1 | 2 | 3 | 4 |
| 10. Bir hayvan bana değerse kendimi kirli hissedirim ve hemen yıkanmam yada elbiselerimi değiştirmem gerekir | 0 | 1 | 2 | 3 | 4 |
| 11. Giyinirken, soyunurken ve yıkanırken kendimi belirli bir sıra izlemek zorunda hissedirim | 0 | 1 | 2 | 3 | 4 |
| 12. Uyumadan önce bazı şeyleri belli bir sırayla yapmak zorundayım | 0 | 1 | 2 | 3 | 4 |
| 13. Yatmadan önce, kıyafetlerimi özel bir şekilde asmalı ya da katlamalıyım | 0 | 1 | 2 | 3 | 4 |
| 14. Doğru dürüst yapıldığını düşünebilmem için yaptıklarımı bir kaç kez tekrarlamam gerekir | 0 | 1 | 2 | 3 | 4 |
| 15. Bazı şeyleri gereğinden daha sık kontrol etme eğilimindeyim | 0 | 1 | 2 | 3 | 4 |
| 16. Gaz ve su musluklarını, elektrik düğmelerini kapattıktan sonra tekrar tekrar kontrol ederim | 0 | 1 | 2 | 3 | 4 |
| 17. Düzgün kapatılıp kapatılmadıklarından emin olmak için eve dönüp kapıları, pencereleri ve çekmeceleri kontrol ederim | 0 | 1 | 2 | 3 | 4 |
| 18. Doğru doldurduğumdan emin olmak için formları, evrakları ve çekleri ayrıntılı olarak tekrar tekrar kontrol ederim | 0 | 1 | 2 | 3 | 4 |
| 19. Kibrit, sigara vb'nin iyice söndürüldüğünü görmek için sürekli geri dönerim | 0 | 1 | 2 | 3 | 4 |
| 20. Elime para aldığım zaman birkaç kez tekrar sayarım | 0 | 1 | 2 | 3 | 4 |
| 21. Mektupları postalamadan önce bir çok kez dikkatlice kontrol ederim | 0 | 1 | 2 | 3 | 4 |

| | Hiç | Biraz | Oldukça | Çok | Çok fazla |
|--|-----|-------|---------|-----|-----------|
| 22. Aslında yaptığımı bildiğim halde, bazen yapmış olduğumdan emin olamam | 0 | 1 | 2 | 3 | 4 |
| 23. Okurken, önemli birşeyi kaçırdığımdan dolayı geri dönmem, ve aynı pasajı iki veya üç kez okumam gerektiği izlenimine kapılırim | 0 | 1 | 2 | 3 | 4 |
| 24. Dalgınlığımın ve yaptığım küçük hataların felaketle sonuçlanacağını hayal ederim | 0 | 1 | 2 | 3 | 4 |
| 25. Bilmeden birini incittiğim konusunda çok fazla düşünürüm veya endişelenirim | 0 | 1 | 2 | 3 | 4 |
| 26. Bir felaket olduğunu duyduğum zaman onun bir şekilde benim hatam olduğunu düşünürüm | 0 | 1 | 2 | 3 | 4 |
| 27. Bazen sebepsiz yere kendime zarar verdiğime veya bir hastalığım olduğuna dair fazlaca endişelenirim | 0 | 1 | 2 | 3 | 4 |
| 28. Bıçak, hançer ve diğer sivri uçlu nesnelere gördüğümde rahatsız olur ve endişelenirim | 0 | 1 | 2 | 3 | 4 |
| 29. Bir intihar veya cinayet vakası duyduğumda, uzun süre üzülür ve bu konuda düşünmekten kendimi alamam | 0 | 1 | 2 | 3 | 4 |
| 30. Mikroplar ve hastalıklar konusunda gereksiz endişeler yaratırım | 0 | 1 | 2 | 3 | 4 |
| 31. Bir köprüden veya çok yüksek bir pencereden aşağı baktığımda kendimi boşluğa atmak için bir dürtü hissedirim | 0 | 1 | 2 | 3 | 4 |
| 32. Yaklaşmakta olan bir tren gördüğümde, bazen kendimi trenin altına atabileceğimi düşünürüm | 0 | 1 | 2 | 3 | 4 |
| 33. Bazı belirli anlarda umuma açık yerlerde kıyafetlerimi yırtmak için aşırı bir istek duyarım | 0 | 1 | 2 | 3 | 4 |
| 34. Araba kullanırken, bazen arabayı birinin veya bir şeyin üzerine sürme dürtüsü duyarım | 0 | 1 | 2 | 3 | 4 |

| | Hiç | Biraz | Oldukça | Çok | Çok fazla |
|---|-----|-------|---------|-----|-----------|
| 35. Silah görmek beni heyecanlandırır ve şiddet içeren düşünceleri aklıma getirir | 0 | 1 | 2 | 3 | 4 |
| 36. Bazen hiçbir neden yokken birşeyleri kırma ve zarar verme ihtiyacı hissedirim | 0 | 1 | 2 | 3 | 4 |
| 37. Bazen işime yaramasa da, başkalarına ait olan şeyleri çalma dürtüsü hissedirim | 0 | 1 | 2 | 3 | 4 |
| 38. Bazen süpermarketten bir şey çalmak için karşı konulmaz bir istek duyarım | 0 | 1 | 2 | 3 | 4 |
| 39. Bazen savunmasız çocuklara ve hayvanlara zarar vermek için bir dürtü hissedirim | 0 | 1 | 2 | 3 | 4 |

APPENDIX D

**TURKISH VERSION OF THE STATE-TRAIT ANXIETY INVENTORY-
TRAIT FORM**

Aşağıda kişilerin kendilerine ait duygularını anlatmada kullandıkları bir takım ifadeler verilmiştir. Her ifadeyi dikkatlice okuyun, sonra da **genel olarak** nasıl hissettiğinizi, ifadelerin sağ tarafındaki rakamlardan uygun olanını işaretlemek suretiyle belirtin. Doğru yada yanlış cevap yoktur. Herhangi bir ifadenin üzerinde fazla zaman sarf etmeksizin, **genel olarak** nasıl hissettiğinizi gösteren cevabı işaretleyin.

| | Hiç | Biraz | Çok | Tamamiyle |
|--|-----|-------|-----|-----------|
| 1. Genellikle keyfim yerindedir. | 1 | 2 | 3 | 4 |
| 2. Genellikle çabuk yorulurum. | 1 | 2 | 3 | 4 |
| 3. Genellikle kolay ağlarım. | 1 | 2 | 3 | 4 |
| 4. Başkaları kadar mutlu olmak isterim. | 1 | 2 | 3 | 4 |
| 5. Çabuk karar veremediğim için fırsatları kaçıırım. | 1 | 2 | 3 | 4 |
| 6. Kendimi dinlenmiş hissederim. | 1 | 2 | 3 | 4 |
| 7. Genellikle sakin, kendime hakim ve soğukkanlıyım. | 1 | 2 | 3 | 4 |
| 8. Güçlüklerin yenemeyeceğim kadar biriktiğini hissederim. | 1 | 2 | 3 | 4 |
| 9. Önemsiz şeyler hakkında endişelenirim. | 1 | 2 | 3 | 4 |
| 10. Genellikle mutluyum. | 1 | 2 | 3 | 4 |
| 11. Her şeyi ciddiye alır ve etkilenirim. | 1 | 2 | 3 | 4 |

| | Hiç | Biraz | Çok | Tamamiyle |
|--|-----|-------|-----|-----------|
| 12. Genellikle kendime güvenim yoktur. | 1 | 2 | 3 | 4 |
| 13. Genellikle kendimi emniyette hissedirim. | 1 | 2 | 3 | 4 |
| 14. Sıkıntılı ve güç durumlarla karşılaşmaktan kaçınırım. | 1 | 2 | 3 | 4 |
| 15. Genellikle kendimi hüzünlü hissedirim. | 1 | 2 | 3 | 4 |
| 16. Genellikle hayatımdan memnunum. | 1 | 2 | 3 | 4 |
| 17. Olur olmaz düşünceler beni rahatsız eder. | 1 | 2 | 3 | 4 |
| 18. Hayal kırıklıklarını öylesine ciddiye alırım ki hiç unutmam. | 1 | 2 | 3 | 4 |
| 19. Aklı başında ve kararlı bir insanım. | 1 | 2 | 3 | 4 |
| 20. Son zamanlarda kafama takılan konular beni tedirgin eder. | 1 | 2 | 3 | 4 |

APPENDIX E

TURKISH VERSION OF THE BECK ANXIETY INVENTORY

Aşağıda insanların kaygılı ya da endişeli oldukları zamanlarda yaşadıkları bazı belirtiler verilmiştir. Lütfen her maddeyi dikkatle okuyunuz. Daha sonra, her maddedeki belirtinin (bugün dahil) son bir haftadır sizi ne kadar rahatsız ettiğini aşağıdaki ölçekten yararlanarak maddelerin yanındaki cevabı yuvarlak içine alarak belirleyiniz.

| 0. Hiç | 1. Hafif derecede | 2. Orta derecede | 3. Ciddi derecede | |
|--------|-------------------|------------------|-------------------|--|
| | | | | Sizi ne kadar rahatsız etti? |
| | | | | 1. Bedeninizin herhangi bir yerinde uyuşma veya karıncalanma.....0.....1.....2.....3 |
| | | | | 2. Sıcak / ateş basmaları0.....1.....2.....3 |
| | | | | 3. Bacaklarda halsizlik, titreme0.....1.....2.....3 |
| | | | | 4. Gevşeyememe.....0.....1.....2.....3 |
| | | | | 5. Çok kötü şeyler olacak korkusu.....0.....1.....2.....3 |
| | | | | 6. Baş dönmesi veya sersemlik.....0.....1.....2.....3 |
| | | | | 7. Kalp çarpıntısı.....0.....1.....2.....3 |
| | | | | 8. Dengeyi kaybetme duygusu0.....1.....2.....3 |
| | | | | 9. Dehşete kapılma.....0.....1.....2.....3 |
| | | | | 10. Sinirlilik.....0.....1.....2.....3 |
| | | | | 11. Boğuluyormuş gibi olma duygusu0.....1.....2.....3 |
| | | | | 12. Ellerde titreme0.....1.....2.....3 |
| | | | | 13. Titreklik.....0.....1.....2.....3 |
| | | | | 14. Kontrolü kaybetme korkusu0.....1.....2.....3 |
| | | | | 15. Nefes almada güçlük.....0.....1.....2.....3 |
| | | | | 16. Ölüm korkusu0.....1.....2.....3 |
| | | | | 17. Korkuya kapılma.....0.....1.....2.....3 |
| | | | | 18. Midede hazımsızlık ya da rahatsızlık hissi.....0.....1.....2.....3 |
| | | | | 19. Baygınlık0.....1.....2.....3 |
| | | | | 20. Yüzün kızarması0.....1.....2.....3 |
| | | | | 21. Terleme (sıcağa bağlı olmayan).....0.....1.....2.....3 |

APPENDIX F**TURKISH VERSION OF THE BECK DEPRESSION INVENTORY**

Aşağıda, kişilerin ruh durumlarını ifade ederken kullandıkları bazı cümleler verilmiştir. Her madde, bir çeşit ruh durumunu anlatmaktadır. Her maddede o duygu durumunun derecesini belirleyen 4 seçenek vardır. Lütfen bu seçenekleri dikkatlice okuyunuz. Son bir hafta içindeki (şu an dahil) kendi duygu durumunuzu göz önünde bulundurarak, size uygun olan ifadeyi bulunuz. Daha sonra, o madde numarasının karşısında, size uygun ifadeye karşılık gelen seçeneği bulup işaretleyiniz.

1. a) Kendimi üzgün hissetmiyorum.
b) Kendimi üzgün hissediyorum.
c) Her zaman için üzgünüm ve kendimi bu duygudan kurtaramıyorum.
d) Öylesine üzgün ve mutsuzum ki dayanamıyorum.
2. a) Gelecekte umutsuz değilim.
b) Geleceğe biraz umutsuz bakıyorum.
c) Gelecekte beklediğim hiçbir şey yok.
d) Benim için bir gelecek yok ve bu durum düzelmeyecek.
3. a) Kendimi başarısız görmüyorum.
b) Çevremdeki birçok kişiden daha fazla başarısızlıklarım oldu sayılır.
c) Geriye dönüp baktığımda, çok fazla başarısızlığımın olduğunu görüyorum.
d) Kendimi tümüyle başarısız bir insan olarak görüyorum.
4. a) Herşeyden eskisi kadar zevk alabiliyorum.
b) Herşeyden eskisi kadar zevk alamıyorum.
c) Artık hiçbirşeyden gerçek bir zevk alamıyorum.
d) Bana zevk veren hiçbir şey yok. Herşey çok sıkıcı.

5. a) Kendimi suçlu hissetmiyorum.
b) Arada bir kendimi suçlu hissettiğim oluyor.
c) Kendimi çoğunlukla suçlu hissediyorum.
d) Kendimi her an için suçlu hissediyorum.
6. a) Cezalandırıldığımı düşünmüyorum.
b) Bazı şeyler için cezalandırılabileceğimi hissediyorum.
c) Cezalandırılmayı bekliyorum.
d) Cezalandırıldığımı hissediyorum.
7. a) Kendimden hoşnutum.
b) Kendimden pek hoşnut değilim.
c) Kendimden hiç hoşlanmıyorum.
d) Kendimden nefret ediyorum.
8. a) Kendimi diğer insanlardan daha kötü görmüyorum.
b) Kendimi zayıflıklarım ve hatalarım için eleştiriyorum.
c) Kendimi hatalarım için her zaman suçluyorum.
d) Her kötü olayda kendimi suçluyorum.
9. a) Kendimi öldürmek gibi düşüncelerim yok.
b) Bazen kendimi öldürmeyi düşünüyorum fakat bunu yapamam.
c) Kendimi öldürebilmeyi isterdim.
d) Bir fırsatını bulursam kendimi öldürürdüm.
10. a) Her zamankinden daha fazla ağladığımı sanmıyorum.
b) Eskisine göre şu sıralarda daha fazla ağlıyorum.
c) Şu sıralar her an ağlıyorum.
d) Eskiden ağlayabilirdim, ama şu sıralarda istesem de ağlayamıyorum.
11. a) Her zamankinden daha sinirli değilim.
b) Her zamankinden daha kolayca sinirleniyor ve kızıyorum.
c) Çoğu zaman sinirliyim.
d) Eskiden sinirlendiğim şeylere bile artık sinirlenemiyorum.

12. a) Diğer insanlara karşı ilgimi kaybetmedim.
b) Eskisine göre insanlarla daha az ilgiliyim.
c) Diğer insanlara karşı ilgimin çoğunu kaybettim.
d) Diğer insanlara karşı hiç ilgim kalmadı.
13. a) Kararlarımı eskisi kadar kolay ve rahat verebiliyorum.
b) Şu sıralarda kararlarımı vermeyi erteliyorum.
c) Kararlarımı vermekte oldukça güçlük çekiyorum.
d) Artık hiç karar veremiyorum.
14. a) Dış görünüşümün eskisinden daha kötü olduğunu sanmıyorum.
b) Yaşlandığımı ve çekiciliğimi kaybettiğimi düşünüyorum ve üzülüyorum.
c) Dış görünüşümde artık değiştirilmesi mümkün olmayan olumsuz değişiklikler olduğunu hissediyorum.
d) Çok çirkin olduğumu düşünüyorum.
15. a) Eskisi kadar iyi çalışabiliyorum.
b) Bir işe başlayabilmek için eskisine göre kendimi daha fazla zorlamam gerekiyor.
c) Hangi iş olursa olsun, yapabilmek için kendimi çok zorluyorum.
d) Hiçbir iş yapamıyorum.
16. a) Eskisi kadar rahat uyuyabiliyorum.
b) Şu sıralar eskisi kadar rahat uyuyamıyorum.
c) Eskisine göre 1 veya 2 saat erken uyanıyor ve tekrar uyumakta zorluk çekiyorum.
d) Eskisine göre çok erken uyanıyor ve tekrar uyuyamıyorum.
17. a) Eskisine kıyasla daha çabuk yorulduğumu sanmıyorum.
b) Eskisinden daha çabuk yoruluyorum.
c) Şu sıralarda neredeyse herşey beni yoruyor.
d) Öyle yorgunum ki hiçbir şey yapamıyorum.
18. a) İştahım eskisinden pek farklı değil.
b) İştahım eskisi kadar iyi değil.
c) Şu sıralarda iştahım epey kötü.
d) Artık hiç iştahım yok.

19. a) Son zamanlarda pek fazla kilo kaybettiğimi sanmıyorum.
b) Son zamanlarda istemediğim halde üç kilodan fazla kaybettim.
c) Son zamanlarda beş kilodan fazla kaybettim.
d) Son zamanlarda yedi kilodan fazla kaybettim.
- Daha az yiyerek kilo kaybetmeye çalışıyorum. EVET () HAYIR () –
20. a) Sağlığım beni pek endişelendirmiyor.
b) Son zamanlarda ağrı, sızı, mide bozukluğu, kabızlık gibi sorunlarım var.
c) Ağrı, sızı gibi bu sıkıntılarım beni epey endişelendirdiği için başka şeyleri düşünmek zor geliyor.
d) Bu tür sıkıntılar beni öylesine endişelendiriyor ki, artık başka birşey düşünemiyorum.
21. a) Son zamanlarda cinsel yaşantımda dikkatimi çeken birşey yok.
b) Eskisine göre cinsel konularla daha az ilgileniyorum.
c) Şu sıralarda cinsellikle pek ilgili değilim.
d) Artık, cinsellikle hiçbir ilgim kalmadı.

APPENDIX G

TURKISH VERSION OF THE COGNITION CHECKLIST

Aşağıda çeşitli düşünceler sıralanmıştır. Geçtiğimiz hafta içerisinde, bu düşüncelerin ne kadar sıklıkla aklınızdan geçtiğini, aşağıdaki puanları kullanarak cümlelerin yanlarındaki boş yerlerde (puanları daire içine alarak) belirtiniz.

Geçen hafta, bu düşünce ne kadar sıklıkla aklınızdan geçti?

0 = Hiç 1 = Nadiren 2 = Bazen 3 = Çoğunlukla 4 = Her zaman

- | | | | | | |
|--|---|---|---|---|---|
| 1. Sosyal yönden başarısızım. _____ | 0 | 1 | 2 | 3 | 4 |
| 2. Hiçbir zaman başkaları kadar iyi olamayacağım. _____ | 0 | 1 | 2 | 3 | 4 |
| 3. Artık insanlar bana saygı duymuyor. _____ | 0 | 1 | 2 | 3 | 4 |
| 4. Yaşamam veya ölmem kimsenin umrunda değil. _____ | 0 | 1 | 2 | 3 | 4 |
| 5. Başkalarından daha kötü durumdayım. _____ | 0 | 1 | 2 | 3 | 4 |
| 6. Sevilmeyi haketmiyorum. _____ | 0 | 1 | 2 | 3 | 4 |
| 7. Sahip olduğum yegane arkadaşlarımı kaybettim. _____ | 0 | 1 | 2 | 3 | 4 |
| 8. Diğer insanların ilgisine ve sevgisine layık değilim. _____ | 0 | 1 | 2 | 3 | 4 |
| 9. Bana yardım edecek hiçkimse kalmadı. _____ | 0 | 1 | 2 | 3 | 4 |
| 10. Ya hasta olup sakat kalırsam? _____ | 0 | 1 | 2 | 3 | 4 |
| 11. Görünüşümü mahvedecek birşey olabilir. _____ | 0 | 1 | 2 | 3 | 4 |
| 12. Yaralanacağım. _____ | 0 | 1 | 2 | 3 | 4 |
| 13. Ya hiç kimse yardımına zamanında koşamazsa? _____ | 0 | 1 | 2 | 3 | 4 |
| 14. Başıma bir kaza gelecek. _____ | 0 | 1 | 2 | 3 | 4 |
| 15. Köşeye sıkıştırılabilirim. _____ | 0 | 1 | 2 | 3 | 4 |
| 16. Sağlıklı bir insan değilim. _____ | 0 | 1 | 2 | 3 | 4 |
| 17. Bende bir tuhafılık var. _____ | 0 | 1 | 2 | 3 | 4 |
| 18. Hayat yaşamaya değmez. _____ | 0 | 1 | 2 | 3 | 4 |
| 19. Ben değersizim. _____ | 0 | 1 | 2 | 3 | 4 |
| 20. Fiziksel çekiciliğimi kaybettim. _____ | 0 | 1 | 2 | 3 | 4 |

Geçen hafta, bu düşünce ne kadar sıklıkla aklınızdan geçti?

0 = Hiç 1 = Nadiren 2 = Bazen 3 = Çoğunlukla 4 = Her zaman

- | | | | | | |
|---|---|---|---|---|---|
| 21. Hiçbir zaman sorunlarımın üstesinden gelemeyeceğim. | 0 | 1 | 2 | 3 | 4 |
| 22. Çok kötü birşey olacak. | 0 | 1 | 2 | 3 | 4 |
| 23. Kalp krizi geçireceğim. | 0 | 1 | 2 | 3 | 4 |
| 24. Aklımı kaçıyorum. | 0 | 1 | 2 | 3 | 4 |
| 25. Sevdiğim birine birşey olacak. | 0 | 1 | 2 | 3 | 4 |
| 26. Hiçbir işim yolunda gitmez. | 0 | 1 | 2 | 3 | 4 |

APPENDIX H

TURKISH VERSION OF THE LIFE EXPERIENCES SURVEY

Aşağıdaki listede kişilerin hayatına değişiklik getiren ve yeniden sosyal uyum sağlamayı gerektiren bazı olaylar bulunmaktadır. Lütfen son bir yıl içerisinde başınızdan geçen her olay için bu olayın başınızdan hangi zaman dilimi içinde geçtiğini (son 0-6 ay veya 7 ay-1 yıl) işaretleyiniz. Eğer bu olay son bir yıl içinde başınızdan geçmediyse olmadı seçeneğine bir işaret koyunuz.

Ayrıca, başınızdan geçen her olayın, meydana geldiği sırada hayatınıza ne derece olumlu veya olumsuz bir etki yaptığını düşündüğünüzü ilgili rakamı daire içine alarak belirleyiniz. (-3) değerinde bir derecelendirme olayın çok olumsuz bir etkisi olduğu, (0) değerinde bir derecelendirme olayın olumlu veya olumsuz hiçbir etkisi olmadığı, (+3) değerinde bir dereceleme ise olayın çok olumlu bir etkisi olduğu anlamına gelmektedir.

1. Bölüm

| | SON 1 YILDA BU OLAY: | | | OLAYIN, MEYDANA GELDİĞİ SIRADA HAYATINIZA ETKİSİ: | | | | | | |
|--|----------------------|--------|------------|---|-----------------|------------|---------|-----------|----------------|------------|
| | OLMADI | OLDU | | Çok olumsuz | Oldukça olumsuz | Az olumsuz | Etkisiz | Az olumlu | Oldukça olumlu | Çok olumlu |
| | | 0-6 ay | 7 ay-1 yıl | | | | | | | |
| 1. Evlilik | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 2. Hapishanede tutuklu kalma | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 3. Eşin ölümü | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 4. Uyku alışkanlığında önemli değişimler (daha fazla veya daha az uyuma) | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |

| | SON 1 YILDA BU OLAY: | | | OLAYIN, MEYDANA GELDİĞİ SIRADA HAYATINIZA ETKİSİ: | | | | | | |
|---|-------------------------|--------|------------|--|-----------------|------------|---------|-----------|----------------|------------|
| | OLMADI | OLDU | | Çok olumsuz | Oldukça olumsuz | Az olumsuz | Etkisiz | Az olumlu | Oldukça olumlu | Çok olumlu |
| | | 0-6 ay | 7 ay-1 yıl | | | | | | | |
| 5. Yakın bir aile üyesinin ölümü: | | | | | | | | | | |
| a. Anne | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| b. Baba | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| c. Erkek kardeş | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| d. Kız kardeş | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| e. Büyükanne | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| f. Büyükbaba | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| g. Diğerleri (belirtiniz)..... | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 6. Yemek alışkanlıklarında önemli değişimler (daha fazla veya daha az yemek yeme) | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 7. Borç ya da ipoteğin haczedilmesi | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 8. Yakın bir arkadaşın ölümü | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 9. Önemli bir kişisel başarı | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 10. Küçük çapta kanun ihlalleri (trafik, vergi cezaları vb.) | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 11. Erkek için: Karısının/kız arkadaşının (flörtünün) hamile kalması | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 12. Kadın için: Hamile kalma | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |

| | SON 1 YILDA BU OLAY: | | OLAYIN, MEYDANA GELDİĞİ SIRADA HAYATINIZA ETKİSİ: | | | | | | | |
|--|-------------------------|--------|--|-------------|-----------------|------------|---------|-----------|----------------|------------|
| | OLMADI | OLDU | | Çok olumsuz | Oldukça olumsuz | Az olumsuz | Etkisiz | Az olumlu | Oldukça olumlu | Çok olumlu |
| | | 0-6 ay | 7 ay-1 yıl | | | | | | | |
| 13. İş durumunda değişiklik (farklı iş sorumluluğu, iş şartlarında, iş saatlerinde vs. değişiklikler) | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 14. Yeni bir işe girme | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 15. Yakın aile üyelerinden birinin ciddi bir hastalığa yakalanmış olması, kaza geçirmesi, yaralanması, sakatlanması: | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| a. Baba | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| b. Anne | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| c. Kız kardeş | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| d. Erkek kardeş | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| e. Büyükbaba | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| f. Büyükanne | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| g. Eş | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| h. Diğerleri (belirtiniz) | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 16. Cinsel sorunlar | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 17. İşverenle anlaşmazlık (işini kaybetme tehlikesi, çalışma koşullarında olanakların kısıtlanması, terfi edememe) | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 18. Kayınvalide, kayınpeder, kayınbirader veya görümce ile anlaşmazlık | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |

| | SON 1 YILDA BU OLAY: | | OLAYIN, MEYDANA GELDİĞİ SIRADA HAYATINIZA ETKİSİ: | | | | | | | |
|--|-------------------------|--------|--|-------------|-----------------|------------|---------|-----------|----------------|------------|
| | OLMADI | OLDU | | Çok olumsuz | Oldukça olumsuz | Az olumsuz | Etkisiz | Az olumlu | Oldukça olumlu | Çok olumlu |
| | | 0-6 ay | 7 ay-1 yıl | | | | | | | |
| 19. Maddi olanaklarda önemli değişimler (daha iyi maddi olanaklara sahip olmak veya maddi durumun bozulması) | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 20. Aile üyelerinin yakın ilişkilerinde önemli değişimler (yakınlığın azalması veya çoğalması) | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 21. Aileye yeni bir üyenin katılması (doğum, evlat edinme, akrabalarından biri, vs.) | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 22. İkametgah değişikliği | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 23. Anlaşmazlık nedeni ile eşlerin birbirlerinden ayrı yaşamaları | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 24. Namaz kılma, camiye gitme, kuran okuma, oruç tutma, vb. gibi dini faaliyetlerde önemli değişimler (bu faaliyetlerin artması veya azalması) | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 25. Eşlerin tekrar birleşmesi | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 26. Karı-koca tartışmalarının sayısında önemli değişimler (daha çok veya daha az tartışma) | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |

| | SON 1 YILDA BU OLAY: | | OLAYIN, MEYDANA GELDİĞİ SIRADA HAYATINIZA ETKİSİ: | | | | | | | |
|---|-------------------------|--------|--|-------------|-----------------|------------|---------|-----------|----------------|------------|
| | OLMADI | OLDU | | Çok olumsuz | Oldukça olumsuz | Az olumsuz | Etkisiz | Az olumlu | Oldukça olumlu | Çok olumlu |
| | | 0-6 ay | 7 ay-1 yıl | | | | | | | |
| 27. Evli erkek için: Evin dışında karısının işindeki değişiklik (çalışmaya başlaması, işini bırakması, yeni bir işe girmesi, vs.) | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 28. Evli kadın için: Kocasının işindeki değişiklikler (işini kaybetmesi, yeni bir işe başlaması, emeklilik, vs.) | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 29. Eğlenme ve dinlenme faaliyetlerinin türünde ve miktarında önemli değişimler | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 30. 10.000 YTL (10 milyar TL) den fazla borç alma veya yatırım yapma (ev almak, iş kurmak vb. için) | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 31. 10.000 YTL (10 milyar TL) den az borç alma (araba almak, ev eşyası almak, kira, okul, ev veya yurt masrafları, vb. için) | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 32. İşten çıkarılma | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 33. Erkek için: Karısının/kız arkadaşının çocuk aldırması | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 34. Kadın için: Çocuk aldırma | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 35. Kişinin kendisinin ciddi bir hastalığa yakalanmış olması, kaza geçirmesi, yaralanması veya sakatlanması | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |

| | SON 1 YILDA BU OLAY: | | OLAYIN, MEYDANA GELDİĞİ SIRADA HAYATINIZA ETKİSİ: | | | | | | | |
|---|-------------------------|--------|--|-------------|-----------------|------------|---------|-----------|----------------|------------|
| | OLMADI | OLDU | | Çok olumsuz | Oldukça olumsuz | Az olumsuz | Etkisiz | Az olumlu | Oldukça olumlu | Çok olumlu |
| | | 0-6 ay | 7 ay-1 yıl | | | | | | | |
| 36. Sosyal faaliyetlerde önemli değişimler (örneğin; parti, sinema, arkadaş ziyaretleri gibi faaliyetlere katılmada azalma veya artma) | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 37. Ailenin yaşama şartlarında önemli değişimler (yeni ev yaptırma, evin tamir edilmesi ya da yeniden döşenmesi veya semtin, komşuların değişmesi, vb.) | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 38. Boşanma | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 39. Yakın bir arkadaşın kaza geçirmesi, yaralanması, sakatlanması veya ciddi bir hastalığa yakalanmış olması | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 40. Emekliye ayrılma | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 41. Kız veya erkek çocuğunun, evladın evden ayrılması (evlenme, okula gitme vb. nedeniyle) | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 42. Okulu bitirme | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 43. Geçici bir süre için eşten ayrı kalma (iş, seyahat, vs. nedeniyle) | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 44. Nişanlanma | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |

| | SON 1 YILDA BU OLAY: | | OLAYIN, MEYDANA GELDİĞİ SIRADA HAYATINIZA ETKİSİ: | | | | | | | |
|--|-------------------------|--------|--|-------------|-----------------|------------|---------|-----------|----------------|------------|
| | OLMADI | OLDU | | Çok olumsuz | Oldukça olumsuz | Az olumsuz | Etkisiz | Az olumlu | Oldukça olumlu | Çok olumlu |
| | | 0-6 ay | 7 ay-1 yıl | | | | | | | |
| 45. Kız/erkek arkadaşla (flörtle) ilişkinin bozulması | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 46. Evden ilk defa ayrılma | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 47. Kız/erkek arkadaş (flört) ile barışma, tekrar bir araya gelme | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| Hayatınızı etkilemiş olan başka olaylar varsa, yazınız ve derecelendiriniz: | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 48..... | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 49..... | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 50..... | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |

2. Bölüm: Bu bölüm sadece öğrenciler içindir

| | SON 1 YILDA BU OLAY: | | | OLAYIN, MEYDANA GELDİĞİ SIRADA HAYATINIZA ETKİSİ: | | | | | | |
|--|-------------------------|--------|------------|--|-----------------|------------|---------|-----------|----------------|------------|
| | OLMADI | OLDU | | Çok olumsuz | Oldukça olumsuz | Az olumsuz | Etkisiz | Az olumlu | Oldukça olumlu | Çok olumlu |
| | | 0-6 ay | 7 ay-1 yıl | | | | | | | |
| 51. Üniversite eğitime başlama (lisans, yüksek lisans, vb.) | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 52. Üniversite değiştirme (lisans, yüksek lisans, vb. sırasında) | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 53. Akademik başarısızlık nedeniyle okuldan atılma tehlikesinin olması | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 54. Yurttan veya oturlan evden atılma | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 55. Önemli bir sınavda başarısız olma | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 56. Bölüm/alan değiştirme | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 57. Bir derste başarısız olma | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 58. Bir dersi bırakma, üzerinden düşürme | | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |

APPENDIX I

TURKISH VERSION OF THE INVENTORY OF COLLEGE STUDENTS RECENT LIFE EXPERIENCES

Aşağıda pekçok öğrencinin zaman zaman başından geçebilecek yaşantıların bir listesi verilmiştir. Lütfen her bir yaşantının geçen ay boyunca yaşamınızın ne derece bir parçası olduğunu belirtiniz. Eğer bu yaşantı geçen ay boyunca sizin yaşamınızın bir parçası hiç olmamışsa “1”, yaşamınızın sadece küçük bir parçası olmuşsa “2”, oldukça büyük bir parçası olmuşsa “3” ve çok büyük bir parçası olmuşsa “4” rakamını daire içine alınız.

Bu yaşantının geçen ay boyunca ne derece yoğun olduğu;

- 1 = yaşamımın bir parçası hiç olmadı
- 2 = yaşamımın sadece küçük bir parçası oldu
- 3 = yaşamımın oldukça büyük bir parçası oldu
- 4 = yaşamımın çok büyük bir parçası oldu

| | | | | |
|---|---|---|---|---|
| 1. Kız/erkek arkadaşın (flört)/eşin ailesiyle çatışma | 1 | 2 | 3 | 4 |
| 2. Arkadaş(lar) tarafından hayal kırıklığına uğratılma | 1 | 2 | 3 | 4 |
| 3. Öğretim üyesi(leri) ile çatışma | 1 | 2 | 3 | 4 |
| 4. Sosyal ortamlarda dışlanma/kabul edilmeme yaşantısı | 1 | 2 | 3 | 4 |
| 5. Aynı anda yapılacak çok fazla işinin olması | 1 | 2 | 3 | 4 |
| 6. Her ihtiyaç duyulduğunda yardıma hazırmışsınız gibi davranılması ve bunun için takdir görmemek | 1 | 2 | 3 | 4 |
| 7. Aile üyeleri ile maddi konularda çatışmalar | 1 | 2 | 3 | 4 |
| 8. Güveninizin bir arkadaş tarafından kötüye kullanılması | 1 | 2 | 3 | 4 |
| 9. Sevdiğiniz birinden ayrılma | 1 | 2 | 3 | 4 |
| 10. Katkılarınızın görmezden gelinmesi | 1 | 2 | 3 | 4 |
| 11. Akademik standartlarınızı karşılayabilmek için mücadele etme | 1 | 2 | 3 | 4 |
| 12. Başkalarının sizden kendi çıkarları için faydalanması | 1 | 2 | 3 | 4 |
| 13. Yeterince boş zamanın olmaması | 1 | 2 | 3 | 4 |
| 14. Başkalarının akademik standartlarını karşılayabilmek için mücadele etme | 1 | 2 | 3 | 4 |
| 15. Çok fazla sorumluluk | 1 | 2 | 3 | 4 |

Bu yaşantının geçen ay boyunca ne derece yoğun olduğu;

1 = yaşamımın bir parçası hiç olmadı

2 = yaşamımın sadece küçük bir parçası oldu

3 = yaşamımın oldukça büyük bir parçası oldu

4 = yaşamımın çok büyük bir parçası oldu

| | | | | |
|--|---|---|---|---|
| 16. Okuldan memnuniyetsizlik | 1 | 2 | 3 | 4 |
| 17. Yakın ilişki(ler) hakkında kararlar verme | 1 | 2 | 3 | 4 |
| 18. Yükümlülüklerinizi yerine getirmek için yeterince zamanın olmaması | 1 | 2 | 3 | 4 |
| 19. Sayısal yetenek düzeyinizden memnuniyetsizlik | 1 | 2 | 3 | 4 |
| 20. Kariyeriniz hakkında önemli kararlar verme | 1 | 2 | 3 | 4 |
| 21. Maddi sıkıntılar | 1 | 2 | 3 | 4 |
| 22. Okuma yetenek düzeyinizden memnuniyetsizlik | 1 | 2 | 3 | 4 |
| 23. Eğitiminiz hakkında önemli kararlar verme | 1 | 2 | 3 | 4 |
| 24. Yalnızlık | 1 | 2 | 3 | 4 |
| 25. Beklediğinizden daha düşük notlar alma | 1 | 2 | 3 | 4 |
| 26. Asistan(lar)la çatışma | 1 | 2 | 3 | 4 |
| 27. Uyku için yeterince zamanın olmaması | 1 | 2 | 3 | 4 |
| 28. Ailenizle çatışmalar | 1 | 2 | 3 | 4 |
| 29. Ders programı dışındaki faaliyetlerin ağır yük getirmesi | 1 | 2 | 3 | 4 |
| 30. Dersleri çok ağır bulma | 1 | 2 | 3 | 4 |
| 31. Arkadaşlarla çatışma | 1 | 2 | 3 | 4 |
| 32. Başarılı olmak ve ilerlemek için çok çaba sarfetme | 1 | 2 | 3 | 4 |
| 33. Bir arkadaşın sağlığının kötü olması | 1 | 2 | 3 | 4 |
| 34. Akademik çalışmalarınızdan hoşlanmama | 1 | 2 | 3 | 4 |
| 35. Yaptığınız bir alışverişte "kazıklanmak" veya dolandırılmak | 1 | 2 | 3 | 4 |
| 36. Sigara içme ile ilgili olarak diğer insanlarla çatışmalar | 1 | 2 | 3 | 4 |
| 37. Ulaşım güçlükleri | 1 | 2 | 3 | 4 |
| 38. Misafir öğrencilerden hoşlanmama | 1 | 2 | 3 | 4 |
| 39. Kız/erkek arkadaş (flört)/eş ile çatışmalar | 1 | 2 | 3 | 4 |
| 40. Yazılı ifade yetenek düzeyinizden memnuniyetsizlik | 1 | 2 | 3 | 4 |
| 41. Akademik çalışmalarınızın kesintiye uğraması | 1 | 2 | 3 | 4 |
| 42. Sosyal yalıtılmışlık (izolasyon) | 1 | 2 | 3 | 4 |

Bu yaşantının **geçen ay boyunca** ne derece yoğun olduğu;

- 1 = yaşamımın bir parçası hiç olmadı
 2 = yaşamımın sadece küçük bir parçası oldu
 3 = yaşamımın oldukça büyük bir parçası oldu
 4 = yaşamımın çok büyük bir parçası oldu

| | | | | |
|---|---|---|---|---|
| 43. Hizmet almak için (örn; bankada, markette, vb.) uzun süre bekleme | 1 | 2 | 3 | 4 |
| 44. Görmezden gelinme | 1 | 2 | 3 | 4 |
| 45. Fiziksel görünümünüzden memnuniyetsizlik | 1 | 2 | 3 | 4 |
| 46. Dersleri ilgi çekici bulmama | 1 | 2 | 3 | 4 |
| 47. Sevdiğiniz bir kişi hakkında dedikodu yapılması | 1 | 2 | 3 | 4 |
| 48. Beklediğiniz bir işi alamama | 1 | 2 | 3 | 4 |
| 49. Atletik yetenek düzeyinizden memnuniyetsizlik | 1 | 2 | 3 | 4 |

APPENDIX J

PERMISSIONS TO USE THE QUESTIONNAIRES

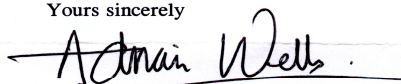
I. LETTER OF AUTHORIZATION FOR
THE META-COGNITIONS QUESTIONNAIRE-30The University
of ManchesterMANCHESTER
1824Manchester Royal Infirmary
Oxford Road
Manchester
M13 9WLAcademic Division of Clinical Psychology
Rawnsley Building, MRI
Oxford Road, Manchester
M13 9WLTel: 0161 276 5399/5387
Fax: 0161 273 2135
email: Adrian.Wells@man.ac.ukAW/jr/
24 January 2005A. Esin Yilmaz
Abant Izzet Baysal Universitesi
Fen-Edebiyat Fakultesi
Psikoloji Bolumu
14280 BOLU
TURKEY

Dear Esin

Thank you for your request to translate, evaluate and use a Turkish version of the MCQ-30. I am delighted that you have chosen this instrument and am happy to collaborate with you in your work developing a Turkish version. I hereby grant permission for you to use the measure and develop it for your research under the condition that you make appropriate reference to the original source.

I authorise you to develop a specific official version of this measure for use in Turkey. I can confirm that no other Turkish version of the measure has been authorised by me.

Yours sincerely


Adrian Wells
Professor of Clinical and Experimental Psychopathology

APPENDIX J**II. PENN STATE WORRY QUESTIONNAIRE**

From Thomas Borkovec <tdb@psu.edu> <[Save Address](#)>
To esiny@bilkent.edu.tr
Date 04 Apr 2005 15:22
Subject Re: Request for Penn State Worry Questionnaire

Merhaba, A. Esin Y>lmaz.

Gunaydin! Tanistigimiza memnun oldum.



Thanks for your message. I'm happy to attach the original PSWQ, and a chapter on its psychometric properties. I would love to hear of your results some day. Feel free to communicate with me whenever you wish. You have my permission to translate it into Turkish and to use it in your work.

Best wishes in your work,

Tom

APPENDIX J

III. LIFE EXPERIENCES SURVEY

| | |
|-----------------|--|
| Date: | Thu, 3 Nov 2005 17:01:13 -0800 (PST) |
| From: | "Irwin Sarason" <isarason@u.washington.edu>  View Contact Details  Add Mobile Alert |
| To: | "esin yilmaz" <esin_yilmaz@yahoo.com> |
| Subject: |  Re: Life Experiences Survey (1978-version) |

Go to the University of Washington website and then to Psychology.

There

click on Research. You will find the LES and some articles.

Good luck.

Irwin Sarason

Irwin Sarason

Department of Psychology

Box 351525

University of Washington

Seattle, Washington 98195

Phone:206 543-6542

FAX:206 685-3157

APPENDIX J**IV. INVENTORY OF COLLEGE STUDENTS RECENT
LIFE EXPERIENCES**

From Paul Kohn <pkohn@yorku.ca> <Save Address>
To esiny@bilkent.edu.tr
Date 19 Nov 2005 02:12
Subject Re: permission request for the adaptation of your scales

Dear Mr. Yilmaz,

You are welcome to use the ICSRLE and SRLE in your research. They are attached.

Good luck with your dissertation research.

Paul Kohn

APPENDIX K

META-COGNITIONS QUESTIONNAIRE-30

Adrian Wells & Samantha Cartwright-Hatton (1999)

This questionnaire is concerned with beliefs people have about their thinking.

Listed below are a number of beliefs that people have expressed. Please read each item and say how much you generally agree with it by circling the appropriate number.

Please respond to all the items, there are no right or wrong answers.

| | Do not agree | Agree slightly | Agree moderately | Agree very much |
|--|-----------------|-------------------|---------------------|-----------------------|
| 1. Worrying helps me to avoid problems in the future | 1 | 2 | 3 | 4 |
| 2. My worrying is dangerous for me | 1 | 2 | 3 | 4 |
| 3. I think a lot about my thoughts | 1 | 2 | 3 | 4 |
| 4. I could make myself sick with worrying | 1 | 2 | 3 | 4 |
| 5. I am aware of the way my mind works when I am thinking through a problem | 1 | 2 | 3 | 4 |
| 6. If I did not control a worrying thought, and then it happened, it would be my fault | 1 | 2 | 3 | 4 |
| 7. I need to worry in order to remain organised | 1 | 2 | 3 | 4 |
| 8. I have little confidence in my memory for words and names | 1 | 2 | 3 | 4 |
| 9. My worrying thoughts persist, no matter how I try to stop them | 1 | 2 | 3 | 4 |

| | Do not agree | Agree slightly | Agree moderately | Agree very much |
|---|-----------------|-------------------|---------------------|-----------------------|
| 10. Worrying helps me to get things sorted out in my mind | 1 | 2 | 3 | 4 |
| 11. I cannot ignore my worrying thoughts | 1 | 2 | 3 | 4 |
| 12. I monitor my thoughts | 1 | 2 | 3 | 4 |
| 13. I should be in control of my thoughts all of the time | 1 | 2 | 3 | 4 |
| 14. My memory can mislead me at times | 1 | 2 | 3 | 4 |
| 15. My worrying could make me go mad | 1 | 2 | 3 | 4 |
| 16. I am constantly aware of my thinking | 1 | 2 | 3 | 4 |
| 17. I have a poor memory | 1 | 2 | 3 | 4 |
| 18. I pay close attention to the way my mind works | 1 | 2 | 3 | 4 |
| 19. Worrying helps me cope | 1 | 2 | 3 | 4 |
| Not being able to control my thoughts is a sign of weakness | 1 | 2 | 3 | 4 |
| 20. When I start worrying, I cannot stop | 1 | 2 | 3 | 4 |
| 21. I will be punished for not controlling certain thoughts | 1 | 2 | 3 | 4 |
| 22. Worrying help me to solve problems | 1 | 2 | 3 | 4 |
| 23. I have little confidence in my memory for places | 1 | 2 | 3 | 4 |

| | Do not agree | Agree slightly | Agree moderately | Agree very much |
|---|-----------------|-------------------|---------------------|-----------------------|
| 24. I have little confidence in my memory for places | 1 | 2 | 3 | 4 |
| 25. It is bad to think certain thoughts | 1 | 2 | 3 | 4 |
| 26. I do not trust my memory | 1 | 2 | 3 | 4 |
| 27. If I could not control my thoughts, I would not be able to function | 1 | 2 | 3 | 4 |
| 28. I need to worry, in order to work well | 1 | 2 | 3 | 4 |
| 29. I have little confidence in my memory for actions | 1 | 2 | 3 | 4 |
| 30. I constantly examine my thoughts | 1 | 2 | 3 | 4 |

**Please ensure that you have responded to all items - Thank You.
Copyright 1999: Contact A. Wells, University of Manchester, Academic
Division of Clinical Psychology.**

APPENDIX L

NEGATIVE BELIEFS ABOUT RUMINATION SCALE

Developed by Costas Papageorgiou and Adrian Wells

Instructions: Most people experience depressive thoughts at times. When depressive thinking is prolonged and repetitive it is called **rumination**. This questionnaire is concerned about the beliefs that people have about rumination. Listed below are a number of these beliefs. Please read each belief carefully and indicate how much you **generally** agree with each one. Please circle the number that best describes your answer. Please respond to all of the items.

| | Do not agree | Agree Slightly | Agree Moderately | Agree very much |
|---|-------------------------|---------------------------|-----------------------------|----------------------------|
| 1. Ruminating makes me physically ill | 1 | 2 | 3 | 4 |
| 2. When I ruminate I can't do anything else | 1 | 2 | 3 | 4 |
| 3. Ruminating means I'm out of control | 1 | 2 | 3 | 4 |
| 4. Everyone would desert me if they knew how much I ruminate about myself | 1 | 2 | 3 | 4 |
| 5. People will reject me if I ruminate | 1 | 2 | 3 | 4 |
| 6. Ruminating about my problems is uncontrollable | 1 | 2 | 3 | 4 |
| 7. Ruminating about my depression could make me kill myself | 1 | 2 | 3 | 4 |
| 8. Ruminating will turn me into a failure | 1 | 2 | 3 | 4 |
| 9. I cannot stop myself from ruminating | 1 | 2 | 3 | 4 |
| 10. Ruminating means I'm a bad person | 1 | 2 | 3 | 4 |

| | Do not agree | Agree Slightly | Agree Moderately | Agree very much |
|---|-----------------|-------------------|---------------------|--------------------|
| 11. It is impossible not to ruminate about the bad things that have happened in the past | 1 | 2 | 3 | 4 |
| 12. Only weak people ruminate | 1 | 2 | 3 | 4 |
| 13. Ruminating can make me harm myself | 1 | 2 | 3 | 4 |

APPENDIX M

POSITIVE BELIEFS ABOUT RUMINATION SCALE

Developed by Costas Papageorgiou and Adrian Wells

Instructions: Most people experience depressive thoughts at times. When depressive thinking is prolonged and repetitive it is called rumination. This questionnaire is concerned about the beliefs that people have about rumination. Listed below are a number of these beliefs. Please read each belief carefully and indicate how much you generally agree with each one. Please select the number that best describes your answer. Please respond to all of the items.

| | Do not agree | Agree Slightly | Agree Moderately | Agree very much |
|---|-------------------------|---------------------------|-----------------------------|----------------------------|
| 1. In order to understand my feelings of depression I need to ruminate about my problems | 1 | 2 | 3 | 4 |
| 2. I need to ruminate about the bad things that have happened in the past to make sense of them | 1 | 2 | 3 | 4 |
| 3. I need to ruminate about my problems to find the causes of my depression | 1 | 2 | 3 | 4 |
| 4. Ruminating about my problems helps me to focus on the most important things | 1 | 2 | 3 | 4 |
| 5. Ruminating about the past helps me to prevent future mistakes and failures | 1 | 2 | 3 | 4 |
| 6. I need to ruminate about my problems to find answers to my depression | 1 | 2 | 3 | 4 |
| 7. Ruminating about my feelings helps me to recognise the triggers for my depression | 1 | 2 | 3 | 4 |

| | Do not agree | Agree Slightly | Agree Moderately | Agree very much |
|--|-------------------------|---------------------------|-----------------------------|----------------------------|
| 8. Ruminating about my depression helps me to understand past mistakes and failures | 1 | 2 | 3 | 4 |
| 9. Ruminating about the past helps me to work out how things could have been done better | 1 | 2 | 3 | 4 |

APPENDIX N

PENN STATE WORRY QUESTIONNAIRE

Enter the number that best describes how typical or characteristic each item is of you, putting the number next to the item.

| | | | | |
|-----------------------|---|---------------------|---|-----------------|
| 1 | 2 | 3 | 4 | 5 |
| Not at all typical | | Somewhat typical | | Very typical |

- ___1. If I don't have enough time to do everything I don't worry about it.
- ___2. My worries overwhelm me.
- ___3. I don't tend to worry about things.
- ___4. Many situations make me worry.
- ___5. I know I shouldn't worry about things, but I just can't help it.
- ___6. When I am under pressure I worry a lot.
- ___7. I am always worrying about something.
- ___8. I find it easy to dismiss worrisome thoughts.
- ___9. As soon as I finish one task, I start to worry about everything else I have to do.
- ___10. I never worry about anything.
- ___11. When there is nothing more I can do about a concern, I don't worry about it any more.
- ___12. I've been a worrier all my life.
- ___13. I notice that I have been worrying about things.
- ___14. Once I start worrying, I can't stop.
- ___15. I worry all the time.
- ___16. I worry about projects until they are all done.

APPENDIX O**PADUA INVENTORY – WASHINGTON STATE UNIVERSITY REVISION**

INSTRUCTIONS: The following statements refer to thoughts and behaviors which may occur to everyone in everyday life. For each statement, choose the reply which best seems to fit you and the degree of disturbance which such thoughts or behaviors may create. Rate your replies as follows:

0 = not at all

1 = a little

2 = quite a lot

3 = a lot

4 = very much

_____1. I feel my hands are dirty when I touch money.

_____2. I think even the slightest contact with bodily secretions (perspiration, saliva, urine, etc.) may contaminate my clothes or somehow harm me.

_____3. I find it difficult to touch an object when I know it has been touched by strangers or by certain people.

_____4. I find it difficult to touch garbage or dirty things.

_____5. I avoid using public toilets because I am afraid of disease and contamination.

_____6. I avoid using public telephones because I am afraid of contagion and disease.

_____7. I wash my hands more often and longer than necessary.

_____8. I sometimes have to wash or clean myself simply because I think I may be dirty or “contaminated”.

_____9. If I touch something I think is “contaminated”, I immediately have to wash or clean myself.

_____10. If an animal touches me, I feel dirty and immediately have to wash myself or change my clothing.

_____11. I feel obliged to follow a particular order in dressing, undressing, and washing myself.

0 = not at all

1 = a little

2 = quite a lot

3 = a lot

4 = very much

_____12. Before going to sleep, I have to do certain things in a certain order.

_____13. Before going to bed, I have to hang up or fold my clothes in a special way.

_____14. I have to do things several times before I think they are properly done.

_____15. I tend to keep on checking things more often than necessary.

_____16. I check and recheck gas and water taps and light switches after turning them off.

_____17. I return home to check doors, windows, drawers, etc., to make sure they are properly shut.

_____18. I keep checking forms, documents, checks, etc., in detail to make sure I have filled them in correctly.

_____19. I keep on going back to see that matches, cigarettes, etc., are properly extinguished.

_____20. When I handle money, I count and recount it several times.

_____21. I check letters carefully many times before posting them.

_____22. Sometimes I am not sure I have done things, which in fact I knew I have done.

_____23. When I read, I have the impression I have missed something important and must go back and reread the passage at least two or three times.

_____24. I imagine catastrophic consequences as a result of absent-mindedness or minor errors, which I make.

_____25. I think or worry at length about having hurt someone without knowing it.

_____26. When I hear about a disaster, I think it is somehow my fault.

_____27. I sometimes worry at length for no reason that I have hurt myself or have some disease.

_____28. I get upset and worried at the sight of knives, daggers, and other pointed objects.

0 = not at all

1 = a little

2 = quite a lot

3 = a lot

4 = very much

____29. When I hear about a suicide or crime, I am upset for a long time and find it difficult to stop thinking about it.

____30. I invent useless worries about germs and disease.

____31. When I look down from a bridge or a very high window, I feel an impulse to throw myself into space.

____32. When I see a train approaching, I sometimes think I could throw myself under its wheels.

____33. At certain moments, I am tempted to tear off my clothes in public.

____34. While driving, I sometimes feel an impulse to drive the car into someone or something.

____35. Seeing weapons excites me and makes me think violent thoughts.

____36. I sometimes feel the need to break or damage things for no reason.

____37. I sometimes have an impulse to steal other people's belongings, even if they are of no use to me.

____38. I am sometimes almost irresistibly tempted to steal something from the supermarket.

____39. I sometimes have an impulse to hurt defenseless children or animals.

APPENDIX P

SELF-EVALUATION QUESTIONNAIRE

STAI Form Y-2

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you **generally** feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

| | ALMOST NEVER | SOMETIMES | OFTEN | ALMOST ALWAYS |
|--|--------------|-----------|-------|---------------|
| 1. I feel pleasant..... | ① | ② | ③ | ④ |
| 2. I feel nervous and restless..... | ① | ② | ③ | ④ |
| 3. I feel satisfied with myself..... | ① | ② | ③ | ④ |
| 4. I wish I could be as happy as others seem to be..... | ① | ② | ③ | ④ |
| 5. I feel like a failure..... | ① | ② | ③ | ④ |
| 6. I feel rested..... | ① | ② | ③ | ④ |
| 7. I am "calm, cool, and collected"..... | ① | ② | ③ | ④ |
| 8. I feel that difficulties are piling up so that I cannot overcome them..... | ① | ② | ③ | ④ |
| 9. I worry too much over something that really doesn't matter..... | ① | ② | ③ | ④ |
| 10. I am happy..... | ① | ② | ③ | ④ |
| 11. I have disturbing thoughts..... | ① | ② | ③ | ④ |
| 12. I lack self-confidence..... | ① | ② | ③ | ④ |
| 13. I feel secure..... | ① | ② | ③ | ④ |
| 14. I make decisions easily..... | ① | ② | ③ | ④ |
| 15. I feel inadequate..... | ① | ② | ③ | ④ |
| 16. I am content..... | ① | ② | ③ | ④ |

17. Some unimportant thought runs through my mind
and bothers me.....① ② ③ ④
18. I take disappointments so keenly that
I can't put them out of my mind.....① ② ③ ④
19. I am a steady person.....① ② ③ ④
20. I get in a state of tension or turmoil as
I think over my recent concerns and interests.....① ② ③ ④

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APPENDIX Q

BECK ANXIETY INVENTORY

Below is a list of common symptoms of anxiety. Please read each item in the list carefully. Indicate **how much** you have been bothered by each symptom during the PAST WEEK, INCLUDING TODAY by placing an X in the corresponding space in the column next to each symptom.

| | | Not at all | Mildly It did not bother me much | Moderately It was very un- pleasant but I could stand it | Severely I could barely stand it |
|----|--|---------------|---|---|---|
| 1 | Numbness or tingling. | | | | |
| 2 | Feeling hot. | | | | |
| 3 | Wobbliness in legs. | | | | |
| 4 | Unable to relax. | | | | |
| 5 | Fear of the worst happening. | | | | |
| 6 | Dizzy or lightheaded. | | | | |
| 7 | Heart pounding or racing. | | | | |
| 8 | Unsteady. | | | | |
| 9 | Terrified. | | | | |
| 10 | Nervous. | | | | |
| 11 | Feelings of choking. | | | | |
| 12 | Hands trembling. | | | | |
| 13 | Shaky. | | | | |
| 14 | Fear of losing control. | | | | |
| 15 | Difficulty breathing. | | | | |
| 16 | Fear of dying. | | | | |
| 17 | Scared. | | | | |
| 18 | Indigestion or discomfort in abdomen. | | | | |

| | | Not at all | Mildly It did not bother me much | Moderately It was very un- pleasant but I could stand it | Severely I could barely stand it |
|----|-----------------------------|---------------|---|---|---|
| 19 | Faint. | | | | |
| 20 | Face flushed. | | | | |
| 21 | Sweating (not due to heat). | | | | |

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APPENDIX R

BECK DEPRESSION INVENTORY

This questionnaire consists of 21 groups of statements. After reading each group of statements carefully, circle the number (0, 1, 2 or 3) next to the one statement in each group which best describes the way you have been feeling the **past week, including today**. If several statements within a group seem to apply equally well, circle each one. **Be sure to read all the statements in each group before making your choice.**

0 I do not feel sad

1 I feel sad

2 I am sad all the time

3 I am sad or unhappy that I can't stand it

0 I am not particularly discouraged about the future

1 I feel discouraged about the future

2 I feel I have nothing to look forward to

3 I feel that the future is hopeless and that things cannot improve

0 I do not feel like a failure

1 I feel I have failed more than the average person

2 As I look back on my life, all I can see is lot of failures

3 I feel I am a complete failure as a person

0 I get as much satisfaction out of the things I used to

1 I don't enjoy things the way I used to

2 I don't get real satisfaction out of anything anymore

3 I am dissatisfied or bored with everything

0 I don't feel particularly guilty

1 I feel guilty a good part of the time

2 I feel quite guilty most of the time

3 I feel guilty all of the time

0 I don't feel I am being punished

1 I feel I may be punished

2 I expect to be punished

3 I feel I am being punished

0 I don't feel disappointed with myself

1 I am disappointed with myself

2 I am disgusted with myself

3 I hate myself

0 I don't feel I am any worse than anybody else

1 I am critical of myself all the time for my weaknesses and mistakes

2 I blame myself all the time for my faults

3 I blame myself for everything that happens

0 I don't have any thoughts of killing myself

1 I have thoughts of killing myself, but I would not carry them out

2 I would like to kill myself

3 I would kill myself if I had the chance

0 I don't cry any more than usual

1 I cry more now than I used to

2 I cry all the time now

3 I used to be able to cry, but now I can't even though I want to

0 I am no more irritated now than I ever am

1 I get annoyed or irritated more easily than I used to

2 I feel irritated all the time now

3 I don't get irritated at all by the things that used to irritate me

0 I have not lost interest in other people

1 I am less interested in other people than I used to be

2 I have lost most of my interest in other people

3 I have lost all of my interest in other people

0 I make decisions about as well as I ever did

1 I put off making decisions more than I used to

2 I have greater difficulty in making decisions than before

3 I can't make decisions at all anymore

0 I don't feel I look worse than I used to

1 I am worried that I am looking old and unattractive

2 I feel that there are permanent changes in my appearance that make me look unattractive

3 I believe that I look ugly

- 0 I can work as well as before
- 1 It takes an extra effort to get started at doing something
- 2 I have to push myself very hard to do anything
- 3 I can't do any work at all
-
- 0 I can sleep as well as usual
- 1 I don't sleep as well as I used to
- 2 I wake up 1-2 hours earlier than usual and find it hard to get back to sleep
- 3 I wake up several hours earlier than I used to and can't get back to sleep
-
- 0 I don't get more tired than usual
- 1 I get tired more easily than I used to
- 2 I get tired from doing almost anything
- 3 I am too tired to do anything
-
- 0 My appetite is no worse than usual
- 1 My appetite is not as good as it used to be
- 2 My appetite is much worse now
- 3 I have no appetite at all now
-
- 0 I haven't lost much weight, if any, lately
- 1 I have lost more than 5 pounds
- 2 I have lost more than 10 pounds
- 3 I have lost more than 15 pounds
-
- I am purposely trying to lose weight by eating less:
 Yes..... No.....
-
- 0 I am no more worried about my health than usual
- 1 I am worried about physical problems such as aches and pain; or upset stomachs, or constipation
- 2 I am very worried about physical problems and it's hard to think about anything else
- 3 I am so worried about my physical problems and I cannot think about anything else
-
- 0 I have not noticed any recent change in my interest in sex
- 1 I am less interested in sex than I used to be
- 2 I am much less interested in sex now
- 3 I have lost interest in sex completely
-

APPENDIX S

CENTER FOR EPIDEMIOLOGIC STUDIES DEPRESSION SCALE

Below is a list of some of the ways you may have felt or behaved. Please indicate how often you have felt this way during the past week by checking the appropriate space.

| During the past week: | Rarely or none of the time (less than 1 day) | Some or a little of the time (1-2 days) | Occasion- ally or a moderate amount of time (3-4 days) | Most or all of the (5-7 days)time |
|--|---|--|--|---|
| 1. I was bothered by things that usually don't bother me. | _____ | _____ | _____ | _____ |
| 2. I did not feel like eating; my appetite was poor. | _____ | _____ | _____ | _____ |
| 3. I felt that I could not shake off the blues even with help from my family or friends. | _____ | _____ | _____ | _____ |
| 4. I felt that I was just as good as other people. | _____ | _____ | _____ | _____ |
| 5. I had trouble keeping my mind on what I was doing. | _____ | _____ | _____ | _____ |
| 6. I felt depressed. | _____ | _____ | _____ | _____ |
| 7. I felt that everything I did was an effort. | _____ | _____ | _____ | _____ |
| 8. I felt hopeful about the future. | _____ | _____ | _____ | _____ |
| 9. I thought my life had been a failure. | _____ | _____ | _____ | _____ |
| 10. I felt fearful. | _____ | _____ | _____ | _____ |
| 11. My sleep was restless. | _____ | _____ | _____ | _____ |
| 12. I was happy. | _____ | _____ | _____ | _____ |
| 13. I talked less than usual. | _____ | _____ | _____ | _____ |
| 14. I felt lonely. | _____ | _____ | _____ | _____ |

| During the past week: | Rarely or none of the time (less than 1 day) | Some or a little of the time (1-2 days) | Occasion- ally or a moderate amount of time (3-4 days) | Most or all of the (5-7 days)time |
|-------------------------------------|---|--|--|---|
| 15. People were unfriendly | _____ | _____ | _____ | _____ |
| 16. I enjoyed life. | _____ | _____ | _____ | _____ |
| 17. I had crying spells. | _____ | _____ | _____ | _____ |
| 18. I felt sad. | _____ | _____ | _____ | _____ |
| 19. I felt that people disliked me. | _____ | _____ | _____ | _____ |
| 20. I could not get going. | _____ | _____ | _____ | _____ |

APPENDIX T

COGNITION CHECKLIST

INSTRUCTIONS: Please rate how often you have each of the thoughts that are described below during each of the following situations.

| | <u>Never</u> | <u>Rarely</u> | <u>Some- times</u> | <u>Often</u> | <u>Always</u> |
|---|--------------|---------------|------------------------|--------------|---------------|
| When I have to attend a social occasion I think: | | | | | |
| 1) I'm a social failure. | 0 | 1 | 2 | 3 | 4 |
| 2) I'll never be as good as other people are. | 0 | 1 | 2 | 3 | 4 |
| When I am with a friend I think: | | | | | |
| 3) People don't respect me anymore. | 0 | 1 | 2 | 3 | 4 |
| 4) No one cares whether I live or die. | 0 | 1 | 2 | 3 | 4 |
| 5) I'm worse off than they are. | 0 | 1 | 2 | 3 | 4 |
| 6) I don't deserve to be loved. | 0 | 1 | 2 | 3 | 4 |
| 7) I've lost the only friends I've had. | 0 | 1 | 2 | 3 | 4 |
| 8) I'm not worthy of people's attention or affection. | 0 | 1 | 2 | 3 | 4 |
| 9) There's no one left to help me. | 0 | 1 | 2 | 3 | 4 |

| | <u>Never</u> | <u>Rarely</u> | <u>Some- times</u> | <u>Often</u> | <u>Always</u> |
|---|--------------|---------------|------------------------|--------------|---------------|
| When I feel pain or physical discomfort, I think: | | | | | |
| 10) What if I get sick and become an invalid? | 0 | 1 | 2 | 3 | 4 |
| 11) Something might be happening that will ruin my appearance. | 0 | 1 | 2 | 3 | 4 |
| 12) I am going to be injured. | 0 | 1 | 2 | 3 | 4 |
| Pain or Physical Discomfort | | | | | |
| 13) What if no one reaches me in time to help? | 0 | 1 | 2 | 3 | 4 |
| 14) I'm going to have an accident. | 0 | 1 | 2 | 3 | 4 |
| 15) I might be trapped. | 0 | 1 | 2 | 3 | 4 |
| 16) I am not a healthy person. | 0 | 1 | 2 | 3 | 4 |
| 17) There's something very wrong with me. | 0 | 1 | 2 | 3 | 4 |
| Please rate how often you have the following thoughts regardless of the situation. | | | | | |
| 18) Life isn't worth living. | 0 | 1 | 2 | 3 | 4 |
| 19) I'm worthless. | 0 | 1 | 2 | 3 | 4 |
| 20) I have become physically unattractive. | 0 | 1 | 2 | 3 | 4 |
| 21) I will never overcome my problems. | 0 | 1 | 2 | 3 | 4 |

| | <u>Never</u> | <u>Rarely</u> | <u>Some- times</u> | <u>Often</u> | <u>Always</u> |
|--|--------------|---------------|------------------------|--------------|---------------|
| 22) Something awful is going to happen. | 0 | 1 | 2 | 3 | 4 |
| 23) I'm going to have a heart attack. | 0 | 1 | 2 | 3 | 4 |
| 24) I'm losing my mind. | 0 | 1 | 2 | 3 | 4 |
| 25) Something will happen to someone I care about. | 0 | 1 | 2 | 3 | 4 |
| 26) Nothing ever works out for me anymore. | 0 | 1 | 2 | 3 | 4 |

APPENDIX U

DYSFUNCTIONAL ATTITUDE SCALE-24

This inventory lists different attitudes or beliefs which people sometimes hold. Read EACH statement carefully and decide how much you agree or disagree with the statement.

For each of the attitudes, show your answer by placing a checkmark under the column that BEST DESCRIBES WHAT YOU THINK. Be sure to choose only one answer for each attitude. Because people are different, there is no right answer or wrong answer to these statements.

To decide whether a given attitude is typical of your way of looking at things, simply keep in mind what you are like MOST OF THE TIME.

| ATTITUDES | TOTALLY AGREE | AGREE VERY MUCH | AGREE SLIGHTLY | NEUTRAL | DISAGREE SLIGHTLY | DISAGREE VERY MUCH | TOTALLY DISAGREE |
|---|---------------|-----------------|----------------|---------|-------------------|--------------------|------------------|
| REMEMBER, ANSWER EACH STATEMENT ACCORDING TO THE WAY YOU THINK MOST OF THE TIME | | | | | | | |
| 1. If I fail partly, it is as bad as being a complete failure. | | | | | | | |
| 2. If others dislike you, you cannot be happy. | | | | | | | |
| 3. I should be happy all the time. | | | | | | | |

| ATTITUDES | TOTALLY AGREE | AGREE VERY MUCH | AGREE SLIGHTLY | NEUTRAL | DISAGREE SLIGHTLY | DISAGREE VERY MUCH | TOTALLY DISAGREE |
|---|---------------|-----------------|----------------|---------|-------------------|--------------------|------------------|
| 4. People will probably think less of me if I make a mistake. | | | | | | | |
| 5. My happiness depends more on other people than it does on me. | | | | | | | |
| 6. I should always have complete control over my feelings. | | | | | | | |
| 7. My life is wasted unless I am a success. | | | | | | | |
| 8. What other people think about me is very important. | | | | | | | |
| 9. I ought to be able to solve my problems quickly and without a great deal of effort. | | | | | | | |
| 10. If I don't set the highest standards for myself, I am likely to end up a second-rate person. | | | | | | | |
| 11. I am nothing if a person I love does not love me. | | | | | | | |
| 12. A person should be able to control what happens to him. | | | | | | | |
| 13. If I am to be a worthwhile person, I must be truly outstanding in at least one major respect. | | | | | | | |

| ATTITUDES | TOTALLY AGREE | AGREE VERY MUCH | AGREE SLIGHTLY | NEUTRAL | DISAGREE SLIGHTLY | DISAGREE VERY MUCH | TOTALLY DISAGREE |
|---|---------------|-----------------|----------------|---------|-------------------|--------------------|------------------|
| 14. If you don't have other people to lean on, you are bound to be sad. | | | | | | | |
| 15. It is possible for a person to be scolded and not get upset. | | | | | | | |
| 16. I must be a useful, productive, creative person or life has no purpose. | | | | | | | |
| 17. I can find happiness without being loved by another person. | | | | | | | |
| 18. A person should do well at everything he undertakes. | | | | | | | |
| 19. If I do not do well all the time, people will not respect me. | | | | | | | |
| 20. I do not need the approval of other people in order to be happy. | | | | | | | |
| 21. If I try hard enough, I should be able to excel at anything I attempt. | | | | | | | |
| 22. People who have good ideas are more worthy than those who do not. | | | | | | | |
| 23. A person doesn't need to be well liked in order to be happy. | | | | | | | |
| 24. Whenever I take a chance or risk I am only looking for trouble. | | | | | | | |

| | 0 to 6 mo | 7 mo to 1yr | extremely negative | moderately negative | somewhat negative | no impact | slightly positive | moderately positive | extremely positive |
|---|--------------------|----------------------|-----------------------|------------------------|----------------------|--------------|----------------------|------------------------|-----------------------|
| 6. Major change in eating habits (much more or much less food intake) | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 7. Foreclosure on mortgage or loan | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 8. Death of close friend | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 9. Outstanding personal achievement | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 10. Minor law violations (traffic tickets, disturbing the peace, etc.) | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 11. Male: Wife/girlfriend's pregnancy | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 12. Female: Pregnancy | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 13. Changed work situation (different work responsibility, major change in working conditions, working hours, etc.) | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 14. New job | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 15. Serious illness or injury of close family member: | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| a. father | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| b. mother | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| c. sister | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| d. brother | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| e. grandfather | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| f. grandmother | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| g. spouse | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| h. other (specify) | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 16. Sexual difficulties | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 17. Trouble with employer (in danger of losing job, being suspended, demoted, etc.) | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |

| | 0 to 6 mo | 7 mo to 1yr | extremely negative | moderately negative | somewhat negative | no impact | slightly positive | moderately positive | extremely positive |
|---|--------------------|----------------------|-----------------------|------------------------|----------------------|--------------|----------------------|------------------------|-----------------------|
| 18. Trouble with in-laws | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 19. Major change in financial status (a lot better off or a lot worse off) | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 20. Major change in closeness of family members (increased or decreased closeness) | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 21. Gaining a new family member (through birth, adoption, family member moving in, etc.) | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 22. Change of residence | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 23. Marital separation from mate (due to conflict) | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 24. Major change in church activities (increased or decreased attendance) | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 25. Marital reconciliation with mate | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 26. Major change in number of arguments with spouse (a lot more or a lot less arguments) | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 27. Married male: Change in wife's work outside the home (beginning work, ceasing work, changing to a new job, etc.) | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 28. Married female: Change in husband's work (loss of job, beginning new job, retirement, etc.) | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 29. Major change in usual type and/or amount of recreation | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 30. Borrowing more than £5.000 (buying home, business, etc.) | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 31. Borrowing less than £5.000 (buying car, TV, getting school loan, etc.) | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 32. Being fired from job | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |

| | 0 to 6 mo | 7 mo to 1yr | extremely negative | moderately negative | somewhat negative | no impact | slightly positive | moderately positive | extremely positive |
|--|--------------------|----------------------|-----------------------|------------------------|----------------------|--------------|----------------------|------------------------|-----------------------|
| 33. Male: Wife/girlfriend having abortion | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 34. Female: Having abortion | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 35. Major personal illness or injury | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 36. Major change in social activities, e.g., parties, movies, visiting (increased or decreased participation) | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 37. Major change in living conditions of family (building new home, remodeling, deterioration of home, neighborhood, etc.) | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 38. Divorce | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 39. Serious injury or illness of close friend | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 40. Retirement from work | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 41. Son or daughter leaving home (due to marriage, college, etc.) | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 42. Ending of formal schooling | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 43. Separation from spouse (due to work, travel, etc.) | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 44. Engagement | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 45. Breaking up with boyfriend/girlfriend | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 46. Leaving home for the first time | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 47. Reconciliation with boyfriend/girlfriend | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| Other recent experiences which have had an impact on your life. List | | | | | | | | | |
| 48 | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 49 | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 50..... | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |

Section 2: Student Only

| | 0 to 6 mo | 7 mo to 1yr | extremely negative | moderately negative | somewhat negative | no impact | slightly positive | moderately positive | extremely positive |
|--|------------------------------|--------------------------------|-------------------------------|--------------------------------|------------------------------|----------------------|------------------------------|--------------------------------|-------------------------------|
| 51. Beginning a new school experience at a higher academic level (college, graduate school, professional school, etc.) | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 52. Changing to a new school at same academic level (undergraduate, graduate, etc.) | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 53. Academic probation | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 54. Being dismissed from dormitory or other residence | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 55. Failing an important exam | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 56. Changing a major | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 57. Failing a course | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 58. Dropping a course | | | | | | | | | |
| 59. Joining a fraternity/sorority | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 60. Financial problems concerning school (in danger of not having sufficient money to continue) | | | -3 | -2 | -1 | 0 | +1 | +2 | +3 |

APPENDIX W

INVENTORY OF COLLEGE STUDENTS' RECENT LIFE EXPERIENCES

Following is a list of experiences which many students have some time or other. Please indicate for each experience how much it has been a part of your life over the past month by selecting the appropriate number.

Intensity of Experience over Past Month

1 = not at all part of my life

2 = only slightly part of my life

3 = distinctly part of my life

4 = very much part of my life

- | | | |
|-----|---|-------|
| 1. | Conflicts with boyfriend's/girlfriend's/spouse's family | _____ |
| 2. | Being let down or disappointed by friends | _____ |
| 3. | Conflict with professor(s) | _____ |
| 4. | Social rejection | _____ |
| 5. | Too many things to do at once | _____ |
| 6. | Being taken for granted | _____ |
| 7. | Financial conflicts with family members | _____ |
| 8. | Having your trust betrayed by a friend | _____ |
| 9. | Separation from people you care about | _____ |
| 10. | Having your contributions overlooked | _____ |
| 11. | Struggling to meet your own academic standards | _____ |
| 12. | Being taken advantage of | _____ |
| 13. | Not enough leisure time | _____ |
| 14. | Struggling to meet the academic standards of others | _____ |

Intensity of Experience over Past Month

1 = not at all part of my life

2 = only slightly part of my life

3 = distinctly part of my life

4 = very much part of my life

15. A lot of responsibilities _____
16. Dissatisfaction with school _____
17. Decisions about intimate relationship(s) _____
18. Not enough time to meet your obligations _____
19. Dissatisfaction with your mathematical ability _____
20. Important decisions about your future career _____
21. Financial burdens _____
22. Dissatisfaction with your reading ability _____
23. Important decisions about your education _____
24. Loneliness _____
25. Lower grades than you hoped for _____
26. Conflict with teaching assistant(s) _____
27. Not enough time for sleep _____
28. Conflicts with your family _____
29. Heavy demands from extra-curricular activities _____
30. Finding courses too demanding _____
31. Conflicts with friends _____
32. Hard effort to get ahead _____
33. Poor health of a friend _____
34. Disliking your studies _____
35. Getting “ripped off” or cheated in the purchase of services. _____

Intensity of Experience over Past Month

1 = not at all part of my life

2 = only slightly part of my life

3 = distinctly part of my life

4 = very much part of my life

36. Social conflicts over smoking _____
37. Difficulties with transportation _____
38. Disliking fellow student(s) _____
39. Conflicts with boyfriend/girlfriend/spouse _____
40. Dissatisfaction with your ability at written expression _____
41. Interruptions of your school work _____
42. Social isolation _____
43. Long waits to get service (e.g., at banks, stores, etc.) _____
44. Being ignored _____
45. Dissatisfaction with your physical appearance _____
46. Finding course(s) uninteresting _____
47. Gossip concerning someone you care about _____
48. Failing to get expected job _____
49. Dissatisfaction with your athletic skills _____

APPENDIX X

TURKISH SUMMARY of the THESIS

Çeşitli psikolojik bozuklukların gelişme ve devam etme mekanizmalarını açıklayan bilişsel yaklaşım, bugüne kadar görgül olarak geçerliliği sınanmış olan oldukça etkili tedavi müdahalelerinin ortaya konulmasını sağlamıştır. Bununla birlikte, günümüzde hâla psikolojik bozuklukları daha iyi anlamak ve tedavi etmek amacıyla yönelik olarak, bilişsel terapinin çerçevesini genişletecek adımlar atmak mümkündür. Son zamanlarda bazı bilişsel kuramcılar bu yaklaşımda gözledikleri sınırlılıkları vurgulayarak, bilişsel kuram çerçevesinde ele alınan “biliş” (cognition) kavramının yeniden yapılandırılmasını önermeye başlamıştır (Nelson, Stuart, Howard, & Crowley, 1999; Papageorgiou & Wells, 1999; Wells & Purdon, 1999; Wells, 2000; Wells, 2004). Buna göre, bilişsel yaklaşım psikolojik bozuklukları açıklamak ve tedavi etmek için kısıtlı bir biliş anlayışına odaklanmakta ve örneğin dikkat gibi bilişsel süreçler yerine, temel olarak düşünce ve inançların içeriği üzerine odaklanmaktadır (Papageorgiou & Wells, 1999). Buna karşılık, bireylerin kendi düşünme biçimleri ve düşünceleri hakkında sahip oldukları bilgileri gibi bilgi işleme (information processing) süreçleri ile ilgili diğer bazı üstbilişsel (metacognitive) düşünce ve inanç kategorileri de mevcuttur (Wells, 1997, 2000; Wells & Purdon, 1999). Bu doğrultuda, üstbilişin bilişsel terapi içinde bir inceleme ve terapötik müdahale alanı olarak göz önünde bulundurulmasının, sözü edilen tıkanıklığı gidermeye ve psikolojik bozuklukları şu anki anlama düzeyimizi ilerletmeye olanak sağlayacağı ileri sürülmektedir (Papageorgiou & Wells, 1999; Wells & Purdon, 1999).

İlk kez gelişim psikolojisi alanında çalışan Flavell (1979) tarafından “bilişler hakkındaki bilişler” (cognitions about cognitions) olarak tanımlanan ve bilişsel psikoloji, nöropsikoloji ve sosyal psikoloji gibi alanlara hızla yayılan üstbiliş kavramı, klinik psikoloji alanında “düşüncenin kontrol edilmesi, düzenlenmesi ve yorumlanmasında içerilen psikolojik yapılara, bilgilere ve süreçlere” işaret etmektedir (Wells & Cartwright-Hatton, 2004, s. 385). Diğer bir deyişle, üstbiliş “kendi organizasyonunun içeriğini ve işleme süreçlerini izleyen (monitor),

yorumlayan (interpret), değerlendiren (evaluate), kontrol eden (control) ve düzenleyen (regulate), bilgi işleme sisteminin bir parçası” olarak tanımlanmaktadır (Wells, 2000; Wells & Purdon, 1999). Biliş ve üstbiliş yapılarını kavramsal olarak karşılaştırdığımızda, biliş kavramı edinilmiş bilgiye karşılık gelirken, üstbiliş kavramı kişinin sahip olduğu bu bilgiye ilişkin farkındalığı ve bu bilgiyi anlama biçimidir denilebilir.

Üstbilişi psikolojik bozuklukların gelişmesi ve sürmesinde genel bir yatkınlık faktörü olarak öneren üstbilişsel kurama göre, psikolojik bozukluklarda görülen temel inançlar bireyin düşüncelerine ve başa çıkma davranışlarına rehberlik eden üstbilişsel bir bileşenden oluşmaktadır (Wells, 1997, 2000; Wells & Matthews, 1994). Daha spesifik olarak, bireyler değerlendirme biçimlerini etkileyen düşünceleri hakkında hem olumlu (örn., “Her şeye hazırlıklı olmak için endişelenmem gerekir”) hem de olumsuz (örn., “Düşüncelerimi kontrol edemem”) inançlara ve ayrıca biliş ve davranışlarına rehberlik eden planlarını şekillendiren örtük üstbilişlere sahiptirler (Wells, 1997, 2000; Wells & Cartwright-Hatton, 2004; Wells & Matthews, 1994). Özellikle psikolojik bozuklukların gelişme ve sürmesinde etkili olan mekanizmalar sadece bilişsel içerikle değil, aynı zamanda işlevsel olmayan üstbilişlerle de ilgilidir (Wells, 1997, 2000; Wells & Cartwright-Hatton, 2004; Wells & Matthews, 1994; Wells & Purdon, 1999). Bu nedenle, bilişsel yapıların değerlendirilmesi ve değişimlenmesi için kişinin sadece “ne” düşündüğüne yani düşünce içeriğine odaklanmak yerine, “nasıl” düşündüğüne de odaklanması, çünkü temelde bu “nasıl” ların sonuç itibarıyla kişiyi “ne” düşündüğüne ve düşünce içeriğine götürdüğü öngörülür (Wells, 2000). Bunun bir doğurgusu olarak da, spesifik içerik alanlarındaki inançların yeniden yapılandırılmasının ötesinde, kişiyi o düşünce içeriğine getirene kadar kullanılan bilişsel plan ve bilgi işleme stillerinin ele alınması yoluyla psikolojik bozukluğa neden olan içeriğe yönelik kökten düzenlemelerin yapılmasına çalışılır. Özetle, üstbilişsel bakış açısından yapılan terapötik müdahale, patolojik düşünce ile ilişkili olan tüm düzeyden düşünce ve inançların incelenmesini ve yeniden yapılandırılmasını vurgulamaktadır (Nelson et al., 1999; Papageorgiou & Wells, 1999; Wells & Purdon, 1999).

Üstbilisel yaklaşımda öne sürülen bu kuramsal çerçevenin duygusal bozukluklardan psikotik bozukluklara değin uzanan geniş yelpazeli bir uygulama alanı bulunmaktadır. Örneğin, ilgili literatür incelendiğinde, üstbilişsel inançlar ile

yaygın anksiyete bozukluğu (YAB; Wells, 1995, 1999), obsesif-kompulsif bozukluk (OKB; e.g., Emmelkamp & Aardema, 1999; Myers & Wells, 2005; Wells & Cartwright-Hatton, 2004; Wells & Papageorgiou, 1998) ve majör depresyondaki ruminasyonlar (Papageorgiou & Wells, 1999; Papageorgiou & Wells, 2003) arasında güçlü bir ilişki olduğunu gösteren çalışmalar göze çarpmaktadır.

Üstbilişsel faktörlerin birçok psikolojik bozukluğa genel bir yatkınlık oluşturan ve psikoterapötik değişimi yordayan unsurlardan biri olabileceğine ilişkin bulguların verdiği destekle, söz konusu kuramın literatürde ivme kazandığı ve mevcut psikoterapi yönelimlerini etkilemeye başladığı görülmektedir. Üstbilişsel kuram bilişsel kuramın çerçevesini genişleterek bu kurama farklı terapötik teknikler entegre etmesi nedeniyle, klinik psikoloji alanındaki araştırma ve uygulama faaliyetlerinin uzun vadede alacağı yoldaki önemli rehberlerden biri olacağı doğrultusunda sinyaller vermektedir.

Diğer yandan, ülkemizde şimdiye kadar üstbiliş kavramını klinik psikoloji perspektifinden ele alan ve bu kavramın Türk örneğine uygunluğunu araştıran bir çalışma yapılmamıştır. Bir diğer önemli nokta, kuramda öne sürülen ilkelerin sadece içinden doğduğu kültüre özgü değil, evrensel olarak genellenebilir olduğuna dair görgül kanıtlara ulaşılması gerekliliğidir. Ancak, üstbiliş kavramının ve onu oluşturan boyutların farklı psikolojik bozukların ortaya çıkma ve sürme mekanizmalarını açıklamada oynadığı rolün kültürel öğelerden ne derece etkilendiği henüz bilinmemektedir. Bu noktalardan hareketle, üstbilişsel kuramın kültürlerarası benzerlik ve farklılıklarının uygun araştırma desenleri üzerine oturtulmuş çalışmalarla incelenmesine ihtiyaç duyulmaktadır. Bu nedenle, bu tezin temel amaçlarından biri üstbilişsel kuramı Türk ve İngiliz kültürleri arasında karşılaştırmalı olarak incelemek ve böylece hem kuramın kültürlerarası geçerliğini araştırmak üzere bir ön girişimde bulunmak hem de Batı literatüründe yapılan çalışmalarını bir Türk örnekleme üzerinde tekrar ederek kuramda öne sürülen görüşlerin kültürümüzdeki geçerliği hakkında bir içgörü edinmektir.

Üstbilişsel kuramı destekler yöndeki ipuçlarının giderek artıyor olmasına karşın, kuramda hala görgül olarak geçerlenmesi gereken önemli noktalar bulunmaktadır. Üstbilişsel kurama ilişkin olarak incelenmeyi bekleyen konulardan biri, üstbilişsel inançların psikopatolojiyi açıklama düzeyimize, bilişsel içeriğe odaklanan bilişsel kuramın yapabildiğinin daha ötesinde bir katkıda bulunduğu

önermesidir (Wells & Matthews, 1994; Wells & Purdon, 1999). Pekçok çalışmada üstbilişsel kuram çeşitli yönlerden desteklenmiş olmasına rağmen, psikolojik semptomların açıklanmasına bilişsel içerik ve üstbilişlerin yaptığı görece katkının spesifik olarak incelenmesi faydalı olacaktır. Bu nedenle, üstbilişsel inançların psikopatolojiye bilişsel içeriğin üzerinde ve ötesinde yaptığı bağımsız katkının araştırılması bu tezin temel bir amacıdır.

Üstbiliş literatürü gözden geçirildiğinde, kurama ilişkin sözü edilen bu görgül desteklerin birçoğunun nedensel çıkarımların yapılmasını mümkün kılmayan enlemesine-kesitsel ve korelatif çalışmalardan geldiği görülmektedir. Fakat, eğer üstbilişsel faktörler kuramda öne sürüldüğü gibi patolojinin gelişiminde birer yatkınlık faktörü ise, bu durumda kuramın boylamsal bir desen kullanılarak test edilmesi gerekmektedir. Diğer bir deyişle, bir değişkenin sadece enlemesine-kesitsel ve korelasyonel analizlere dayanılarak yatkınlık faktörü olduğunu öne sürmek, söz konusu değişkenin yatkınlık işlevini test etmenin uygun bir yolu değildir. Diğer taraftan, bir yatkınlık faktörünün sadece varolması psikopatolojiye yol açması için gerekli bir koşul olmakla beraber, yeterli bir koşul değildir. Aslında, önceden varolan bir yatkınlık faktörü, daha sonra stres ile etkileşime girerek patolojinin ortaya çıkmasına neden olmaktadır. Bu nedenle, bu tezin diğer bir temel amacı, üstbilişsel inançların patolojinin gelişiminde nedensel bir faktör olup olmadığını uygun bir şekilde test etmek için iki zamanlı bir ölçüm deseni kullanmak ve üstbilişler ile stres faktörleri arasındaki etkileşim etkilerini incelemektir.

Sözü edilen tüm bu ana hedeflere ulaşmak için, bu çalışma her biri kendi spesifik amaç ve hipotezlerini içeren iki aşamalı bir araştırma planı üzerine oturtulmuştur. Enlemesine-kesitsel ve boylamsal çalışmalardan oluşan bu aşamaların her biri hem Türk hem de İngiliz örneklemi üzerinde ayrı ayrı gerçekleştirilmiştir. Yanısıra, kültürlerarası benzerlik ve farklılıkları görmek açısından, enlemesine-kesitsel çalışma kısmından elde edilen sonuçlar bu iki örneklem grubu arasında istatistikî olarak karşılaştırılmıştır.

I. Üstbilişsel Kuramın Kültürlerarası Geçerliliği: Enlemesine-Kesitsel Bir Çalışma

Amaç 1 ve Hipotez: Çeşitli üstbilişsel inançları değerlendirmek için geliştirilen Üst-Bilişler Ölçeği-30 (ÜBÖ-30; Wells & Cartwright-Hatton, 2004) ile beş üstbiliş kategorisinden ölçüm alınabilmektedir (parantez içinde faktör adları

verilmiştir): (1) kişinin endişenin işlevsel olduğuna ne derece inandığını ölçen (endişe ile ilgili olumlu inançlar), (2) kişinin endişenin ne derece kontrol edilemez ve tehlikeli olduğuna dair inançlarını değerlendiren (endişe ile ilgili olumsuz inançlar), (3) kişinin belleğine ne derece güvendiğini ölçen (bilişsel güvensizlik), (4) kişinin düşünceleri kontrol etme gerekliliğine ve kendi düşüncelerini kontrol etmemesinin sonuçlarına ilişkin inançlarını değerlendiren (düşünceleri kontrol etme ihtiyacı) ve (5) kişinin kendi düşüncelerini izleme ve farkına varma (monitoring) eğilimini ve dikkatin içedönük olarak odaklanmasını değerlendiren (bilişsel farkındalık) boyutlarıdır. Ölçekten elde edilen puanlar obsesif-kompulsif semptomatoloji, sürekli kaygı ve endişe gibi kaygının çeşitli ölçümleri ile yüksek korelasyon vermektedir (Wells & Cartwright-Hatton, 2004). Bu tezin ilk amacı, ÜBÖ-30'un Türk popülasyonundaki psikometrik özelliklerini İngiliz kültürü ile karşılaştırmalı olarak incelemektir. Böylece hem bu ölçeğin faktör yapısının kültürlerarası genellenebilirliği ve kültüre özgü yönleri ortaya konmuş hem de üstbilişleri ölçeğin geçerli ve güvenilir bir veri toplama aracı ülkemize kazandırılmış olacaktır. Ayrıca, ÜBÖ-30'un Türk örneklemindeki psikometrik özelliklerinin incelenmesini tamamlayıcı bir değerlendirme aracı olan Penn Eyalet Endişe Ölçeği'nin (PEEÖ; Meyer, Miller, Metzger, & Borkovec, 1990) psikometrik özelliklerinin de bu çalışma kapsamında incelenmesi amaçlanmıştır. Böylelikle, patolojik endişe konusunda yapılan araştırmalarda sıklıkla kullanılan bir ölçeğin de ülkemize kazandırılması söz konusudur. Bu amaçlar doğrultusunda, "ÜBÖ-30 ve PEEÖ'nün Türkçe versiyonları, İngilizce versiyonlarındakine benzer bir faktör yapısına ve geçerlik ve güvenilirliğe sahiptir" hipotezi kurulmuştur.

Amaç 2 ve Hipotezler: Enlemesine-kesitsel çalışma kısmındaki amaçlardan bir diğeri üstbiliş ve psikopatoloji arasındaki ilişkileri incelemektir. Bu amaca ulaşmak için oluşturulan hipotez; "Demografik özellikler (yaş ve cinsiyet) ve eşlik eden psikolojik semptomatoloji açılarından bireysel farklılıklar kontrol edildiğinde, yüksek düzeyde üstbilişlere sahip olmak psikolojik belirtilerin yüksek oluşu ile ilişkili olacaktır" şeklindedir. Bu hipotezde sözü edilen semptomatoloji grupları, patolojik endişe, obsesif-kompulsif belirtiler ve kaygı ve depresyon belirtilerini içermektedir. Bu hipotez her bir belirti grubu için ayrı ayrı test edilmiştir. Bir bireyde farklı semptom gruplarına aynı anda rastlanabileceğinden her bir belirti grubu için

yapılacak olan analizde, tüm diğer semptom gruplarının etkisi istatistiki olarak kontrol edilmiştir.

Bu amaçla ilgili diğer bir spesifik amaç yaygın anksiyete bozukluğunun (YAB) üstbilişsel modelindeki önermelerin Türk örnekleminde test edilmesine yöneliktir. Bu model kişinin yaşadığı normal endişenin (1. Tip endişe) patolojik bir forma dönüşmesinin, kaygı bozukluklarına özgü olumsuz düşünce içeriğinden ziyade (örn., “Başıma kötü bir şey gelecek”), yaşanan endişenin kendisine ilişkin olumsuz inançlardan (2. Tip endişe) kaynaklandığını öne sürmektedir. Bu noktadan hareketle, “Endişeye ilişkin olumlu inançlar, eşzamanlı olarak görülen diğer psikolojik belirtiler ve demografik özellikler (yaş ve cinsiyet) açısından görülen bireysel farklılıklar kontrol edildiğinde, kaygı içerikli düşünceler ile patolojik endişe arasındaki ilişkiye endişeye ilişkin olumsuz inançlar aracılık etmektedir” hipotezi oluşturulmuştur.

Amaç 3 ve Hipotez: Bu kısımdaki üçüncü amaç, üstbiliş literatürü gözden geçirildiğinde, üstbilişin çeşitli boyutları ile belirli psikolojik bozukluklar arasındaki spesifik ilişkilerin henüz tam olarak incelenmemiş olduğu tespitine dayandırılmıştır. Bilişsel kurama göre belli bazı bilişsel içerikler belli bazı bozukluklara özgüdür. Bu nedenle, belli bazı üstbilişsel işleme bileşenlerinin de spesifik bazı bozukluklar için diğer bozukluklara göre daha önemli olabileceği düşünülebilir. Bu bağlamda, üstbilişlerin farklı bozukluklar için boyut spesifik olarak incelenmesi değerli bilgiler verecektir (Bouman & Meijer, 1999; Semerari, Carcione, Dimaggio, Falcone, Nicolo, Procacci, & Alleva, 2003). Bu amaca ulaşmak için oluşturulan hipotez; “Üstbilişin bazı boyutları, bazı psikolojik belirti gruplarını diğer boyutlara göre daha iyi yordar” şeklindedir. Burada sözü edilen psikolojik belirti grupları yukarıda adı geçenler ile aynıdır ve söz konusu hipotezler her belirti grubu için ayrı ayrı test edilmiştir.

Amaç 4 ve Hipotezler: Bu kısımdaki dördüncü amaç, üstbilişsel inançların psikopatolojiyi açıklama düzeyimize, bilişsel içeriğe odaklanan bilişsel kuramın yapabildiğinin daha ötesinde bir katkıda bulunduğu önermesi çerçevesine oturtulmuştur (Wells, 2000; Wells & Matthews, 1994; Wells & Purdon, 1999). Literatürde şimdiye kadar sadece obsesif-kompulsif bozukluk çerçevesinde yapılmış olan birkaç çalışma bu önermenin direk olarak incelenmesi üzerinde durmuştur (Gwilliam et al., 2004; Myers & Wells, 2005). Bu nedenle, bu tezin temel amaçlarından biri üstbilişsel inançların psikopatolojiye bilişsel içeriğin yaptığı

katkının ötesinde ve üzerinde bireysel bir katkısının olup olmadığının incelenmesidir. Bu amaç çerçevesinde test edilen hipotez; “Üstbilişsel inançlar, depresyon ve kaygıda söz konusu olduğu bilinen bilişsel içerik ve demografik değişkenler kontrol edildikten sonra dahi depresyon ve kaygı belirtilerindeki varyansın anlamlı bir kısmını açıklar” şeklindedir. Aynı amaç çerçevesinde ve bu hipotezi tamamlar nitelikte, “Üstbilişlerin psikolojik semptomlarla ilişkisi bilişsel içeriğin psikolojik semptomlarla olan ilişkisinden daha güçlüdür” hipotezi de test edilmiştir. Yine, eşlik eden diğer semptom boyutları her analiz için kontrol edilmiştir.

II. Üstbilişlerin Psikopatolojinin Gelişmesinde Stresi Takiben Oynadığı

Nedensel Rol: Boylamsal Bir Çalışma

Bu tezin ikinci adımı, üstbiliş kavramının psikopatolojiye bir yatkınlık faktörü olduğu önermesinin görgül olarak incelenmesi genel amacı ile ilgilidir. Üstbilişsel inançlar ile duygusal bozukluk kategorileri arasındaki ilişkiler üstbilişin psikolojik bozukluklar için genel bir nedensel yatkınlık faktörü olarak işlev gördüğünü ortaya koymamaktadır. Eğer üstbilişsel inançlar kuramda ileri sürüldüğü gibi pek çok psikolojik bozukluğun gelişimi için bir yatkınlık faktörü ise, o zaman bu kuramsal önermenin ideal olarak bir yatkınlık-stres modeli içerisinde, üstbilişsel inançlar ile olumsuz yaşam olayları arasındaki etkileşimin incelenmesi yoluyla test edilmesi gerekmektedir.

Amaç 1 ve Hipotez: Üstbilişlerin nedensel rolünün incelenmesinden önce, iki farklı stres ölçeğinin Türk örneklemindeki psikometrik özelliklerinin çalışılması amaçlanmıştır. Bu araçlardan biri Yaşam Deneyimleri Anketi (YDA; Sarason, Johnson, & Siegel, 1978), diğeri ise Üniversite Öğrencilerinin Güncel Yaşam Deneyimleri Envanteri (ÜÖGYDA; Kohn, Lafreniere, & Gurevich, 1990) dir. Çalışmada stres ölçümlerinin iki farklı veri toplama aracı kullanılarak alınmasının nedeni, bu araçların farklı stres kaynaklarına ilişkin ölçüm yapıyor olmalarıdır. YDA iki 6 aylık zaman dilimine ayırarak son bir yılda yaşanan temel/kritik yaşam olaylarını değerlendirirken, ÜÖGYDA üniversite öğrencilerinin son bir ay içerisinde yaşadıkları günlük sıkıntıları psikolojik belirti ve öznel sıkıntı düzeyleri ile karıştırmaksızın ölçmek üzere geliştirilmiş bir veri toplama aracıdır. Bu amaç çerçevesinde, “YDA ve ÜÖGYDA’nın Türkçe versiyonları, İngilizce versiyonları ile benzer psikometrik özellikler gösterecektir” hipotezi kurulmuştur.

Amaç 2 ve Hipotez: Önceden varolan bir yatkınlık faktörü ancak daha sonraki bir zamanda stres faktörleri ile etkileşime girerek psikopatolojiye yol açtığı için, neden konumunda olduğu ileri sürülen bir değişkenin sadece enlemesine kesitsel bir desene dayandırılarak yatkınlık faktörü olarak işlev gördüğü sonucuna varmak söz konusu araştırmanın bir kısıtlılığı olacaktır. Diğer bir deyişle, psikopatolojiyi yordayabilmek için hem yatkınlık hem de stres faktörlerinden aynı anda ölçüm almak, söz konusu olgunun dakik ve neden-sonuç ilişkisi çıkarımına olanak verecek bir testi olmayacaktır. Buna karşılık, söz konusu yatkınlık faktörünün olumsuz yaşam olaylarının deneyimlenmesinden önce ölçülmesi, yatkınlık-stres modelinin geçerlenmesinin bilimsel olarak daha doğru bir yolu olacaktır. Bu nedenle, üstbilişsel inançlar ile yaşam stresi değişkenlerinin iki-zamanlı bir ölçüm deseni içerisinde ele alınarak, üstbilişin psikopatoloji için bir yatkınlık faktörü olup olmadığı konusunun daha dakik ve neden-sonuç ilişkisi çıkarımı yapmaya olanak verebilecek şekilde incelenmesi araştırmanın bu kısmındaki temel amaçtır.

Üstbilişsel kuram bu konuda farklı olası sonuçlara ulaşılabileceğini öngörmektedir. Kurama göre, üstbilişler psikolojik belirti düzeylerinde meydana gelen değişime strese maruz kalmanın ötesinde ve üzerinde bir katkı yapabileceği gibi, üstbilişler yaşanan stres tarafından harekete geçirilerek de olumsuz duygularda artışa neden olabilir. Bu bilgiler ışığında, iki spesifik hipotez önerilmiştir. Birinci hipotez “Kaygı ve depresyonun ilk ölçüm zamanında belirlenen düzeyleri ve iki ölçüm zamanı arasında yaşanan stres düzeyi kontrol edildiğinde, üstbilişsel inanç ve süreçler ile ikinci ölçüm zamanında belirlenen kaygı ve depresyon düzeyleri arasında pozitif yönde bir ilişki vardır” şeklindedir. İkinci hipotez “Kaygı ve depresyonun ilk ölçüm zamanında belirlenen düzeyleri kontrol edildiğinde, ilk ölçüm zamanında belirlenen üstbilişsel inanç ve süreçlerin ikinci ölçüm zamanında belirlenen olumsuz yaşam olayları ile girdiği etkileşim, kaygı ve depresyon belirtilerinin şiddetinde görülen değişimi yordar” şeklinde oluşturulmuştur. Her analizde, diğer semptom boyutu kontrol edilmiştir.

Bu hipotezleri test etmek için, ölçümler iki zaman üzerinden alınmıştır. Birinci ölçüm zamanında üstbilişler ve kaygı ve depresyon semptomları belirlenmiştir. Altı ay sonra gerçekleştirilen ikinci ölçüm zamanında, kaygı ve depresyon düzeyleri tekrar ölçülmüştür. Ayrıca, bu iki ölçüm arasında geçen zaman dilimi içerisinde yaşanan kritik yaşam olaylarının olumsuz etkisi ve son bir ayda

yaşanan günlük sıkıntı düzeyleri de, ikinci ölçüm zamanında belirlenmiştir. Kaygı ve depresyon belirtilerinin hem birinci hem de ikinci zaman ölçümlerinde iki kere değerlendirilmesindeki amaç hem bireyler arasında bu semptom düzeyleri açısından varolan temel düzey (baseline level) farklılıkları kontrol etmek hem de söz konusu semptom düzeylerinde olumsuz yaşam olaylarını takiben meydana gelen değişimi belirlemektir.

Yöntem

Örneklem

Türk Örneklemi. Çalışmanın enlemesine-kesitsel ayağında kullanılan Türk örnekleme 457'si Abant İzzet Baysal Üniversitesi (AİBÜ) ve Orta Doğu Teknik Üniversitesi'nin (ODTÜ) çeşitli bölümlerinde eğitim görmekte olan lisans ve yüksek lisans öğrencileri ve 104'ü AİBÜ'nün çalışanları olmak üzere toplam 561 katılımcıdan oluşmaktadır. Örneklem grubunun öğrencilerden oluşan kısmında 251 kadın ve 206 erkek denek bulunmaktayken, öğrenci olmayan kısmında 49 kadın ve 55 erkek denek yer almaktadır. Böylelikle, örneklemin tümü 300 kadın ve 261 erkek katılımcıdan oluşmaktadır. Örneklem grubunun yaş dağılımı 17 ile 52 arasında değişmekte olup, ortalaması 23.55 ($SS = 5.7$) olarak bulunmuştur.

Çalışmanın boylamsal kesimine ilişkin verileri toplamak için enlemesine kesitsel çalışmaya katılmış denekler arasından 172 kişiye altı ay sonra tekrar ulaşılmıştır. Bu örneklem yaşları 19 ile 47 arasında değişmekte olan (ortalama = 24.14; $SS = 5.74$) 103 kadın ve 69 erkek katılımcıdan oluşmaktadır.

İngiliz Örneklemi. İngiliz örneklem grubu Manchester Üniversitesi'nin çeşitli bölümlerinde lisans ve yüksek lisans eğitimi gören toplam 251 öğrenciden oluşmaktadır. Katılımcıların yaklaşık 164'ü kadın ve 85'i erkektir (iki katılımcı cinsiyetlerini bildirmemiştir). Örneklemin yaş dağılımı 17 ile 59 yaş arasında değişmekte olup, ortalaması 22.5' tir ($SS = 5.0$). İngiliz örneklemindeki vatandaşlık statüsü incelendiğinde, katılımcıların 195'inin İngiliz vatandaşı olduğu görülürken, 56'sının İngiliz vatandaşı olmadığı tespit edilmiştir. Bu iki grubun bağımlı değişkenlerden elde edilen ölçümler açısından birbirinden anlamlı bir farkının olup olmadığını incelemek amacıyla bağımsız gruplar *t*-testi yapılmıştır. İki grup arasında anlamlı fark bulunan bağımlı değişkenler için yapılan temel analizlerde, vatandaşlık statüsünün etkisi istatistikî olarak kontrol edilmiştir.

İlk çalışmaya katılan deneklerden 108 tanesi araştırmanın 5-6 ay arasında gerçekleştirilen ikinci adımına da katılmıştır. Bu deneklerin 80'i kadın ve 28'i erkek olup, yaş ortalamaları 22.86'dır ($SS = 6.3$; ranj: 18-59). İkinci çalışmaya katılan deneklerden 91'i İngiliz vatandaşı, 17'si İngiliz vatandaşı değildir. Bağımsız gruplar *t*-testi sonucunda İngiliz vatandaşı olan ve olmayan katılımcıların kaygı puanları arasında anlamlı olarak fark bulunduğundan, bu etki boylamsal çalışma çerçevesinde yapılan analizlerde kontrol edilmiştir.

Türk ve İngiliz Karma Örneklem. Çalışmanın enlemesine-kesitsel kısmından elde edilen sonuçları Türk ve İngiliz grupları arasında istatistikî olarak karşılaştırmak amacıyla, bu iki örneklem grubundaki katılımcılar arasından cinsiyet, yaş, üniversitenin kaçınıcı sınıfında bulunduğu, medeni hal ve gelir düzeyi gibi demografik özellikleri açısından eşlenmiş toplam 334 Türk ve İngiliz öğrenciden oluşan yeni bir örneklem grubu oluşturulmuştur. Bu homojenleştirilmiş kültürlerarası grupta 169 Türk ve 165 İngiliz katılımcı yer almaktadır. Türk katılımcıların 98'i kadın ve 71'i erkek, İngiliz katılımcıların 105'i kadın ve 60'ı erkek öğrencilerdir. Türk katılımcıların yaş ortalaması 21.5 ($SS = 2.29$; ranj: 17-33) iken, İngiliz katılımcıların yaş ortalaması 21.23'tür ($SS = 2.9$; ranj: 17-34). Bir bütün olarak bu örneklem 203 kadın ve 131 erkekten oluşmaktadır ve yaş ortalaması 21.37'dir ($SS = 2.61$; ranj: 17-34).

Veri Toplama Araçları

Türk örneklemini üzerinde yürütülen enlemesine-kesitsel çalışmada veri toplama araçları olarak çeşitli üstbilişsel düşünce ve süreçleri değerlendirmek amacıyla Üst-Bilişler Ölçeği-30 (ÜBÖ-30), patolojik endişeyi ölçmek amacıyla Penn Eyalet Endişe Ölçeği (PEEÖ), obsesif-kompulsif belirtileri belirlemek amacıyla Padua Envanteri-Washington Eyalet Üniversitesi Revizyonu (PE-WEÜR), sürekli kaygıyı ölçmek amacıyla Durumluk-Sürekli Kaygı Envanteri-Sürekli Kaygı formu (DSKE-S), kaygı semptomlarını değerlendirmek amacıyla Beck Anksiyete Envanteri (BAE), depresif semptomları belirlemek amacıyla Beck Depresyon Envanteri (BDE), ve kaygı ve depresyon içerikli otomatik düşünceleri değerlendirmek amacıyla Biliş Tarama Listesi (BTL) kullanılmıştır. İngiliz örnekleminde yürütülen enlemesine kesitsel çalışmada, bu veri toplama araçlarına ek olarak, ruminasyona ilişkin pozitif inançlar ölçeği (RİPİÖ), ruminasyona ilişkin negatif inançlar ölçeği (RİNİÖ), klinik olmayan örneklemlerde görülen depresif belirtileri ölçmek için Epidemiyolojik

Çalışmalar Merkezi-Depresyon (EÇM-D) ölçeği ve depresif şemaları değerlendirmek amacıyla Fonksiyonel Olmayan Tutumlar Ölçeği-24 (FOTÖ-24) kullanılmıştır.

Çalışmanın yaklaşık altı ay sonra gerçekleştirilen boylamsal kısımda Türk ve İngiliz katılımcılara BAE, BDE ve EÇM-D (sadece İngiliz örnekleme) ölçeklerinin tekrar uygulanmasının yanısıra, aradan geçen zamandaki stresli yaşam olaylarını ve gündelik sıkıntıları değerlendirmek amacıyla YDA ve ÜÖGYDA ölçekleri de uygulanmıştır.

İşlem

Türk örneklem grubundaki öğrencilerden veri toplama işlemi ders saatleri içerisinde gerçekleştirilmiştir. Öğrencilerden bir kısmı araştırmaya katılımları için kredi almış, diğer kısmı ise gönüllü olarak katılmıştır. Öğrenci olmayan katılımcılar uygunluk örnekleme yöntemi (convenience sampling) ile toplanmıştır. Uygulamalar öncesinde, tüm katılımcılara araştırma hakkında bilgi verilmiştir. Veri toplama araçlarının uygulanma sırasından kaynaklanabilecek sıralama ve taşıma etkilerini elimine etmek amacıyla, ölçekler katılımcılara seçkisiz olarak karışık bir sırada uygulanmıştır. Katılımcılar, bu araştırmaya dair bilgi aldıklarını ve kendi rızaları ile katıldıklarını gösterir belgeyi (informed-consent) ve demografik bilgi formunu da doldurmuşlardır. Katılımcılardan ayrıca, ikinci çalışma için kendilerine ulaşıldığında tekrar hatırlayabilecekleri bir kodu demografik bilgi formunda ayrılan yere yazmalarını istenmiş ve bu kodun katılımcıların kimlik bilgilerini tanımaya değil, cevaplarını eşleştirme işine yarayacağı açıklanmıştır. İlk çalışma için ölçekleri uygulama işlemi yaklaşık olarak 30 dakikada tamamlanırken, ikinci çalışma için yapılan uygulama yaklaşık 20 dakika almıştır.

İngiliz örneklem grubundan veri toplama işlemi online olarak gerçekleştirilmiştir. Manchester Üniversitesi'nin webmail sistemi aracılığıyla tüm öğrencilere araştırmaya katılmak isteyip istemedikleri sorulmuştur. Katılmak isteyen öğrenciler ilgili linki kullanarak, araştırmayı tanıtıcı bilgilere, araştırmaya kendi rızaları ile katıldıklarını gösterir belgeye, veri toplama araçlarına ve demografik bilgi toplama formuna ulaştıkları bir websitesine bağlanmışlardır. Veri toplama araçlarının online olarak kullanılması için yetkili kişi ve kuruluşlardan gerekli izinler alınmıştır. Araçların web ortamında uygulanabilmelerine olanak sağlamak amacı ile yönergelerinde gerekli düzeltmeler yapılmıştır. Ayrıca, çalışmanın altı ay sonra gerçekleştirilecek olan ikinci aşamasına ve 50 poundluk ödül çekilişine katılmak

isteyen deneklere e-mail adreslerini sisteme girme seçeneği de sunulmuştur. Veri toplama araçlarının uygulanma sırasını seçkisizleştirmek için özel bir programlama yöntemi kullanılmıştır. İlk çalışmadaki araçlarının uygulanması yaklaşık olarak 40 dakika alırken, bu süre ikinci çalışmada yaklaşık 30 dakika olmuştur.

Bulgular ve Tartışma

Üstbilişsel Kuramın Kültürlerarası Geçerliliği: Enlemesine-Kesitsel Bir Çalışma

Ölçeklerin psikometrik özellikleri ile ilgili araştırma hipotezini destekler biçimde, yapılan temel bileşenler faktör analizleri sonucunda hem ÜBÖ-30 hem de PEEÖ'nün Türk örneğinde de İngilizce versiyonlarına benzer bir faktör yapısına sahip oldukları bulunmuştur. Ayrıca, her iki ölçeğin de kabul edilebilir madde-toplam korelasyonlarına, yüksek iki-yarım güvenilirliğine (PEEÖ için .91, ÜBÖ-30 için .90) ve test-tekrar test tutarlığına (PEEÖ için .88, ÜBÖ-30 için .80) sahip olduğu bulunmuştur. Ölçeklerin iç tutarlık katsayılarının da yüksek olduğu görülmüştür. Buna göre PEEÖ'nün Cronbach alfa katsayısı .91 olarak bulunurken, bu katsayı ÜBÖ-30 toplam puanları için .87 olup, alt-ölçekleri için .73 ile .89 arasında değişmektedir. Ölçeklerin benzeşme/örtüşme geçerliklerini (convergent validity) incelemek üzere ölçülen özelliklerle kuramsal olarak ilişkili olabilecek, benzer kavramları ölçen veri toplama araçları ile aralarındaki korelasyonlar hesaplanmış ve her iki ölçeğin de sürekli kaygı, obsesif-kompulsif belirtiler, kaygı ve depresyon belirtileri ile pozitif yönde ve yüksek korelasyona sahip oldukları görülmüştür. Beklendik şekilde, bu iki ölçek kendi aralarında da pozitif yönde yüksek bir korelasyona sahiptir. Bunların yanı sıra, ÜBÖ-30'un ölçüt geçerliğini (criterion validity) incelemek üzere örneklem yüksek ve düşük endişe olmak üzere iki ekstrem gruba bölünmüş ve ÜBÖ-30 toplam puan ve alt ölçek puanlarının bu iki grubu birbirinden anlamlı olarak ayırdedip edemeyeceği MANOVA aracılığı ile incelenmiştir. Sonuçlar yüksek endişe grubunda yer alan deneklerin tüm ÜBÖ-30 altölçek puanları açısından düşük endişe grubunda yer alan deneklerden anlamlı olarak farklılaştığını göstermiştir. Diğer bir deyişle, yüksek endişeye sahip olan bireylerin üstbiliş puanları (endişeye ilişkin olumlu ve olumsuz inançlar, bilişsel güvensizlik, düşünceleri kontrol etme ihtiyacı ve bilişsel farkındalık) endişesi düşük olan bireylerin üstbiliş puanlarından anlamlı olarak daha yüksek bulunmuştur. Bu bulgular literatürde PEEÖ ve ÜBÖ-30'un geçerlik ve güvenilirliğine ilişkin olarak

bildirilen bulgular ile tutarlıdır (Meyer et al., 1990; Wells & Cartwright-Hatton, 2004). Öte yandan, söz konusu ölçeklerin Türk örneklemindeki psikometrik özelliklerinin başta YAB olmak üzere klinik gruplarla da çalışılmasına ve ölçeklerin hasta gruplarını ayırtma gücünün ve terapi sonuçlarına duyarlılığının da incelenmesine halen ihtiyaç duyulmaktadır.

Çalışmadaki diğer hipotezleri test etmek için hiyerarşik regresyon analizleri kullanılmıştır. Bu analizlerde bağımlı ya da yordanan değişken olarak patolojik endişe, obsesif-kompulsif semptomlar, kaygı ve depresyon skorları kullanılmıştır. Regresyon analizlerinin ilk basamağında, korelasyon matrisinde yordanan değişkenle anlamlı düzeyde ilişkili bulunan demografik değişkenler (yaş ve/ya cinsiyet) kontrol edilmiştir. İlk basamakta ayrıca yordanan değişkenle eş zamanlı olarak görülebilecek diğer belirti grupları da kontrol edilmiş ve böylelikle yordanan değişkenin açıklanmasına karıştırıcı etkide bulunabilecek diğer semptomların etkisi elimine edilmeye çalışılmıştır. Regresyonların ikinci basamağında, yordanan değişkeni obsesif-kompulsif belirtiler ve genel kaygı belirtileri olan analizler için kaygılı düşünce içeriği, depresyon olan analizler içinse depresif düşünce içeriği eşitliğe sokulmuştur. En son basamakta ise, üstbilişler blok olarak analize dahil edilmişlerdir. Bilişsel içerik ve üstbilişlerin psikopatolojiyi yordamaya yaptığı görelî katkıyı inceleme amacı çerçevesinde, sözü edilen bu analizler ikinci ve üçüncü basamaklar yer değiştirilerek ikinci set bir regresyonla tekrar edilmiştir.

Araştırmanın üstbilişler ile psikolojik semptomlar arasında pozitif bir ilişki öngören ikinci hipotezi hem Türk hem İngiliz örneklemlerinde elde edilen sonuçlarca doğrulanmıştır. Buna göre, ilgili demografik özellikler ve eş zamanlı semptomlar kontrol edildikten sonra, üstbilişsel değişkenlerin çalışmada kullanılan kaygı ve depresyon ölçümleri ile pozitif yönde ve anlamlı bir ilişki içinde oldukları bulunmuştur. Diğer bir deyişle, üstbiliş puanlarındaki artış, psikopatoloji puanlarındaki artışı yordamaktadır. Bireysel olarak hangi üstbilişsel faktörlerin hangi semptom grubu ile ilişkili olduğunu incelemek üzere yapılan set içi analizler, literatür bulguları ile tutarlı olarak (Cartwright-Hatton & Wells, 1997; Davis & Valentiner, 2000; de Bruin et al., 2007; Papageorgiou & Wells, 1999; Wells & Carter, 1999; Wells & Papageorgiou, 1998), endişe ile ilgili yüksek düzeyde olumlu ve olumsuz inançlara sahip olmanın her iki örneklem grubunda da patolojik endişenin yüksek oluşunu yordadığını ortaya koymuştur. Öte yandan, bilişsel

güvensizlik puanının yüksek oluşunun patolojik endişenin yüksekliğini Türk örnekleminde anlamlı olarak yordarken, bu değişkenin İngiliz örnekleminde patolojik endişe düzeyini anlamlı olarak yordamadığı bulunmuştur. YAB'nun üstbilişsel modeline göre kişinin bilişsel güveninin azalması problem çözme becerisini azaltarak, endişenin artmasına yol açabilmektedir (Wells & Matthews, 1994, 1996; Wells, 2000).

Obsesif-kompulsif semptomları her iki örneklem grubunda da bireysel olarak yordayan üstbilişsel değişkenlerin ise endişeye ilişkin olumlu inançlar ve düşünceleri kontrol etme ihtiyacı olduğu bulunmuştur. Bu bulgu literatürdeki diğer çalışmalarla ve özellikle düşünceleri kontrol etme ihtiyacına vurgu yapan OKB'nin üstbilişsel modeliyle tutarlıdır (Cartwright-Hatton & Wells, 1997; Myers & Wells, 2005; Wells & Papageorgiou, 1998). Türk örnekleminde anlamlı bulunmamakla birlikte, literatürle tutarlı olarak İngiliz örnekleminde endişeye ilişkin yüksek düzeyde olumsuz inançların da obsesif-kompulsif semptomlardaki artışı yordadığı görülmektedir. Bu üstbilisel inancın Türk örnekleminde obsesif-kompulsif belirtilerin bir yordayıcısı olarak bulunmaması, yapılan analizlerde endişe ile obsesif içerik arasında görülen binişikliğin kontrol edilmiş olmasından kaynaklanıyor olabilir. Bu düşünceyi sınamak için iki değişken arasındaki ortak varyansı kontrol etmeden tekrarlanan analizde, endişe ile ilgili olumsuz inançların Türk örnekleminde de obsesif-kompulsif belirtilerin bir yordayıcısı olduğu gösterilmiştir. Diğer yandan, üstbilisel modelin görüşleri ile tutarsız olarak, ne kişinin kendi düşüncelerini izleme (monitoring) eğilimini ölçen bilişsel farkındalık boyutunun ne de bilişsel güvensizlik boyutunun Türk ve İngiliz örneklemelerindeki obsesif-kompulsif semptomların birer yordayıcısı olduğu bulunmuştur. Elde edilen bu sonucun çeşitli nedenleri olabilir. Bunlardan biri, bu çalışmada spesifik obsesif-kompulsif belirti kategorileri yerine (örneğin, kontrol etme, bulaşma/kirlenme, temizleme/temizlenme, vb.), genel obsesif-kompulsif semptomatoloji üzerinde durulmuştur. Fakat, sözü edilen bu üstbilişsel boyutlar genel semptomatoloji yerine spesifik obsesif-kompulsif belirti gruplarının daha iyi birer yordayıcısı olabilir. Diğer bir açıklama, bu çalışmadaki örneklem grubunun klinik bir grup olmaması doğrultusunda yapılabilir. Söz konusu üstbilişler, normal gruplardan ziyade hasta popülasyonlarında obsesif-kompulsif belirtilerin birer yordayıcısı olabilirler. Dolayısıyla, bu çalışmanın OKB hastaları ile

ve spesifik OKB semptom kategorilerine odaklanılarak tekrar edilmesine ihtiyaç vardır.

Bu çalışmadan elde edilen diğer bir sonuç, üstbilişsel faktörlerden endişe ile ilgili yüksek düzeyde olumsuz inançların hem Türk hem de İngiliz örneklemelerinde genel kaygı semptomlarındaki artışı yordadığı yönündedir. Yanısıra, endişeye ilişkin olumlu inanç düzeyindeki artış da, İngiliz örnekleme için, kaygı düzeyindeki artışın bir yordayıcısı olarak bulunmuştur. Literatürde üstbilişsel inançların genel kaygı semptomları ile ilişkisi üzerinde duran bir çalışma bulunmadığından, bu sonuçlar konu hakkında bilgi verici bir nitelik taşımaktadır.

Türk örnekleminde, endişe hakkındaki olumsuz inançlardaki artış depresif belirtilerdeki artışın da bir yordayıcısı olarak bulunmuştur. Ancak literatürdeki araştırma bulgularının bir kısmı ile tutarsız olarak (Papageorgiou & Wells, 2003), bilişsel güvensizlik boyutu depresif belirtileri yordamada anlamlı bulunmamıştır. Depresyonun üstbilişsel modeli (Papageorgiou & Wells, 2003; Wells, 2000), özellikle majör depresyon hastaları ile yapılan çalışmalarda geçerlendiğinden (Papageorgiou & Wells, 2001a, 2001b, 2003), elde edilen sonucun bu araştırmanın hasta örnekleme üzerinde değil, öğrenci örnekleme üzerinde yürütülmüş olmasından kaynaklandığı düşünülebilir. İngiliz örnekleminde, ruminasyon ile ilgili olumlu ve olumsuz inançlardaki artışın, bu çalışmada depresyonu ölçmek için kullanılan tüm veri toplama araçlarından elde edilen depresyon skorlarındaki artışı anlamlı olarak yordadığı sonucu elde edilmiştir. Bu bulgunun tek istisnası, ruminasyon ile ilgili olumlu inançların durumluk (state) depresyon puanlarını yordamada anlamlı iken, sürekli (trait) depresyon skorunu yordamada anlamsız bulunmasıdır. Bu bulgu, ruminasyon ile ilgili olumlu inanışların durumluk ve sürekli depresyon üzerinde farklı etki mekanizmalarına sahip olabileceği şeklinde yorumlanabilir.

Çalışmanın enlemesine kesitsel kısmından elde edilen bulgular kaygı içerikli düşünceler ile patolojik endişe arasındaki ilişkiye endişeye ilişkin olumsuz inançların aracılık ettiğini öne süren üçüncü hipotez çerçevesinde değerlendirildiğinde, bu hipotezin Türk örnekleminde kısmen desteklendiği görülmektedir. Diğer bir deyişle, endişe ile ilgili olumsuz inançlar kaygı içerikli düşünceler ve patolojik endişe arasındaki ilişkiye kısmen aracılık etmektedir. Öte yandan, veriler bu hipotezin İngiliz örnekleminde desteklenmediğini göstermektedir.

Çalışmadan elde edilen sonuçlar üstbilişin bazı boyutlarının bazı psikolojik belirti gruplarını diğer boyutlara göre daha iyi yordadığını öne süren dördüncü hipotez açısından değerlendirildiğinde, endişe ile ilgili *olumlu* inançların hem Türk hem de İngiliz örneklemelerinde patolojik endişe ve obsesif-kompulsif belirtiler ile pozitif yönde ilişkili olduğu görülmektedir. Ayrıca bu boyutun İngiliz örnekleminde obsesif-kompulsif belirtileri yordayan en güçlü üstbilişsel faktör olduğu bulunmuştur. Elde edilen sonuçlar, neredeyse incelenen tüm psikolojik belirtiler açısından endişe ile ilgili *olumsuz* inançların genel bir önem taşıdığını göstermektedir. Her iki örneklem grubunda da bu değişken patolojik endişe ve genel kaygı semptomlarının diğer üstbilişlere kıyasla en güçlü yordayıcısı olmuştur. Ayrıca, bu faktörün İngiliz örnekleminde obsesif-kompulsif semptomlar, Türk örnekleminde ise depresif semptomlar ile pozitif bir ilişki içerisinde olduğu bulunmuştur.

Beklenenin aksine, *bilişsel güvensizlik* boyutu bu çalışmada incelenen psikolojik semptomların anlamlı bir yordayıcısı olarak bulunmamıştır. Bu bulgunun tek istisnası, bu üstbilişin Türk örnekleminde patolojik endişe skorlarını yordamada anlamlı olmasıdır. Öte yandan, OKB'nin üstbilişsel modelini destekler biçimde, *düşünceleri kontrol etme ihtiyacı* hem Türk hem de İngiliz örneklemelerinde obsesif-kompulsif belirtilerle ilişkili bulunmuş, hatta bu üstbilişsel boyut Türk örnekleminde obsesif-kompulsif belirtilerin en güçlü üstbilişsel yordayıcısı olmuştur.

Hem Türk hem de İngiliz gruplarında tüm kaygı ölçümleri ile ve İngiliz grubunda aynı zamanda depresyon belirtileri ile de anlamlı derecede pozitif korelasyon göstermesine karşın, *bilişsel farkındalık* boyutunun gerek Türk gerekse İngiliz örneklemelerinde hiçbir psikolojik semptomu yordama işlevine sahip olmadığı görülmektedir. Bu bulgu, sadece düşünceleri izleme ve farkında olma eğiliminin psikopatoloji ile ilişkili olmasından ziyade, izlenen ve farkında olunan düşünce içeriğinin de psikopatolojinin ortaya çıkışında önemli olabileceğine işaret etmektedir. Diğer bir deyişle, koşulsuz bir biçimde salt düşüncelere ilişkin yüksek bir farkındalığa değil, farkında olunan düşüncenin ne içerikte olduğu koşuluna da bağlı olarak psikopatoloji gelişmekte ve sürmektedir denilebilir. Çalışmadan elde edilen bu sonuçlara dayanılarak, bilişsel farkındalık ve bilişsel içerik arasındaki etkileşimin psikolojik semptomatolojiyle ilişkisini inceleyen araştırmalar üzerine odaklanması önerilmektedir.

Son olarak, çalışmanın enlemesine-kesitsel kısmından elde edilen sonuçlar birbirini tamamlayıcı nitelikte olan üstbilişsel inançların ilgili bilişsel içerik kontrol edildikten sonra dahi depresyon ve kaygı belirtilerindeki varyansın anlamlı bir kısmını açıkladığını öne süren beşinci hipotez ve üstbilişlerin psikolojik semptomlarla ilişkisinin bilişsel içeriğin psikolojik semptomlarla olan ilişkisinden daha güçlü olduğunu ileri süren altıncı hipotez açısından değerlendirildiğinde, hem Türk hem de İngiliz örneklemelerinde, bilişsel içerik kontrol edilmeden önce anlamlı bulunan ve yukarıda rapor edilenlerle aynı üstbilişlerin, ilgili bilişsel içerik veya depresif şema kontrol edildikten sonra da adı geçen psikolojik semptomların anlamlı birer yordayıcısı olduğu görülmüştür. Diğer bir deyişle, yukarıda anlamlı bulunan bu üstbilişler patolojik endişe, obsesif-kompulsif semptomlar, kaygı ve depresif belirtileri açıklamaya bilişsel içeriğin ötesinde ve üzerinde bir katkıda da bulunmuştur. Her iki örneklem grubunda da üstbilişler ve bilişsel içeriğin regresyon eşitliğine girme sırasını değiştirmek suretiyle bu değişkenler tarafından açıklanan varyans (R^2 ve R^2_{change} değerleri) ve bağımlı değişkeni yordama güçleri (β değerleri) birbiriyle kıyaslanmış, ve üstbilişlerin kaygı ile ilişkili semptomları (patolojik endişe, obsesif-kompulsif belirtiler, genel kaygı semptomları) açıklamaya bilişsel içerikten daha fazla katkıda bulunduğu ve bu semptomların daha güçlü bir yordayıcısı olduğu belirlenmiştir. Öte yandan, bağımlı değişkeni depresyon olan analizler Türk örnekleminde incelendiğinde, depresif düşünce içeriğinin üstbilişlere kıyasla depresif semptomatolojinin daha güçlü bir yordayıcısı olduğu bulunmuştur. Bu sonucun, Türk örnekleminde kullanılan üstbilişler ölçeğinin (ÜBÖ-30) depresyondan ziyade endişe ve kaygı ile ilgili bir veri toplama aracı olduğu da göz önünde bulundurularak yorumlanması yerinde olacaktır.

Bu sorunu ortadan kaldırmak ve depresyonun üstbilişsel modelini tam olarak modelde öne sürülen değişkenleri kullanarak test edebilmek amacı ile İngiliz örnekleminde Türk örnekleminde adaptasyon çalışmaları bulunmadığı için kullanılamayan veri toplama araçları kullanılmıştır. Buna göre, depresyon ile ilgili üstbilişler, ruminasyona ilişkin pozitif inançlar ölçeği (RİPİÖ) ve ruminasyona ilişkin negatif inançlar ölçeği (RİNİÖ) kullanılarak değerlendirilmiştir. Ayrıca, bu çalışmada kullanılan örneklem grubunun öğrencilerden oluşması nedeniyle depresif semptomların sadece BDE ile ölçülmesinin üstbilişsel kuramın bu örneklem grubunda test edilmesine kısıtlılık getirebileceği düşüncesinden hareketle, çalışmanın

İngiliz öğrencilerle yürütülen kısmında, klinik olmayan örneklerde görülen depresif belirtileri ölçmek için geliştirilmiş olan Epidemiyolojik Çalışmalar Merkezi-Depresyon (EÇM-D) ölçeği de kullanılmıştır. Öte yandan, son zamanlarda tekrarlanan bir faktör analizi çalışması ile durumluk-sürekli kaygı envanterinin sadece sürekli kaygıyı değil, aynı zamanda sürekli depresyonu da ölçmekte olduğu ortaya konmuştur (Bieling, Antony, & Swinson, 1998). Bu bilgiden hareketle, üstbilişsel kuramın önermeleri İngiliz örneğinde sürekli depresyon için de DSKE-S ölçeğinin sürekli depresyon altölçeği (DSKE-SD) kullanılarak test edilmiştir. Ayrıca, bilişsel ve üstbilişsel kuramın depresif belirtileri açıklamaya yaptığı görel katkıyı bu kuramların önermelerine en uygun şekilde inceleyebilmek amacıyla, depresif düşünce içeriği yerine depresif içerikli şemalar kullanılmıştır. Depresif içerikli otomatik düşünceler yerine şemaların tercih edilmesi, bilişsel kuramda yatkınlık faktörü olarak otomatik düşüncelerin değil, şemaların önerilmesinden kaynaklanmaktadır. Nitekim ruminasyona ilişkin olumlu ve olumsuz inançlar da üstbilişsel kuramda yatkınlık faktörü olarak önerilmektedir. Böylece, depresif semptomların açıklanması için her iki kuramda da yatkınlık faktörü olarak önerilen iki yapı kullanılmıştır. Bu çalışmada depresif şemalar fonksiyonel olmayan tutumlar ölçeğinin A ve B formları birleştirilerek geliştirilmiş kısa formu olan Fonksiyonel Olmayan Tutumlar Ölçeği-24 (FOTÖ-24) kullanılarak ölçülmüştür.

İngiliz örneğinde yapılan analizlerde, yordanan değişken olarak BDI kullanıldığında, ruminasyon ile ilgili olumlu ve olumsuz inançların depresyon belirtilerinin şiddetinin depresif şemalardan daha güçlü birer yordayıcısı olduğu bulunmuştur. Buna karşılık, yordanan değişken olarak EÇM-D ve DSKE-SD kullanılan analizlerde, üstbilişsel değişkenler semptomların depresif şemalardan daha güçlü bir yordayıcısı olmamış, bu iki yatkınlık faktörü de açıklanan varyansa yaklaşık olarak aynı miktarda katkıda bulunmuştur. Tüm bu bulgulardan hareketle, depresyonun üstbilişsel modelinin depresif bozukluk tanı ölçütlerini karşılayan gruplarda daha kullanışlı bir model olabileceği düşünülebilir. Bu durum, depresif ruminasyonların ve bu ruminasyonlara ilişkin olumlu ve olumsuz inanışların depresif bozukluk tanısı almış grupta daha belirgin olabilmesinden kaynaklanabilir.

Üstbilişlerin Psikopatolojinin Gelişmesinde Stresi Takiben Oynadığı Nedensel Rol: Boylamsal Bir Çalışma

Üstbilişlerin psikopatolojinin gelişimindeki nedensel rolünü Türk örnekleminde araştırabilme ana hedefine ulaşmak için incelenen YDA ve ÜÖGYDA'nın psikometrik özelliklerine ilişkin hipotez desteklenmiştir. Buna göre YDA'nın toplam puanları için Cronbach alfa katsayısı .74 olup, negatif yaşam deneyimleri (YDA-N) ve pozitif yaşam deneyimleri (YDA-P) alt ölçekleri için bu katsayılar sırasıyla .79 ve .61 olarak bulunmuştur. Ölçeğin iki ile üç hafta arasında tekrar uygulanması sonucu hesaplanan test-tekrar test tutarlığı toplam YDA, YDA-N ve YDA-P puanları için sırasıyla, .64, .67, ve .62 olarak tespit edilmiştir. ÜÖGYDA'nın madde-toplam korelasyonları .22 ile .56 arasında değişmekteyken, iç tutarlık katsayısı .91, iki-yarım güvenilirlik katsayısı .92 ve test-tekrar test tutarlığı .72 olarak bulunmuştur. Ölçeklerin benzeşme/örtüşme geçerliklerini (convergent validity) destekler biçimde hem kendi aralarındaki korelasyonlarının hem de stres ile kuramsal olarak ilişkili olabilecek kaygı ve depresyon ölçümleri ile aralarındaki korelasyonlarının beklendik yönde ve orta düzeyden yüksek düzeye değişen bir ranj içerisinde olduğu bulunmuştur.

Çalışmanın boylamsal ayağındaki hipotezleri test etmek için üstbilişlerin kaygı ve depresyon semptomlarının gelişmesine gerek stres etkisinin üzerinde ve ötesinde yaptığı nedensel katkı gerekse stresle etkileşime girerek yaptığı nedensel katkı bir dizi hiyerarşik regresyon analizi aracılığıyla incelenmiştir. Bu analizlerde ikinci ölçüm zamanında değerlendirilen kaygı (BAE) ve depresyon (BDE ve EÇM-D- sadece İngiliz örnekleminde) bağımlı ya da yordanan değişken olarak kullanılmıştır. Her bağımlı değişken için yapılan analizlerin ilk basamağında yaş ve cinsiyet değişkenlerinin yanısıra, o bağımlı değişkenin birinci ölçüm zamanında tespit edilen düzeyi de kontrol edilmiştir. İlgili semptomun ilk ölçüm zamanındaki temel düzeyinin kontrol edilmesi yoluyla, bağımsız değişkenler tarafından sadece aradan geçen zaman içerisinde bu semptom düzeyinde görülen değişimin yordanması sağlanmıştır. Böylece çalışmada ele alınan bağımsız değişkenlerin bağımlı değişken üzerinde oynadığı nedensel rolün incelenmesi mümkün olabilmektedir. Üstbilişlerin stresin etkisini kontrol ettikten sonraki nedensel rolünü incelemek amacıyla, regresyonun ikinci basamağında stres etkisi eşitliğe sokulurken (kritik yaşam olaylarının olumsuz etkisi (YDA-N) ve günlük yaşam stresi (ÜÖGYDA) için

ayrı analizler yapılmıştır), üstbilişler eşitliğe üçüncü basamakta girilmiştir. Türk örnekleminde gerek kaygı gerekse depresyon belirtilerini yordamak için yapılan analizlerde ÜBA'nin alt boyutları üstbilişler olarak kullanılırken, İngiliz örnekleminde ÜBA alt-ölçekleri sadece kaygı ile ilgili semptomların yordanmasında kullanılan bağımsız değişkenler olmuştur. İngiliz örnekleminde depresyon semptomlarının bağımlı değişken olduğu analizlerde eşitliğe sokulan üstbilişler ruminasyonlarla ilgili olumlu ve olumsuz inançlar (RİPİÖ ve RİNİÖ) olmuştur. Regresyon analizlerinin son basamağında o analizde kullanılan stres ölçümü ile üstbilişsel değişkenler arasındaki etkileşim etkileri eşitliğe sokulmuştur.

Türk örnekleminde elde edilen veriler kullanılarak yapılan analizler sonucunda demografik değişkenler, ilk ölçüm zamanındaki semptom düzeyleri ve kritik yaşam olaylarının olumsuz etkisi kontrol edildikten sonra, endişe ile ilgili olumsuz inançlardaki artışın hem kaygı hem de depresyon semptomlarında iki ölçüm zamanı arasında gözlenen artışı yordadığı bulunmuştur. Diğer bir deyişle endişe hakkındaki olumsuz inançlar kaygı ve depresyon semptomlarının gelişmesini açıklayan nedensel bir değişken olarak işlev görmüştür. Sonuçlar etkileşim hipotezi açısından değerlendirildiğinde, bilişsel güvensizlik ve günlük yaşam stresi arasındaki etkileşimin, kaygı belirtilerinde birinci ölçüm zamanından ikinci ölçüm zamanına kadar geçen sürede gözlenen değişimi anlamlı olarak yordayan tek etkileşim etkisi olduğu bulunmuştur. Bu sonuca göre, bilişsel güvensizlik puanı yüksek olan bireylerden yüksek düzeyde günlük yaşam stresine maruz kalanların iki ölçüm zamanı arasında kaygı düzeylerinin daha fazla arttığı ortaya konulmuştur. Bu bulgu doğrultusunda, hafızalarına az güvenen bireylerin problem çözme becerilerini de olduğundan daha az olarak algılıyor olabilecekleri ve bu nedenle de günlük yaşantılarında yaşadıkları stres arttığında kaygı düzeylerinin yükseliyor olabileceği yorumu yapılabilir.

İlginç bir şekilde, çalışmanın boylamsal hipotezlerinin İngiliz örnekleminde kaygı semptomları açısından desteklenmediği görülmektedir. Türk ve İngiliz örneklemleri arasında farklı sonuçlara ulaşılması kullanılan ölçme araçlarından kaynaklanıyor olabileceği gibi, kaygı semptomlarının ve stres düzeylerinin yaygınlık ve şiddetini etkileyen kültüre özgü faktörlerden de kaynaklanabilir. Örneğin, Türk örnekleminde elde edilen verilerde kaygı (ve depresyon) semptomları birinci ve ikinci ölçüm zamanları arasında anlamlı bir değişkenlik gösteriyorken, İngiliz

örnekleminden elde edilen verilerde bu tür bir değişkenlik görülmemektedir. Ayrıca, üstbilişsel değişkenlerin stres etkisini kontrol etmeden önce kaygı (ve depresyon) belirtilerinin gelişimini açıklamada üstlendiği rolün incelenmesi de yararlı olabilir.

İngiliz örneğinde üstbilişsel değişkenlerin depresyonun gelişiminde oynadığı nedensel rolün tam olarak modelde önerilen değişkenler kullanılarak incelenmesine karşın, bu değişkenlerin depresif belirtilerde görülen değişimi yordamada ya anlamsız oldukları ya da beklenen yönde yordayamadıkları sonucuna ulaşılmıştır. Bulgular ruminasyonla ilgili olumlu inanışların, günlük yaşam sıkıntıları kontrol edildikten sonra BDE skorundaki değişimi yordadığını göstermekle birlikte, bu ilişki beklendik yönde bulunmamış ve ruminasyonla ilgili olumlu inanışlara sahip olan bireylerin depresif belirtilerinde azalma yaşadığı görülmüştür. Bu sonuç ruminasyonla ilgili olumlu inanışların klinik olmayan gruplarda depresif belirtilerle bir başa çıkma mekanizması olarak işlev görebildiği, ancak klinik gruplarda semptomlarda bir artışa yol açıyor olabileceği şeklinde yorumlanabilir. Öte yandan, ruminasyonla ilgili olumsuz inançların kritik yaşam olaylarının olumsuz etkisi ile etkileşime girerek EÇM-D skorlarındaki değişimi yordamada anlamlı olduğu görülmekle birlikte, bu ilişkinin yönü de üstbilişsel kuramın önermeleri ile tutarlı doğrultuda bulunmamıştır. Bulgular ruminasyonla ilgili olumsuz inançları düşük olan bireylerin başından geçen kritik yaşam olaylarının olumsuz etkisinin yüksek olması halinde depresif belirtilerinde artış yaşadıklarına işaret etmektedir. Bu bulgu, depresif belirtileri depresyon tanısı almış kişilere oranla daha düşük bir frekans ve şiddette olan öğrenci örnekleminin depresyona ilişkin ruminasyonlardan görece olarak bağımsız bir yapıya sahip olduklarını ifade etmeye çalışmalarından kaynaklanıyor olabilir.

Türk ve İngiliz Örnekleri Arasındaki Kültürlerarası Karşılaştırmalar

Çalışmanın enlemesine-kesitsel kısmından elde edilen sonuçları Türk ve İngiliz grupları arasında istatistikî olarak karşılaştırarak, üstbilişsel kuramın kültüre özgü olarak farklılaşan ve kültürlerarası benzerlik gösteren yönlerinin bilimsel olarak güvenilir ve uygun bir biçimde incelenmesi amaçlanmıştır. Türk ve İngiliz kültürleri ne birbiriyle çok benzer ne de taban tabana zıt iki kültür olması nedeni ile bu tür bir kültürlerarası karşılaştırmada analiz birimi olarak kullanılmaya uygun özellikler taşımaktadır (van de Vijver & Leung, 1997). Karşılaştırılacak kültürlerin birbirine çok benzer özellikler göstermesi durumunda bu tür bir karşılaştırmanın yapılmasına

gerek duyulmamaktadır, çok farklı özellikler göstermesi halinde ise elde edilen farklılıkların incelenen özelliklerden daha başka karıştırıcı faktörler nedeniyle gözlenmiş olma ihtimalinde artış söz konusudur. Bu nedenle ne çok benzer ne de çok zıt olan analiz birimlerinin seçilmesi, eğer gerçekten kültürlerarası farklar mevcutsa bunların ortaya çıkarılması olasılığını arttırmaktadır (van de Vijver & Leung, 1997).

Türk ve İngiliz grupları arasında yapılacak karşılaştırmaların ilk basamağı olarak, kullanılan veri toplama araçlarının iki grup için de eş derecede güvenilir olup olmadığı incelenmiş ve ölçeklerin iç tutarlılık katsayıları Türk ve İngiliz grupları arasında istatistikî olarak karşılaştırılmıştır. Buna göre endişe hakkındaki olumsuz inanışlar ve bilişsel farkındalık altölçekleri hariç, diğer ÜBÖ-30 altölçeklerinin ve patolojik endişe, obsesif-kompulsif semptomatoloji, kaygı, depresyon ve kaygılı ve depresif düşünce içeriği ölçeklerinin Türk ve İngiliz örneklemelerinde eşit derecede güvenilir olduğu bulunmuştur. Endişe ile ilgili olumsuz inançlar ve bilişsel farkındalık altölçeklerinin güvenilirlikleri İngiliz örnekleminde Türk örnekleminde anlamlı olarak daha yüksek bulunmuştur.

Araştırmanın bu gruplararası karşılaştırma aşamasında iki temel araştırma sorusuna cevap aranmıştır. İlk soru Türk ve İngiliz örneklemelerinin üstbiliş puanlarının birbirinden anlamlı olarak farklı olup olmadığıdır. Demografik özellikleri açısından mümkün olduğunca eşlenmiş olan bu iki grubun arasında psikolojik semptomlardan kaynaklanabilecek farklılaşmaların etkisini elimine etmek için patolojik endişe, obsesif-kompulsif semptomatoloji, kaygı ve depresyon semptomları ve depresif ve kaygılı düşünce içeriği de kontrol edilmiş ve böylece sadece üstbilişsel puanlar arasındaki farklılaşma incelenmiştir. ÜBÖ-30'un beş alt boyutunun bağımsız değişken olarak kullanıldığı gruplararası MANCOVA analizinin sonuçları, Türk ve İngiliz gruplarının endişe ile ilgili olumlu inançlar boyutu hariç, diğer dört boyut açısından (endişe ile ilgili olumsuz inançlar, bilişsel güvensizlik, düşünceleri kontrol etme ihtiyacı ve bilişsel farkındalık) birbirinden anlamlı olarak farklılaştığını göstermektedir. Bu dört üstbilişsel boyut üzerinde Türk katılımcıların ortalamasının İngiliz katılımcıların ortalamasından anlamlı olarak daha yüksek olduğu bulunmuştur. Bu çalışma ÜBÖ-30'u kullanarak Türk ve İngiliz kültürleri arasında karşılaştırma yapan ilk çalışma olduğu için elde edilen bu bulgular bir Türk örnekleminde elde edilmiş betimleyici değerler olarak kabul edilebilir.

İkinci kültürlerarası karşılaştırma sorusu üstbilişsel değişkenler ile psikopatoloji arasındaki ilişki örüntülerinin kültürün etkisine bağlı olarak değişiklik gösterip göstermediği hakkındadır. Diğer bir deyişle, bazı spesifik üstbilişler bu kültürlerden birinde bazı spesifik psikopatoloji kategorilerini yordadığı halde, diğer kültürde o psikopatoloji boyutunun anlamlı bir yordayıcı değil midir? Bu sorunun cevabı bir dizi hiyerarşik regresyon aracılığıyla aranmıştır. Bu analizlerde patolojik endişe (PEEÖ), obsesif-kompulsif belirtiler (PE-WEÜR), kaygı semptomları (BAE) ve depresif semptomlar (BDE) bağımlı değişkenler olarak kullanılmıştır. Her bağımlı değişken için yapılan regresyon analizinin ilk basamağında eşlik eden diğer psikolojik semptomlar, ilgili bilişsel içerik, yaş ve cinsiyet kontrol edilmiştir. Türk katılımcılara 0, İngiliz katılımcılara 1 kodu verilerek yaratılan kültür grubu değişkeni ve ÜBÖ-30'un beş üstbilişsel faktörü eşitliğe ikinci basamakta sokulmuştur. En son basamakta, kültür grubu ile üstbilişler arasındaki etkileşim terimleri eşitliğe dahil edilmiştir.

Bu analizlerden elde edilen sonuçlar üstbilişsel değişkenlerin temel etkileri (main effects) açısından değerlendirildiğinde, endişe ile ilgili hem olumlu hem de olumsuz inançlardaki artışın Türk ve İngiliz katılımcılardan oluşan karma grubun patolojik endişe puanlarındaki artışı yordadığı görülmektedir. Karma grubun obsesif-kompulsif belirtilerindeki artışı üstbilişlerden sadece düşünceleri kontrol etme ihtiyacındaki artış yordamaktadır. Bu bulgular, YAB ve OKB'nin üstbilişsel modelleri ile uyumludur. Ayrıca, hem kaygı hem de depresyon skorlarındaki artışı sadece endişeye ilişkin olumsuz inançlar yordamıştır. Türk ve İngiliz grupları için ayrı ayrı yapılan analizlerde olduğu gibi, bu karma grupta da yine endişeye ilişkin olumsuz inançların patolojik endişe, kaygı ve depresyon puanlarının en iyi yordayıcısı olduğu görülmektedir.

Sonuçlar kültürel grup temel etkisi açısından incelendiğinde patolojik endişe, obsesif-kompulsif semptomatoloji ve kaygı puanlarının Türk ve İngiliz örneklemi arasında anlamlı olarak farklılaştığı bulunmuştur. İngiliz katılımcıların patolojik endişe skorları Türk katılımcılarınkinden anlamlı olarak yüksek bulunurken, Türk katılımcıların obsesif-kompulsif semptomatoloji ve kaygı puanları İngilizlerinkinden anlamlı olarak daha yüksektir. Diğer yandan depresyon skorları açısından gruplar arasında anlamlı bir fark bulunmamıştır.

Sonuçlar ikinci araştırma sorusuna cevap verecek olan etkileşim etkileri açısından değerlendirildiğinde, genel olarak kültürel grup ve üstbilişler arasındaki etkileşimin psikopatolojideki değişimi yordamadığı sonucuna ulaşılmıştır. Diğer bir deyişle, bu sonuç üstbilişsel kuramın kültürlerarası geçerliğine bir destek oluşturarak, üstbiliş-psikopatoloji arasındaki ilişkinin kültürel gruba göre değişmediğini göstermektedir. Bu sonucun tek istisnası, kültürel grup ile bilişsel farkındalık boyutu arasındaki etkileşimin obsesif-kompulsif semptomların yordanmasında anlamlı bulunmasıdır. Buna göre Türk katılımcılardan bilişsel farkındalığı yüksek olanlar bilişsel farkındalığı düşük olan Türk katılımcılara kıyasla anlamlı olarak daha fazla obsesif-kompulsif belirtiler yaşamaktadır. Buna karşılık İngiliz katılımcıların yaşadığı obsesif-kompulsif belirtilerin düzeyi bilişsel farkındalığın bir fonksiyonu olarak değişim göstermemektedir. Bu sonuçlar yorumlanırken, bilişsel farkındalık altölçeğinin güvenilirliğinin bu iki grup arasında anlamlı olarak farklılaştığı bilgisinin de göz önünde bulundurulması yararlı olabilir.

Genel Sonuç

Bu çalışmadan elde edilen bulguların, gerek ülkemizde gerekse uluslararası literatürdeki akademik ve uygulamalı klinik psikoloji çalışmaları açısından doğruları vardır. Öncelikle, bu çalışma ülkemizde konuyla ilgili araştırma boşluğunu doldurmuş ve üstbilişsel faktörlerin kültürümüzde incelenmesine yönelik ilk araştırma girişimi olmuştur. Ayrıca kültürler arası benzerlik ve farklılıkları görmek açısından, çalışma üstbiliş kavramının ortaya atıldığı orijinal kültür ile karşılaştırmalı olarak yürütülmüştür. Böylece, son yıllarda klinik psikoloji literatürüne yön veren bir kavramın kültürümüze özgü görünümünün bir tespiti yapılmış, üstbilişin klinik psikolojideki kuramsal ve uygulamalı çalışmalarda kullanılabilirliği yönünde kültürel bir içgörü edinilmiştir. Ayrıca ülkemizde yapılacak diğer çalışmalarda da kullanılabilecek dört veri toplama aracının Türkçe versiyonlarının psikometrik özellikleri de incelenmiştir. Öte yandan, bilişsel içeriğin etkisi kontrol edildikten sonra üstbilişlerin psikolojik semptomları açıklayabilme gücü ve üstbilişlerin kaygı ve depresyon semptomlarının gelişimine yaptığı nedensel katkı da bu çalışma kapsamında incelenerek, uluslararası literatüründe yürütülen çalışmalar için doğruları olabilecek sonuçlara ulaşılmıştır.

APPENDIX Y

CURRICULUM VITAE

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WORK EXPERIENCE

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| 2004 - Present | Abant İzzet Baysal University Department of Psychology | Research Assistant |
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1. Yılmaz, A. E., Fıfılođlu, H. (2006). Psychometric properties of the Fisher Divorce Adjustment Scale in a Turkish divorced sample. *Journal of Divorce and Remarriage*, 45(1/2), 149-169.
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GRANTS

| Year | Project Name | Foundation |
|-------------|--|---|
| 2006 - 2007 | Cross-Cultural Investigation of the Metacognitive Factors in Emotional Disorders | TÜBİTAK 2214- Abroad Research Grant Program |
| 2001 - 2002 | The prediction of postdivorce adjustment from perceived power/control over child-related concerns, perceived social support, and demographic characteristics | METU Research Fund Project No: AFP-2001-07-03-00-05 |

AWARDS

İhsan Dođramacı Distinguished Success Award (for the highest honor degree in the Department of Psychology, Hacettepe University), 1998