THE INFLUENCE OF INTOLERANCE OF UNCERTAINTY AND EMOTION REGULATION STRATEGIES ON ANXIETY UNDER UNCERTAINTY

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ABSTRACT

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Uncertainty is a big part of life and it is mostly an undesirable situation that we try to reduce or minimize. Literature shows that uncertainty is strongly related to anxiety arising from unpredictable future events, thus, it was found that anxious individuals have high intolerance of uncertainty. Furthermore, anxious individuals also experience difficulties in emotion regulation, and they are more likely to use maladaptive emotion regulation strategies. Both, intolerance of uncertainty and emotion regulation are seen as transdiagnostic constructs for anxiety disorders, but the link between them has never

been studied in a normative sample. Thus, this thesis aimed to investigate the effect of uncertainty, intolerance of uncertainty and emotion regulation on anxiety experimentally, by manipulating uncertainty with a task called The Beads Task. Anxiety was assessed both subjectively through self-rated State-Trait Anxiety Inventory and objectively with Skin Conductance Response as a physiological measure. Results indicated that individuals experienced higher anxiety levels as the uncertainty increased. In addition, individuals with high intolerance of uncertainty also reported higher anxiety levels than those with low intolerance of uncertainty. However, the same effect was not observed in objective physiological measurements. Moreover, emotion regulation did not affect anxiety in both, subjective and objective measures. Findings of this study show the difference between subjectively and objectively measured anxiety, highlighting the importance of cognitive processes in anxiety. Furthermore, the results might provide a better understanding of etiological and maintaining factors in anxiety as well as contribute to the therapeutic purposes.

Keywords: intolerance of uncertainty, emotion regulation, suppression, reappraisal, anxiety, skin conductance.

ÖZET

BELİRSİZLİĞE TAHAMMÜLSÜZLÜK VE DUYGU DÜZENLEME STRATEJİLERİNİN BELİRSİZLİK ALTINDA KAYGI ÜZERİNE ETKİSİ

ESİN SEZGİN

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Belirsizlik hayatın büyük bir parçası ve çoğunlukla azaltmaya veya en aza indirmeye çalıştığımız istenmeyen bir durum. Literatür, belirsizliğin gelecekteki öngörülemeyen olaylardan kaynaklanan kaygı ile güçlü bir şekilde ilişkili olduğunu ve kaygılı bireylerin belirsizliğe karşı yüksek tahammülsüzlüğe sahip olduklarını göstermektedir. Bunun yanı sıra, kaygılı bireyler duyguları düzenlerken de zorluklar yaşarlar ve uyumsuz duygu düzenleme stratejileri kullanma olasılıkları daha yüksektir. Belirsizliğe tahammülsüzlük ve duygu düzenleme, ikisi de kaygı bozuklukları için

tanılararası kavramlardır, ancak aralarındaki bağlantı normatif bir örneklemde daha önce hiç çalışılmamıştır. Bu nedenle bu tez, The Beads Task adlı bir görevle belirsizliği manipüle ederek, belirsizlik, belirsizliğe tahammülsüzlük ve duygu düzenlemenin kaygı üzerindeki etkisini araştırmayı amaçlamıştır. Katılımcıların kaygı düzeyi, hem Durumluk Sürekli Kaygı Envanteri aracılığıyla öznel olarak, hem de fizyolojik bir ölçüm olan Deri İletkenlik Tepkisi kullanılarak nesnel olarak ölçülmüştür. Sonuçlar, belirsizlik arttıkça bireylerin daha yüksek kaygı düzeyleri bildirdiklerini göstermiştir. Bununla beraber, belirsizliğe tahammülsüzlüğü yüksek olan kişiler, belirsizliğe tahammülsüzlüğü düşük olanlara göre daha yüksek kaygı seviyeleri bildirmişlerdir. Ancak aynı etkiler fizyolojik ölçümlerde gözlenmemiştir. Buna ek olarak, duygu düzenlemenin hem öznel hem de nesnel ölçümlerde kaygı üzerinde anlamlı etkisi bulunmamıştır. Bu çalışmanın bulguları, öznel ve nesnel olarak ölçülen kaygı arasındaki farkı ortaya koyarak, anksiyetede bilişsel süreçlerin önemini vurgulamıştır. Ayrıca, sonuçlar anksiyetede etiyolojik ve sürdürücü faktörlerin daha iyi anlaşılmasını sağlayabilir ve terapötik amaçlara katkıda bulunabilir.

Anahtar Kelimeler: belirsizliğe tahammülsüzlük, duygu düzenleme, bastırma, yeniden değerlendirme, kaygı, deri iletkenliği.

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CHAPTER 1: INTRODUCTION

Uncertainty can be defined as a situation in which something is not known or not certain (uncertainty, n.d.). In daily life, it is inevitable to face uncertain situations. There is no exact information about what will happen in the next hour, day or year. For this reason, it would not be wrong to say that uncertainty constitutes a large part of life. After a job interview, for example, it might be quite difficult to wait with uncertainty for a hiring decision or after an important exam, waiting for the score that determines passing the course or not. Although uncertainty is inherent in our daily life, it is an undesirable situation that we try to reduce or minimize (Keren and Gerritsen, 1999). While some people can tolerate these uncertain cues or situations easier, others can struggle.

Anxiety, on the other hand, is a future-oriented emotion. Trying to predict the future causes anxiety because the future is substantially uncertain. Therefore, uncertainty is strongly linked to the anxiety resulting from unpredictable future events (Grupe and Nitschke, 2013). Numerous research indicates that the regulation of emotions has various important consequences. It may play a vital role in the ability of individuals to cope with uncertainty (Anderson et al., 2019). In this regard, it is important to examine the association between tolerating uncertainty and regulating that feeling of uncertainty (Tanovic, Gee and Joorman, 2018).

Consequently, this thesis project aimed to investigate the effect of uncertainty, intolerance of uncertainty and emotion regulation on anxiety with an experiment that manipulated uncertainty with a task called The Beads Task.

1.1. Intolerance of Uncertainty

Fear is "one of the oldest and strongest emotion of mankind; and one of the oldest and strongest kind of fear is fear of unknown" (Joshi and Schultz, 2001 as cited in Carleton, 2016). Fear of unknown is defined as "an individual's propensity to experience fear caused by the perceived absence of information at any level of consciousness or point of processing" (Carleton, 2016). Carleton (2012) states that intolerance of uncertainty represents fear of unknown, at its core, in both normative and pathological samples.

The construct of intolerance of uncertainty (IU) was initially conceptualized as a potential important dimension of worry by Freeston et al. (1994) and it has been

studied since the mid-1980s in several studies (Grenier, Barrette and Ladouceur, 2005). IU was defined as "a dispositional characteristic that results from a set of negative beliefs about uncertainty and its implications and involves the tendency to react negatively on an emotional, cognitive, and behavioral level to uncertain situations and events" (Buhr and Dugas, 2009). It also can be defined as "cognitive, emotional, and behavioral reactions to uncertainty that bias information processing and lead to faulty appraisals of heightened threat and reduced coping" (McEveoy and Mahoney, 2012).

To avoid any misunderstanding, it may be important to mention here about another concept, intolerance of ambiguity (IA) that was confused with IU in the past. Uncertainty and ambiguity are related but distinct concepts (Carleton, 2012) and should be cautiously separated from each other (Kirschner et al., 2016). A distorted perception of situations or stimuli as threatening is shared by both concepts. However, in IU, the causes of threat refer to the future, while it refers to the present in IA. Due to this temporal difference, authors discuss that IA is the part of IU which relates to potential current threat (Grenier et al., 2005; Carleton, 2012). In sum, uncertainty is characterized by "an absence of available information on the outcome of the situation", whereas ambiguity is characterized by "contradictory or ambivalent information available on the situation" (Kirschner et al., 2016).

IU has been linked with higher risk for internalizing disorders and is linked with many affective, cognitive and behavioral factors that denote internalizing psychopathology (Tanovic et al., 2018). High levels of IU can cause people "to react negatively to uncertain situations on emotional, cognitive, and behavioral levels" (Buhr and Dugas, 2002). In addition, certain factors that are related to internalizing psychopathology are linked to IU, such as rumination (Liao and Wei, 2011), post-event processing (Shikatani et al., 2016), checking behavior (Tolin et al., 2003) and anxiety sensitivity (Carleton, Sharpe and Asmundson, 2007). In line, literature shows an association between higher levels of IU and generalized anxiety disorder, social anxiety disorder, panic disorder, obsessive compulsive disorder, eating disorders, and depression respectively (Brown et al., 2017; McEvoy and Mahoney, 2012).

IU is also linked with the tendency to interpret uncertain situations as threatening (Koerner and Dugas, 2008). The association between uncertainty and

threat perception was studied by Reuman and colleagues (2015). A range of systematically varied scenarios were used to manipulate uncertainty (as implicit vs. explicit) and threat level (high vs. low). Participants were asked to read these scenarios and imagine themselves in those scenarios. The anxiety and uncertainty ratings were examined and according to the results, when uncertainty was made explicit, participants rated low-threat situations as more anxiety-provoking and more likely to elicit a safety behavior.

Some models have been developed and evaluated to understand the role of IU in anxiety disorders. One of them is The Intolerance of Uncertainty Model (IUM), developed by Dugas and his colleagues in 1998. It was originally asserted that four factors contribute to the development and the maintenance of worry, the core feature of GAD: IU, Positive Beliefs about Worry (PBW), Negative Problem Orientation (NPO), and Cognitive Avoidance (CA). Even though IUM was initially developed as an explanation for worry within the context of generalized anxiety disorder (McEvoy and Mahoney, 2012), recent research indicated IU as a possible transdiagnostic maintaining factor for anxiety disorders and depression. According to the IUM, individuals who have high IU find uncertainty stressful and upsetting, assume that it is negative and should be avoided, and experience difficulty in performing in uncertain situations (Dugas and Koerner, 2005).

McEvoy and Mahoney (2012) stated that the IUM outlines two feedback loops. The first proposes that anxiety leads to a negative problem orientation and the second one offers that anxiety results in cognitive avoidance. Negative problem orientation is linked with both the idea that problems are threatening and low confidence in problem solving. Thus, it enhances the level of worry. Cognitive avoidance, on the other hand, leads the individual to use unhelpful strategies such as thought suppression, distraction, or thought shifting. These strategies can reduce worry in short run. However, they result in more worry because they do not change underlying threat appraisals. Therefore, the cycle is completed.

Grupe and Nitschke (2013) proposed another model namely The Uncertainty and Anticipation Model of Anxiety (UAMA) that highlights components of responses to uncertainty. According to UAMA, breakdown in the neural circuitry that underlies responding to uncertainty causes anxiety and poses a risk for psychopathology

(Tanovic, Gee and Joormann, 2018). This model focuses most on pathological anxiety and does not specifically answer why anxiety is triggered by uncertainty. However, it could be useful for understanding the link between uncertainty and affect, because same psychological mechanisms are present in healthy and subclinical populations (Anderson et al., 2019).

The UAMA describes five processes contributing to how extreme anxiety emerges in the face of uncertainty. These are (1) inflated estimates of threat cost and probability; (2) increased threat attention and hypervigilance; (3) deficient safety learning; (4) behavioral and cognitive avoidance; and (5) heightened reactivity to threat uncertainty (Grupe and Nitschke, 2013). Disturbances in these five processes are assumed to affect each other and cause clinical anxiety (Tanovic, Gee and Joormann, 2018).

When it comes to evaluate IU, there are specific self-report measures designed to measure it. The first measurement developed to assess IU and responses to uncertain situations is the 27-item IU Scale (IUS) (Freeston et al., 1994). Buhr and Dugas (2002) translated it to English from the original French version. Carleton, Norton and Asmundson (2007) developed a 12-item short form due to complications with the factor structure and limited psychometric properties of the IUS-27. Research indicated that IUS-12 consists of two dimensions, prospective and inhibitory IU. Prospective IU is the cognitively focused dimension of IU and inhibitory IU is behaviorally focused dimension (Carleton et al., 2012). Prospective anxiety is related to fear and anxiety in anticipation of uncertainty, while inhibitory anxiety is related to avoidance and paralysis in the face of uncertainty (McEvoy and Mahoney, 2012).

Mahoney and McEvoy (2012) conducted a study to develop a situation-specific version of IUS (IUS-SS) and aimed to compare trait IU with situation-specific IU. IUS-SS is an adapted version of IUS-12. Participants were asked to choose their area of primary concern from a list and described a situation related to this concern. Then, the items of IUS-12 adjusted according to those situations. For example, the item “I can’t stand being taken by surprise” turned into “I can’t stand being taken by surprise in this situation”. Results showed that individuals with anxiety disorders found uncertainty more aversive when it matches situations that are especially hard for them.

In addition, IUS-SS had good internal reliability and convergent validity and showed positive relationships with neuroticism and trait IU.

There are also other measurements of IU such as the Uncertainty Response Scale (Greco and Roger, 2001) and the Intolerance of Uncertainty Inventory (Gosselin et al., 2008). Nevertheless, the most widely used scale in the current literature are the short and long forms of IUS (Tanovic, Gee and Joormann, 2018).

Creating changes in intolerance of uncertainty is a challenging issue, particularly in experimental settings for non-clinical participants (Mosca, Lauriola and Carleton, 2016). Most research has used the self-report measures to measure intolerance of uncertainty; however, there is comparatively little research for exploring behavioral correlates of it (Carleton et al., 2016). Limited number of research has used behavioral paradigms to investigate how IU relates to an individual's response to uncertain situations (Oglesby and Schmidh, 2017), which are presented below.

Ladouceur, Gosselin and Dugas (2000) developed a roulette game to experimentally manipulate intolerance of uncertainty in order to investigate its effect on worry. IU manipulation was done by giving participants some information about their chances of winning while playing the game. One group of participants were told that this experiment was done last year, and the chance of winning is much worse now, in order to increase level intolerance of uncertainty. Another group was told the chances are much better now to decrease IU. Results showed that participants whose level of IU was increased showed a higher level of worry than the participants whose level of IU was decreased.

Oglesby and Schmidh (2017) tried to fill the gaps in the literature by examining the link between uncertainty and anxiety symptoms in reaction to an in vivo stressor by using a speech task. In the study, participants were told that they would give a 3-minute speech on a controversial topic and that the speech will be recorded and rated by a judge. Uncertainty was created by saying participants that whether they give the speech or not will be determined by flipping a coin. Results indicated that when the odds of giving a speech was made uncertain, trait IU was associated with increased state anxiety. On the other hand, among individuals high in IU, no difference was found in state anxiety levels when comparing an uncertain versus certain threat. The

researchers noted that this null finding may have arisen due to the speech task, which was perceived as too threatening, and this may cause ceiling effects for anxiety.

Anderson, Deschênes and Dugas (2016) conducted a study to examine the relationship between avoidable uncertainty, anger, and anxiety. It was told to the participants that the aim of the study was to examine the relationship between intelligence and emotions. Uncertainty induction was created by telling participants that there was a problem with their intelligence test results. Then, to the experimental group, the experimenter mentioned that she knew about the problem, but were not allowed to explain it to the participants. To control group, it was said that the problem was unknown because the intelligence test results were sent directly to her supervisor who was unavailable that day. This manipulation was for the avoidability of the uncertain situation. Results indicated that participants reported higher anxiety levels after uncertainty induction compared to baseline. In addition to that, anger was increased for the experimental group after the avoidability manipulation in comparison to control group. These findings show that when the uncertainty situation is avoidable for someone, anger is experienced besides anxiety.

In another experimental study, Rosen et al. (2010) manipulated health-related uncertainty and assessed health seeking behaviors. They found a positive relationship between IU and behaviors intended to reduce uncertainty. It was also found that uncertainty caused more anxiety among participants with high IU than those with low IU.

Thibodeau and colleagues (2013) studied the effect of IU on performance during a keyboard typing task. The participants were instructed to type the section that experimenter read, by making as few mistakes as possible and as quickly as possible. IU was found related with slower typing speed but not associated with fewer errors during the typing task. It was stated in the article that this result might be explained with behavioral inhibition and hesitation associated with a need for greater certainty.

A probabilistic inference task called the Beads Task was used to create uncertainty and studied assessing the relationship with self-report IU (Jacoby, et al., 2014). Jacoby and her colleagues also used a Cold Pressor Task as an aversive stimulus to increase the ecological validity of the study (Jacoby et al., 2016) (see 1.4. for details).

To summarize, IU that was initially conceptualized as a potential important dimension of worry and identified as the negative reactions to uncertain situations on emotional, behavioral and cognitive level. However, in the recent literature regarding psychopathology, it is seen as a transdiagnostic factor for internalizing disorders (anxiety and mood disorders) showing a steady association between heightened IU and anxiety.

1.2. Emotion Regulation

Emotions have an influence on how we feel, live, and interact with others and regulating them successfully can be one of the biggest challenges in life. Accordingly, how we regulate emotions is one of the important topics of interest in psychology for the last two decades. Emotion regulation (ER) was defined as "the ability of an individual to modulate an emotion or set of emotions" by American Psychological Association (APA). It occurs when someone set a goal to influence the emotion generative process (Gross, Sheppes and Urry, 2011). Gross (1998b) stated that it refers to "the processes by which individuals influence which emotions they have, when they have them, and how they experience and express these emotions". In the use of ER strategies, individuals vary, and these individual variations have consequences for affect, well-being, and social relationships (Gross and John, 2003).

To have a better understanding of the concept of emotion regulation and to avoid conceptual and definitional chaos, Gross (1998b) presented an inclusionary conceptual framework called Process Model of Emotion Regulation. It is probably the most commonly used model to date (Webb, Miles and Sheeran, 2012). The process model of emotion regulation takes its starting point from The Modal Model of Emotion which identifies the order of steps involved in emotion generation. (Gross, 2015). These steps are situation, attention, appraisal, and response. The modal model indicates that emotions are created by a situation, that is attended to, and then appraised, that creates an emotional response (Gross, 2014). These steps in the modal model are viewed as a potential target by the process model of emotion regulation. According to the process model, ER strategies differentiate when they have their primary impact on the emotion-generative process and draw a line between antecedent-focused and response-focused ER strategies.

Antecedent-focused strategies have been referred to things we do *before* the emotion response tendencies have become fully active and have affected our behavioral and physiological responding. There are four different antecedent-focused strategies, which are *situation selection, situation modification, attentional deployment, and cognitive change.* Approaching or avoiding from people, places, or things for regulating emotions, denotes as situation selection. The selected situation can be reconciled to modify its emotional impact, which represents situation modification. Attentional deployment is used for selecting which situation you focus on. Lastly, cognitive change refers to which meaning you will attach to the situation.

On the other hand, response-focused strategies have been referred to "things we do after the response tendencies have been turned out once an emotion is *already underway*. Response modulation is a form of response-focused strategies and it refers to attempts to affect emotion response tendencies once they already have been ensured.

In 2015, Gross presented Extended Process Model of Emotion Regulation as a framework for integrating current research and suggesting directions for future research. The starting point of this model was the idea that emotion includes valuation and this model consider emotion regulation as a type of valuation. What is meant by valuation was the discrimination of good for me/bad for me. Gross stated three emotion regulation stages accounting for three valuation systems. These stages are identification, selection and implementation stages corresponding for valuation systems, perception, valuation, and action. The first stage is the identification stage. In this stage a decision is made whether to regulate or not. In the second one, the selection stage, a selection for an ER strategy is made. In the last one, implementation stage, the task is to translate the selected strategy into to plans that are suitable for the specific situation. Valuation systems: perception, valuation, and action, stands for different roles in each stage. For example, while the task of perception substep in the identification stage is to detect the emotion; in the selection stage, it is to depict the potential ER strategies. In sum, according to this model, the core of ER process consists of perception-valuation-action cycles. In addition, this model helps to explain how ER strategies selected and implemented.

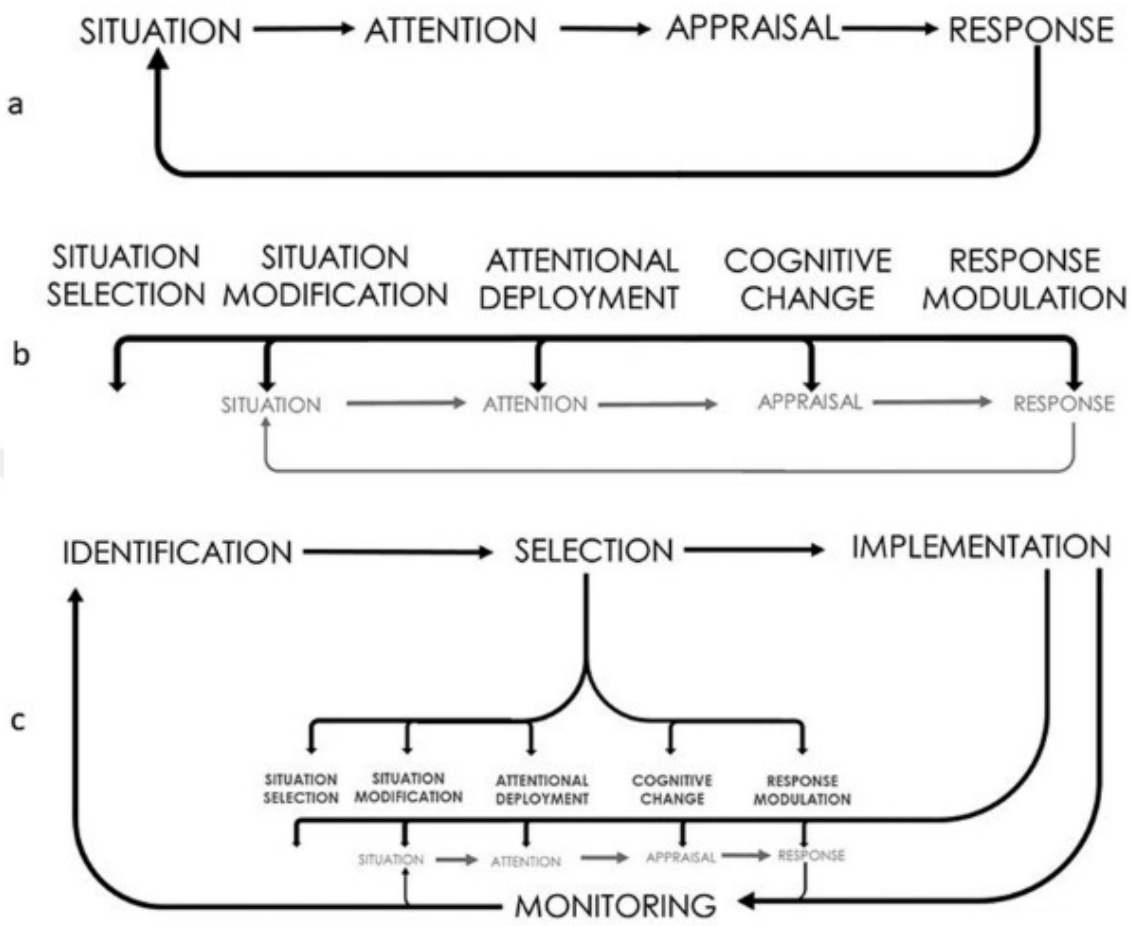

Figure 1. Modal model of emotion (a), the process model of emotion regulation (b), and the extended process model of emotion regulation (c) (Source: Gross, 2020).

Numerous studies have been conducted to find out whether there are better and worse ways to regulate emotions by focusing on two of these strategies and comparing these two instead of studying all strategies. John and Gross (2004) focused on three factors when selecting these two strategies; (a) being used commonly in everyday life; (b) contributing both experimental manipulation and individual difference analyses; and (c) the inclusion of an example for both antecedent-focused and response-focused strategies, because the distinction between them is so central to their theory. Cognitive reappraisal and expressive suppression were selected as two strategies that met these criteria. Cognitive reappraisal is a form of antecedent-focused strategies and a type of cognitive change. On the other hand, expressive suppression is a response-focused strategy and a type of response modulation.

Cognitive reappraisal is considered as an adaptive regulation strategy which includes reinterpreting the meaning of a stimulus in a way that changes its emotional effect (Gross and John, 2003). It can be thought as a way of changing how we think about a situation in order to decrease its emotional magnitude (Gross, 2002). It is correlated positively with every indicator of positive functioning. Frequent use of reappraisal has been linked with both experiencing and expressing more positive, less negative emotions (Gross and John, 2003). On the other hand, expressive suppression was defined as deliberate strategic attempts to paralyze or minimize emotional experience and expression (Gross, 1998a; Gross and John, 2003). It can be thought as a way of decreasing behavioral expression but fails to reduce emotional experience and it shows negative associations with well-being (Gross, 2002; Gross and John, 2003). Thus, suppression can be considered as maladaptive (Gross, 2015). While reappraisal was associated with both experiencing and expressing more positive, less negative emotions, suppression was associated with experiencing and expressing fewer positive emotions but experiencing more negative emotions. (Gross and John, 2003). Reappraisal and suppression also differ in what stage of emotional experience process they occur; reappraisal occur earlier in the process while suppression occurs later (Gross, 1998b).

To measure the use of emotion regulation, Gross and John (2003) developed the Emotion Regulation Questionnaire, to evaluate individual differences and acquire self-ratings of emotion experience and expression. This questionnaire focuses on cognitive reappraisal and expressive suppression of both positive and negative

emotions (see section 2.2.4.4. for detailed information). There are other measures like Difficulties in Emotion Regulation Scale to assess emotion dysregulation (Gratz and Roemer, 2004) and Cognitive Emotion Regulation Questionnaire to assess nine different cognitive coping strategies (Garnefski, Kraaij and Spinhoven, 2001).

Studies in emotion regulation literature are mostly carried out by giving instructions to regulate the expression or experience of negative or positive emotions. Lazarus and Alfert (1964) were the first who found evidence that reappraisal-like processes can influence emotional responding. In this study, participants were shown a movie of a circumcision ritual with different accompanying soundtracks. One group heard a soundtrack used to minimize the negative aspects of the movie and the other group heard no sound. According to the findings, participants who heard the soundtrack had lower skin conductance levels and better mood ratings. However, findings of this study were found highly controversial because of the methodological issues such as different delays across conditions between baseline and film viewing.

In 1998, Gross conducted a study to find out that reappraisal and suppression have different outcomes for behavioral, physiological and experiential responses. A short film showing an arm amputation was shown to the participants to arouse disgust. One group of participants were instructed to think about what they were watching in such a way that they did not feel anything at all (reappraisal), the other group was directed to conceal their emotional reactions (suppression), and the third group just watched the film (control). Results showed that both suppression and reappraisal decreased disgust-expressive behavior, but reappraisal also decreased disgust experience while suppression had no effect. In addition, suppression increased electrodermal activity whereas reappraisal had not any effect in comparison to the control group. In another study, the effect of suppressing positive emotion was examined. It was hypothesized that suppression will decrease amusement reports in healthy participants (Gross and Levenson, 1997) and found that individuals who suppressed their emotion reported less amusement.

Nezlek and Kuppens (2008) examined the use of reappraisal and suppression of positive and negative emotions in daily life. 153 undergraduate students described their emotional experiences and the regulation strategies they used, for 3 weeks. Reappraisal was used more than suppression as a regulation strategy by students. The

use of reappraisal of positive emotions increased emotional experience, while reappraisal of negative emotion was found unrelated with emotion experience. Suppressing positive emotions reduced the experience of positive emotions and increased the experience of negative emotions. Contrary, suppressing negative emotions only reduced the experience of negative emotions, not related with the positive emotions experience.

In sum, reappraisal was always considered as an adaptive emotion regulation strategy, while suppression was opposite. However, various theoretical explanations argue that this conclusion is inaccurate because no psychological process by its nature, can be always adaptive (Grant and Schwartz, 2011; Lazarus, 1993).

Furthermore, a study was conducted to determine whether the negative associations between suppressing emotions and psychological functioning are moderated by culture (Soto et al., 2011), by comparing European American and East Asian participants. Results showed that the propensity to suppress emotions is not associated with adverse psychological functioning in cultures in which the use of suppression is more normative (East Asian), contrary to cultures in which expressiveness is the norm (European American). Suppression was not associated with positive psychological functioning among East Asians, but it was unrelated.

Troy, Shallcross and Mauss (2013) carried out a study to test the prediction that reappraisal may be adaptive when stressors are uncontrollable and maladaptive when stressors can be controlled. Stress controllability was estimated by given participants the Life Experiences Survey (Sarason, Johnson and Siegel, 1978), and asking them to rate how controllable each stressor would be if it happened in their own lives. Participants were instructed to use cognitive reappraisal when watching a sad film clip. It was found that when stress was controllable, cognitive reappraisal was associated with decreased psychological health. The findings of these two last mentioned studies highlighted the importance of context in understanding the habitual use of ER and showed that effects of emotion-regulation strategies depend on the context.

Regarding psychopathologies, most of them are associated with emotion dysregulation which can be thought as emotion regulation failure (not engaging regulation when it would be helpful to do so) or emotion misregulation (using a form

of emotion regulation that is poorly matched to the situation) (Gross and Jazaieri, 2014).

APA (2000) defined disorders such as mood disorders, anxiety disorders, and borderline personality disorder as dysregulated emotional states. Therefore, it would not be wrong to say that emotion regulation is an especially important topic in terms of psychopathology. Aldao, Nolen-Hocksema, and Schweizer (2010) conducted a meta-analysis study to investigate the effect of ER strategies on psychopathology. Suppression was found positively associated with psychopathology while reappraisal was found negatively associated. When the relations with disorders were examined, suppression was detected positively associated with depression, anxiety disorders and eating disorders, while reappraisal was negatively associated with those disorders again. Webb, Miles, and Sheeran (2012) conducted another meta-analysis to identify which ER strategies are most effective. Consistent with the literature, reappraisal was found to be one of the most effective strategies for emotion regulation and negatively associated with symptoms of psychopathology.

It is necessary to mention here about a few controversial issues related to ER studies. The emotion-eliciting stimulus (e.g., pictures, film clips) have been shown to reliably elicit emotion and standardized in many cases. However, the use of them caused limited external and ecological validity of the experimental manipulations (Aldao, 2013). Only a few studies investigated ER strategies to naturally occurring stimuli via ecological momentary assessments. Moreover, utilizing goal-oriented tasks such as playing video games or writing about emotional personal stories may allow to capture contextual variability.

Most experimental studies on emotion regulation have instructed participants to use certain strategies (Aldao, 2013). Instructions sometimes were given to regulate the emotional experience, and sometimes to regulate the emotional expression. Webb, Miles, and Sheeran (2012, p. 795) argued that "the effect of suppression on emotional outcomes can only be understood by separating the effect of suppressing the *expression*, rather than the *experience*, of emotion". In the meta-analysis, they found suppressing *the expression of emotion* as effective, while suppressing t*he experience of emotion or thoughts* of the emotion-eliciting event was not. The process model defines suppression as inhibiting emotion expressive behavior (Gross, 1998b; Gross

and Levenson, 1993). Webb and colleagues suggested that this form of suppression is conceptually and empirically different from experiential suppression.

Futheremore, Aldao (2013) stated that instructions to regulate emotions in a specific way is problematic, because it has an impact on the understanding of the processes in choosing strategies spontaneously or usually used strategies. Another issue about these instructions is how the instructed strategies are eventually applied by participants. It would be difficult to control, because participants tend to evaluate themselves as using the strategy they were instructed to, on manipulation checks. Asking participants open-ended questions about how they regulate their emotions, might reduce this issue.

Most of emotion regulation studies either manipulated ER or examined typical use of ER (McRae, 2013). Manipulation of ER is referred as ER effectiveness, ability, capacity, or success by researchers. The measured emotional outcomes are temporally proximal to the regulation. Typical ER use is referred as ER tendency, ER use, habitual ER, trait ER, or ER frequency; mostly measured with questionnaires and measured outcomes are relatively distal associates of the regulation. McRae (2013) stated that researchers would be able to get more valid results in ER studies by distinguishing between ER frequency and ability.

To sum up, emotion regulation is defined as the ability of an individual to modulate emotions, considering that individuals' use of ER strategies differs. Most studies in literature focused on two strategies, namely cognitive reappraisal and expressive suppression, to understand the ways of regulating emotions better. While reappraisal was defined as a way of changing thoughts about a situation, suppression was identified as a way of decreasing behavioral expressions. In a theoretical way, they also differ in stage of emotional experience process; reappraisal occurs earlier in the process than suppression. In literature, reappraisal was mostly encountered as a more adaptive strategy than suppression, whereas numerous theoretical explanations argue that this conclusion cannot be accurate in perpetuity. Considering APA’s definition of anxiety disorders as dysregulated emotional states, it is not hard to say that emotion regulation ability is an important term for anxiety literature. Two extensive meta-analyses resulted that suppression was found positively correlated with anxiety disorders whereas reappraisal found as quite the opposite.

1.3. Skin Conductance

The skin has electrical properties that change within a relatively short time scale of seconds and are highly associated with psychological processes (Figner and Murphy, 2011). Johnson and Lubin introduced the term electrodermal activity (EDA) in 1966, as a common term for any electrical phenomena in the skin. It is the term used to identify changes in the electrical activity of the skin and it is arised from an interaction of sympathetic nervous system activity and local processes in the skin. (Turpin and Grandfield, 2007; Boucsein, 2012). It refers to the alteration of the electrical properties of the skin in response to sweating (Benedek and Kaernbach, 2010).

EDA is a general term for the electrical activity in the skin and there are two fundamentally different methods of measuring it; exosomatic and endosomatic methods (Dawson, Schell and Filion, 2001). Exosomatic method relies on the application of a small external electrical current across the skin. On the other hand, endosomatic method measures internally generated electrical skin potentials without application of an external event. Skin conductance measure is a form of exosomatic measures. It is recorded using two electrodes, mostly placed on the thenar eminences of the palms and expressed in units of microSiemens (μS) (Dawson, Schell and Filion, 2001).

The EDA includes tonic and phasic components that originated from sympathetic neuronal activity (Braithwaite et al., 2013). Tonic component is the Skin Conductance Level (SCL) and changes in the SCL reflect general changes in autonomic arousal. The phasic component: The Skin Conductance Response (SCR) refers to the fast-changing elements of the signal. SCL is constantly changing within an individual, and so, some researchers determined that the actual SCL level is not so informative on its own. Thus, they suggested subtracting the amplitudes of SCRs from the tonic signal before establishing a truer representation of background SCL. Lempert and Phelps (2014) defined the skin conductance response is an “objective, transient indication of autonomic nervous system arousal in response to a stimulus” and stated that it is a common measure of emotional arousal in the laboratory. It is sensitive to a wide range of stimuli and a proper measure of emotional reactivity in healthy subjects (Bradley, 2000).

1.3.1. Skin Conductance Studies

Skin conductance is a measure of baseline physiology and used for testing emotional reactivity in anxiety (Rosebrock et al., 2017). Over a century, it has been used as a measure of emotional psychophysiology and it is substantially accepted in anxiety research as one of the main methods for measuring emotional responses to different types of stimuli (Najström and Jansson, 2006). Anxious individuals may experience difficulty in lowering baseline arousal and demonstrate decreased habituation to emotional stimuli compared to non-anxious individuals (Rosebrock et al., 2017), however this is not always the case. There are findings showing that individuals with anxiety disorders react with a weaker physiological response to laboratory stressors than do healthy controls (Hoehn-Saric and McLeod, 2000). Hoehn-Saric, McLeod, and Zimmerli (1989) found that patients with generalized anxiety disorder exhibit strong reactions only for phobic stimuli. Likewise, increased SCRs to a phobic stimulus also have been seen in non-clinical individuals (Hughdal, 1988). In another study, in which skin conductance was examined while viewing emotional images in participants with anxiety disorders, showed that anxious individuals did not differ on SCRs to negative, neutral, and positive images compared to healthy subjects (Rosebrock et al., 2017). Researchers explained these results by stating that an intense physiological reaction in anxious individuals may be derived from personally threatening, anxiety provoking stimulus (i.e., spiders, snakes, closed spaces). Another explanation was that personality traits like neuroticism (emotional stability) might influence SCR. It was found that less neurotic participants showed a larger decrease in skin conductance reactivity compared to more neurotic participants (Norris et al., 2007).

Regarding to the literature investigating IU and skin conductance, the relation between unknown threat and IU was mostly studied in the associative learning literature (Morriss, Biagi and Dodd, 2020). Studies indicated that high IU individuals take longer to distinguish between threat and safety cues due to threat generalization proneness. Individuals low in IU showed higher SCRs to cues that previously referred threat than those referred safety (Morriss J, Macdonald B, van Reekum C. M., 2016). This result indicated threat generalization proneness in high IU individuals because they took longer to differentiate between threat and safety cues. It might be noted here that threat generalization is also seen in anxiety disorders (Lissek et al., 2014). In

another study by Grupe and Nitschke (2011), participants were shown aversive pictures with cues indicating certainty or uncertainty about whether an aversive picture will show up. As a result, increased skin conductance responses were observed for aversive pictures following the uncertain cue rather than those following the certain cue.

There are also studies that cannot find a link between IU and SCR. In a study in which participants were instructed to type a section quickly and accurately as they could, no relationship was found between IU and SCR (Thibodeau et al., 2013). In another experimental study which includes a picture viewing task, participants were shown safe, uncertain and dangerous pictures; and IU was not found associated with SCR (Kirschner et al., 2016).

In recent years, studies demonstrated that conscious attempts to regulate emotions end up with physiological changes. In the study of Driscoll, Tranel and Anderson (2009), participants were shown pleasant, unpleasant, and neutral pictures and instructed either increase or decrease the emotional response evoked by these pictures. They were told that they could use the ER strategy which they thought they used more effectively. As a result, decreasing emotional responding for both positive and negative stimuli caused significantly reduced SCRs. In a similar study conducted by Kim and Hamann (2012), negative and neutral pictures were shown to the participants. They were first asked just to watch the pictures, then try to decrease the intensity of emotions that the pictures elicited and finally increase the intensity of emotions. It was found that reappraisal used to increase negative emotion increased SCRs, while reappraisal used to decrease negative emotions resulted in decreased SCRs. Gross and Levenson (1993) found that instructions to suppress emotional expressions while watching a distressing film caused increased skin conductance level, compared to non-suppression. Similar findings have been found with suppressing positive emotion (Gross and Levenson, 1997). Wegner et al. (1990) examined the psychophysiology of the suppression of exciting thoughts and found that trying not to think about exciting topics (e.g., sex), like thinking about them; increased electrodermal activity, in comparison to thinking about or not thinking about less exciting topics.

1.4. The Beads Task

The Beads Task is a probabilistic inference task that provides the opportunity to experimentally induce uncertainty in the laboratory and acquiring participants' cognitive, emotional, and behavioral responses to real uncertain scenarios (Jacoby et al., 2016). It is frequently used in intolerance of uncertainty studies and in jumping to conclusion studies which is a negative thinking pattern among people who struggle with anxiety and depression.

The Beads Task was developed by Huq, Garety and Hemsley (1988), based on the basic paradigm outlined by Phillips and Edwards (1966). In the beads task, two or three jars full of colored beads with a different ratio are shown on the computer screen. Participants are told that the beads will be drawn from one of these jars and asked to decide which jar they come from. Uncertainty is manipulated with using various degrees of task difficulty.

1.4.1. Studies with The Beads Task

The relation between IU and the performance on the Beads Task was first studied by Ladouceur, Talbot and Dugas (1997). In a non-clinical sample, they found that intermediate uncertainty condition most evidently distinguishes between individuals with low and high IU.

The version of the Beads Task used in the present study is based on the Jacoby et al. (2014) methodology (see 2.2.1. for detailed information). Jacoby and colleagues (2014) aimed to clarify the link between IU and the Beads Task in a clinical sample with various anxiety disorders. They also examined symptom measures of worry, general distress, and OCD. They concluded that more difficult versions of the task were related with less certain decisions and there were no diagnostic group differences in how confident participants about their decision. Moreover, as the task became more difficult, the non-anxious control group remained non-distressed across the three task versions while the group with various anxiety disorders reported increasingly more distress.

In 2016, Jacoby and colleagues conducted another study to enhance the ecological validity of the previous study. They used a Cold Pressor Task (CPT) for this purpose. CPT is a common experimental method of pain induction which involves

"submerging one's dominant hand in a cold ice water for as long as is tolerable". Participants submerged their hand in a cold water (5 °C) as long as possible, in the beginning of the experiment, for a maximum of two minutes. The endurance time was recorded, and participants rated their pain level. Then, they completed the Beads Task like in the previous study. After that, participants were told that if they cannot answer correctly, they would have to re-submerge their hand in the ice water for 20 seconds and 2 additional seconds for every bead they chose before making their decision. If they can answer correct, they were told that they would not have to re-submerge their hands in a water. In fact, nobody re-submerged their hands in a cold water, after completing the Beads Task since there were no wrong or correct answer. Results revealed that CPT pain levels were associated with greater distress and increased perceived importance to the Beads Task. It means that CPT is paired with the Beads Task to enhance task importance, associated distress, and perceived importance of answering correctly.

1.5. Present Study

Anxiety is thought to include a "sense of uncontrollability focused on the possibility of future threat, danger, or other potentially negative events" (Suárez, et al., 2008). Intolerance of uncertainty as a negative reaction for potential uncertain events, is an underlying concept for anxiety. It is highly correlated with worry which is considered as a maladaptive ER strategy (Borkovec, Alcaine and Behar, 2004) and a main feature of anxiety (Borkovec, Ray and Stöber, 1998). Likewise, the ability to regulate emotions is a part of the definition of anxiety disorders. In brief, both intolerance of uncertainty and emotion regulation are correlated with anxiety, but the link between them is relatively unexplored experimentally.

In line with the literature, this thesis project aimed to investigate the effect of uncertainty, intolerance of uncertainty, and emotion regulation on anxiety. Intolerance of uncertainty, emotion regulation and state-trait anxiety were measured by using self-reports. In addition to that, behavioral and physiological measures were taken. An important limitation of IU literature is that studies depend almost entirely on self-report measures. For that reason, in addition to self-report measure, this study used a behavioral measure of IU, namely The Beads Task. Uncertainty was manipulated by different uncertainty/difficulty levels in The Beads Task. Likewise, skin conductance

measurements were taken as an objective measure for anxiety in addition to self-reports, to explore the differences between subjective and objective anxiety levels of individuals.

It was hypothesized that participants will report higher state anxiety levels as the level of task difficulty increased on The Beads Task. It was also expected that participants with high IU levels will report higher state anxiety. Additionally, it was predicted that participants who uses suppression as an ER strategy will report higher state anxiety, than the ones use reappraisal. Likewise, it was expected to see same effects on SCRs, meaning that SCRs will be higher as the level of task difficulty increased on The Beads Task. It was also predicted that participants with high IU levels and participants who uses suppression as an ER strategy will have higher SCRs.

CHAPTER 2: METHODS

2.1. Participants

Fifty-one female and 11 male students from Izmir University of Economics voluntarily participated in the present study. Fifty-six of the participants were psychology students whereas 6 students were from the department of engineering, architecture, international trade and logistics. The age range of the participants was between 20 and 33 years (M = 22.05, SD = 1.99) (see Table 1 for details).

Initially, 94 participants took place in our study. 32 participants had to be removed from analyses. Fifteen were excluded because of technical problems, 9 due to problems with the electrodes, 5 because of completing the task incorrectly, and 3 were excluded because of missing in the questionnaires. Thus, in total, 62 participants were included into the analysis.

Table 1. Characteristics of Participants

	n	*%*
Gender		
Female	51	82
Male	11	18
Age		
20-23	57	92
23 +	5	8
Department		
Psychology	56	90
Other	6	10
Intolerance of uncertainty level		
Low	33	53
High	29	47
Suppression level	34	55
High	28	45
Reappraisal level		
Low	32	52
High	30	48

2.2. Stimuli, Apparatus and Material

2.2.1. Stimuli

Uncertainty was created by using a probabilistic inference task called The Beads Task (Jacoby et al., 2014). The beads task involves three different levels of uncertainty: low, intermediate, and high uncertainty. In the low and intermediate uncertainty conditions, two jars full of beads was presented on the screen - one at the left and one at the right side of the screen. In the low uncertainty condition, one of these jars was full of 85 blue and 15 red beads and the other one was full of 85 red, 15 blue beads (small, colored, and round balls). Participants were told that from one of these jars the beads will be drawn, and their task is to determine from which one the beads were coming from. In the intermediate uncertainty condition, there was 60 purple, 40 green beads in one of the jars, 60 green and 40 purple in another one. In the high uncertainty condition, one of the jars was presented with 44 orange, 28 yellow, 28 pink beads, the other one with 44 yellow, 28 pink, 28 orange beads and the last one was presented with 44 pink, 28 orange, 28 yellow beads. Figure 2 shows the conditions of the beads task. Participants were told that the beads will be drawn from one of these two or three jars standing next (meaning that from one of this three conditions, namely low, intermediate, and high uncertainty) to each other and they were asked to decide which jar the beads come from. It was also told that the next bead will be drawn after the previous one put back in the jar. It meant that the beads were always be drawn from 100 beads. Participants could request maximum 30 beads before deciding about which jar the beads come from and they were allowed to decide whenever they want to. The bead sequence was predetermined, and it is listed below.

"Low uncertainty condition (easy) – 85 red (R): 15 blue (B) Mostly red: RRRBRRRBRRRBRRBRRRRRRBRRRBRRRR

Intermediate uncertainty condition (intermediate) – 60 purple (P): 40 green (G) Mostly purple: PGGPPGPPPGPPPPGGPGGPPGGPGGPPPP

High uncertainty condition (difficult) – 44 orange (O): 28 yellow (Y): 28 pink (P) Mostly orange: POOYYPOYOYYPOPOOPPOYPOYOOOPYYO"

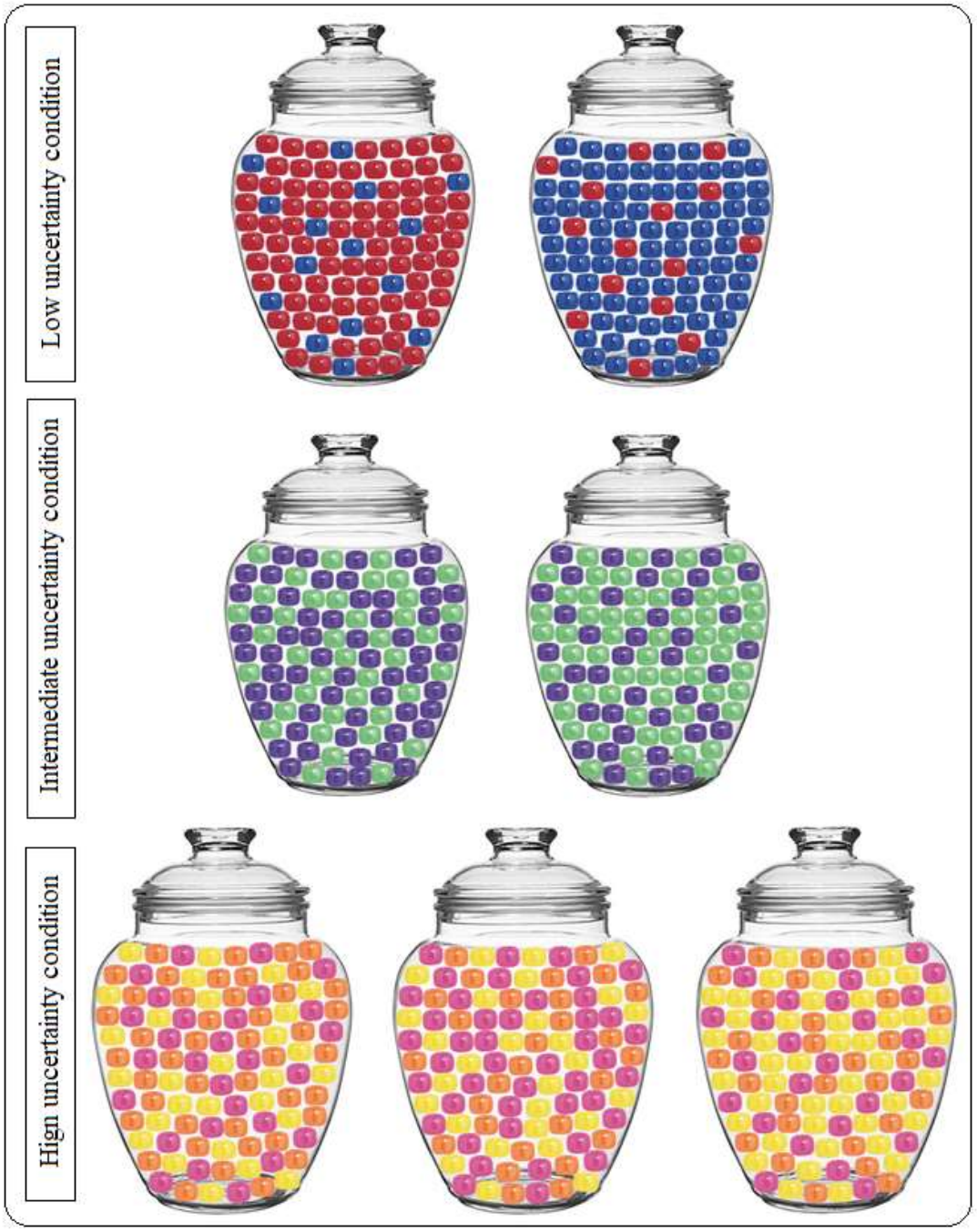

Figure 2. Presentation of The Conditions in The Beads Task (Low, Intermediate and High Uncertainty Conditions, up to down).

2.2.2. Stimulus Presentation Program

Stimulus presentation and randomization was carried out by using an experiment builder software; SuperLab^{TM} (Version: 4.0, Cedrus, Inc.). The experiment started with a 3-minute baseline period for participants' adaptation to the experimental environment and to take baseline measurement for electrodermal activity. During the baseline participants were shown a countdown on their screen showing the remaining time for the beginning of the experiment. Experimental trials began after the baseline period has ended.

The condition order was counterbalanced. Each participant completed all the conditions, but in a different order. Depending on which condition the participants experienced first, the jars full of beads were presented alone at the beginning of the experiment. When participants pressed the button 'B', the beads showed up on the top of screen one by one. Every time they pressed 'B', the next bead showed up. The previous beads kept on the screen to prevent forgetting. Presentation of the first six beads in low uncertainty condition is shown in Figure 3 as an example. Whenever the participants pressed 'Space' to report that they have a decision about which jar the beads come from, they could select the jar by pressing 1, 2 or 3 in accordance with given instructions. After each condition, questions about participant's anxiety, uncertainty, certainty, and importance (for guessing the correct jar) level were presented in order to check the manipulation. There were no time limits in any part of the experiments, participants completed the experiment by pressing the buttons on a keyboard.

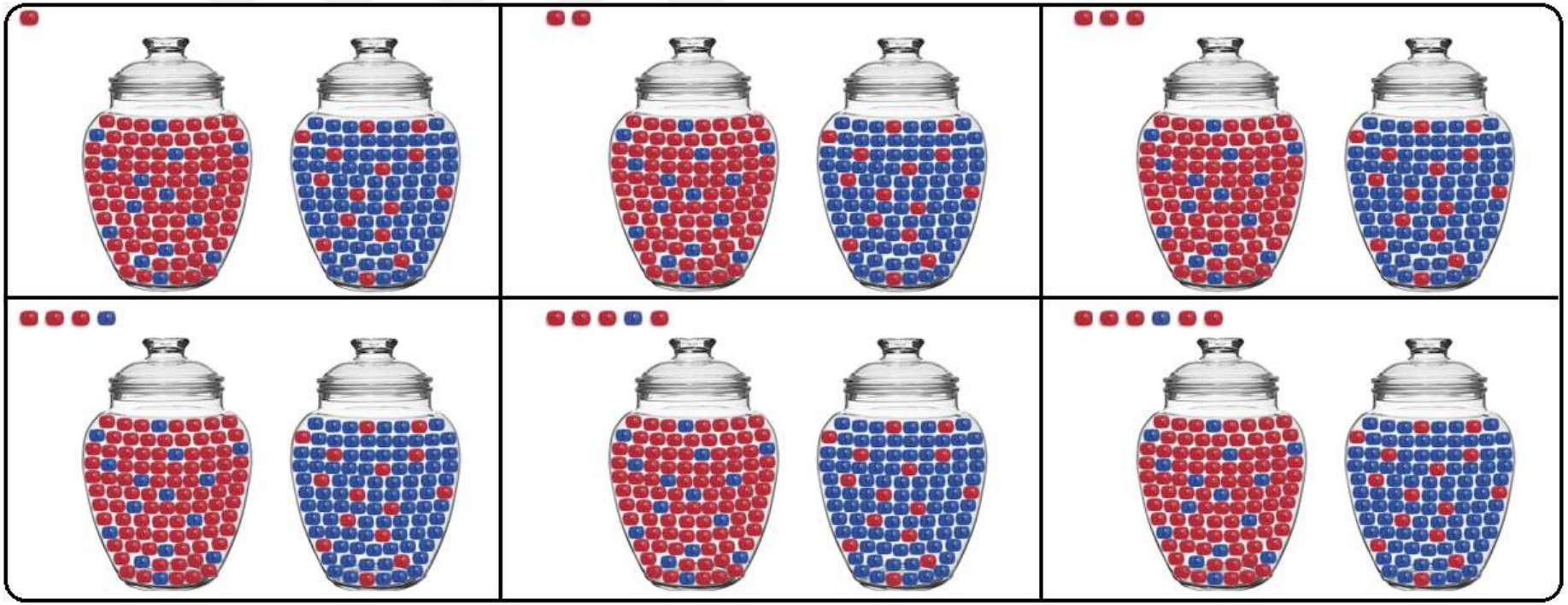

Figure 3. Presentation of The Bead Sequence (first 6 beads) in Low Uncertainty Condition.

2.2.3. Psychophysiological Data Acquisition System

Electrodermal activity (EDA) was measured using a MP150WSW-G Data Acquisition System. It was linked to the EDA Amplifier BN-PPGED via a Universal Interface Module UIM100C (BIOPAC Systems, Inc.). An isolated digital interface (Model: STP100C; BIOPAC Systems, Inc.) module was utilized in order to link MP system to the computer operating stimulus presentation programs for isolating digital inputs and outputs to and from the MP system.

Data recording and conducting offline analysis of the data was carried out via AcqKnowledge™ (Model: 4.2; BIOPAC Systems, Inc.) software which was run by another computer (Intel® Core™ i5- 2400CPU, 3.10 GHz, 4 GB of RAM) next to the experimental room (see 2.4. for detailed information about the Skin Conductance Response (SCR) calculations used in the analysis).

2.2.4. Materials

This section will contain information about the forms and the scales used in this study, which are Intolerance of Uncertainty Scale (short form), Emotion Regulation Questionnaire, State-Trait Anxiety Inventory, and Visual Analogue Scales (VAS) obtained for manipulation check and state anxiety level.

2.2.4.1. Participant Screening Form and Informed Consent Form

A participant screening form was developed and used to collect information about participants medical and psychological wellbeing, visual acuity, sleep history, and the consumption of coffee, tobacco or alcohol in order to control the effect of these on SCR measures (see Appendix B). An informed consent form was given to the participants to inform them about the aim of the study. It was also explained that the participation was voluntary, and the participants could end the experiment whenever they want to (see Appendix A).

2.2.4.2. Visual Analogue Scales

After each condition, participants were asked to answer questions that serve as a dependent variable and manipulation check. These questions are “how anxious do you feel right now?” (dependent variable), “how uncertain do you feel right now?” (uncertainty), “how certain are you about your decision?” (certainty) and “how important is it for you to get the right answer?” (importance, to check that participants

were engaged in the study). The participants answered these questions after each condition on a 7-point scale ranging from “very little” to “too much”. Question order was counterbalanced, so they were exposed to these four questions after each condition in a different order.

2.2.4.3. Intolerance of Uncertainty Scale, Short Form (IUS-12)

The original form of the IUS is a 27-item questionnaire that measures responses to uncertainty, and it had excellent internal consistency (α = .91) and good test–retest reliability (*r* = .74) (Freeston, et al., 1994). In this thesis, the Turkish the short version consisting of 12 items developed by Carleton, Norton and Asmundson (2007) was used (Sarıçam et al., 2014). The internal consistency for IUS-12 was also excellent (α = .91). Considering that the internal consistency of the original and short version was the same, the short form was used because of practicability. “Uncertainty stops me from having a firm opinion.” or “Uncertainty makes life intolerable” are some item examples that are rated on a 5-point scale ranging from “not at all characteristic of me” to “entirely characteristic of me”. Higher scores indicate higher IU. Validity and reliability studies of the Turkish form of the scale were carried out by Sarıçam et al. (2014). Confirmatory factor analyses indicated that 12 items yielded two factors (prospective anxiety and inhibitory anxiety) as in the original form (χ^2= 147.20, df= 48, RMSEA=.073, CFI=.95, IFI=.95, GFI=.94, and SRMR=.046). For the Turkish form of IUS-12 (see Appendix C), Cronbach alpha internal consistency coefficient was found out as .88 for overall scale, .84 for prospective anxiety subscale and .77 for inhibitory anxiety subscale. Test-retest reliability coefficient was .74 and corrected item-total correlations ranged from .42 to .68. In the present study, intolerance of uncertainty scale had high reliability with Cronbach α = .91. The cronbach alphas for the subscales were .82 for prospective anxiety and .90 for inhibitory anxiety, respectively.

2.2.4.4. Emotion Regulation Questionnaire (ERQ)

Emotion Regulation Questionnaire was developed by Gross and John (2003) to evaluate the use of two emotion regulation strategies: cognitive reappraisal and expressive suppression. The scale consists of 10 items rated on a 7-point scale ranging from “I do not agree at all.” to “I totally agree.”. Item examples are “When I want to feel more positive emotions, I change what I’m thinking about.” (for reappraisal

subscale) and “I keep my emotions to myself.” (for suppression subscale). Internal consistency coefficient was .79 for the reappraisal subscales and .73 for the suppression subscale. Test–retest reliability for both subscales was .69. Eldeleklioğlu and Eroğlu (2015) adapted the Turkish version of ERQ (see Appendix D). Confirmatory factor analyses were used to confirm the 2-factor theoretical structure and results indicated that the fit of the model was sufficient (χ^2/df=1.95, RMSEA=0.046, CFI=0.98, GFI=0.99). Cronbach’s alpha coefficients were .78 for the reappraisal and .73 for the suppression subscales. Test-retest reliabilities were .74 for the reappraisal and .72 for the suppression subscales. The item-total correlations were between .47 and .61 for the reappraisal subscale, and between .44 and .64 for the suppression subscale. In the current study, reappraisal subscale (Cronbach α = .80) and suppression subscale (Cronbach α = .78) both had similar reliabilities with the Turkish version of ERQ.

2.2.4.5. State-Trait Anxiety Inventory (STAI)

State-Trait Anxiety Inventory was developed by Spielberger, Gorsuch, Lushene, Vagg and Jacobs (1983) as self-report scales to assess state and trait anxiety in research. It consists of two separate scales, namely state anxiety, and trait anxiety, each including 20 items, with a total of 40 items. State anxiety scale includes items such as “I am tense right now.” or “I am worried right now.” and trait anxiety scale includes items like “I am content.” or “I cry easily.” and all items are rated on a 4-point scale from not at all to very much so. Higher scores indicate higher levels of anxiety. Internal consistency coefficient for the state anxiety subscale were ranged from .83 to .92 and from .86 to .92 for trait anxiety subscale. It was adapted to Turkish by Öner and LeCompte (1985). In the reliability analysis, the Cronbach’s alpha internal consistency coefficient was between .83 and .87 for the trait anxiety scale; for state anxiety subscale, it was between .94 and .96. Test-retest reliability coefficients were between .71 and .86 for trait anxiety subscale and ranged from .26 to .68 for state anxiety subscale. In the current study, state and trait anxiety subscales has both high reliabilities, Cronbach α = .93 and Cronbach α = .92, respectively.

State and trait anxiety levels were measured with using Turkish version of STAI (see Appendix E). A VAS was also used to measure participants’ state anxiety levels after each one of the conditions in the Beads Task. (see section 2.2.4.2.)

2.3. Procedure

The present study was approved by the ethics committee of the İzmir University of Economics (see Appendix F). The experiment took place in the psychology laboratory in Izmir University of Economics. Before the experiment start, participants were taken to the waiting room and filled participant screening form and informed consent form. They also completed the IUS-12, ERQ and STAI, respectively. After this process, participants were taken to the soundproof experimental room and seated in front of a computer. The tasks that they would encounter during experiment was explained briefly. The Electrodermal Activity BioNomadix® Transmitter wireless device was turned on and two disposable electrodes (Beybi ECG electrodes) were attached to the thenar and hypothenar eminence of the left hand of participants to measure SCR (see Figure 4). SCR measurements are very sensitive to the body movements; so, participants were requested to place their hands on the table in a comfortable position, hold their left hand steady as much as possible and use their right hand to press the keys when needed.

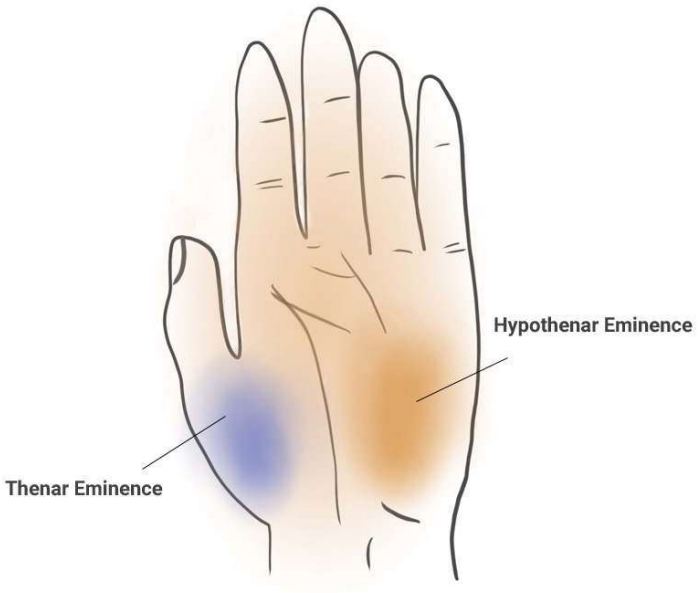

Figure 4. Presentation of the area in the hand that electrodes were attached (Source: Anatomy, 2019).

Experiment was started with a 3-minute baseline period for adaptation to the experimental environment and meanwhile, baseline measures for EDA was also taken. After that, instructions for the beads task were given on the screen and the experiment began. In the beads task, the condition order was counterbalanced; every participant completed all conditions once and with a different order. Lastly, participants were asked to answer manipulation check questions (see 2.2.4.2.) after finishing each one of the conditions.

2.4. Preparation of Skin Conductance Data for Analyses

As explained earlier, data acquisition was carried out with the help of MP150WSW-G Data Acquisition System and recorded via Acqknowledge^{TM} 4.2. A recorded data sample is shown in Figure 5. The top first channel refers to the EDA of the participants and all others shows the time periods of stimulus delivery made by SuperLab^{TM} which was connected to the MP System to simultaneously send signals for data synchronization. The second, third and fourth channels shows when the conditions (low, intermediate, and high uncertainty) started and finished. The next three channels indicate when the participants are ready to decide and when they choose the jar that they think the beads come from. The time interval for that decision is short, so it was not used in the analyses because it would not be useful to designate SCRs from such a short time interval. The last channel remarks the start and the end of the baseline period.

SCRs were determined from mean amplitude values (base to peak difference). To be able to mention a waveform of a stimulus, beginning of that waveform should be inside 1 second and 4 seconds after following that stimulus' onset and minimum SCR criterion is 0.02 μs (microsiemens). Values lower than this threshold did not count as a valid waveform. For every different condition of the beads task, SCR values were calculated in accordance with that was described. Next, square root transformation was applied for all calculated values to normalize distribution since amplitude variable may tend to have a negatively skewed distribution (Boucsein, 2012). The transformed mean SCR values were used for further analyses as an objective measure of the anxiety levels of the participants and to compare them with their subjective anxiety levels (taken by self-report measures).

2.5. Statistical Analysis

Data analyses was performed using IBM SPSS Statistic 20 and the assumptions were checked for the use of parametric tests.

In order to make comparisons between participants with high and low intolerance of uncertainty, the median split for IUS-12 was used for dichotomizing a continuous variable into a categorical one and build the groups low IU and high IU. Any score below median value was put in low IU category and the other scores above median was put in high IU category. Same process was followed for ERQ and STAI. Since suppression and reappraisal are two different sub-dimensions of ERQ and total score cannot be calculated, the median splitting was used for both subscales (suppression and reappraisal) and two groups (low vs. high) were obtained. Likewise, for two sub-scales of STAI (trait and state anxiety) the median split was used, and two groups (again as low and high) were obtained for exploratory analyses.

Four different repeated measures ANOVAs were conducted to find out if uncertainty manipulation was successful, and the importance given to the study by participants was sufficient. Chi-square analyses were conducted to see whether there is a difference between gender, IU groups and ER groups. Six different independent samples t-tests were carried out to see whether the state and trait anxiety levels of participants in IU and ER groups differ.

A 2 (Trait anxiety; low, high) *X* 2 (State anxiety: low, high) *X* 3 (Uncertainty level; low, intermediate, high) three-way ANOVA (mixed design) was conducted on VAS anxiety scores of the participants. Another 2 (Trait anxiety; low, high) *X* 2 (State anxiety: low, high) *X* 4 (Uncertainty level; baseline, low, intermediate, high) three-way ANOVA (mixed design) was conducted on participants' SCR levels.

Lastly, A 2 (IU; low, high) *X* 2 (Reappraisal: low, high) *X* 3 (Uncertainty level; low, intermediate, high) three-way ANOVA (mixed design) and a 2 (IU; low, high) *X* 2 (Suppression: low, high) *X* 3 (Uncertainty level; low, intermediate, high) three-way ANOVA (mixed design) were conducted on participants' self-reported state anxiety levels. A 2 (IU; low, high) *X* 2 (Reappraisal; low, high) *X* 4 (uncertainty level; baseline, low, intermediate, high) three-way ANOVA (mixed design) and a 2 (IU; low, high) *X* 2 (Suppression; low, high) *X* 4 (uncertainty level; baseline, low, intermediate, high) three-way ANOVA (mixed design) were conducted on participants' SCR levels.

Figure 5. Sample data, recorded via Acqknowledge™ 4.2.

CHAPTER 3: RESULTS

3.1. Manipulation Checks

Two repeated measure ANOVAs were conducted on uncertainty and certainty ratings of the participants for three conditions of the beads task to see whether the uncertainty manipulation was successful. Results revealed that uncertainty ratings increased as the task gets harder from low uncertainty (M = 2.53, SE = .21) to intermediate uncertainty (M = 3.71, SE = .19) and high uncertainty conditions (M = 3.79, SE = .19), $F(2, 122) = 17.82$, $p = .000$, $\eta_p^2 = .23$. When examined in detailed with pairwise comparisons by using Bonferroni correction, it was indicated that the difference between low and intermediate uncertainty ($p < .05$) and low and high uncertainty ($p < .05$) was statistically significant, while the difference between intermediate and high uncertainty was not ($p > .05$). In addition to that, their certainty level of their decisions was significantly decreased from low uncertainty (M = 5.37, SE = .19) to intermediate uncertainty (M = 4.19, SE = .20) and high uncertainty conditions (M = 3.81, SE = .18), $F(2, 122) = 27.15$, $p = .000$, $\eta_p^2 = .31$. Bonferroni corrected pairwise comparisons showed that the difference between low and intermediate uncertainty ($p < .05$) and low and high uncertainty conditions ($p < .05$) was statistically significant, but the difference between intermediate and high uncertainty conditions was not ($p > .05$).

A repeated measure ANOVA was conducted on the number of beads that participants wanted to see before deciding. Results indicated that the number of beads that participants asked for before deciding was significantly increased from low uncertainty (M = 14.9, SE = 1.24) to intermediate uncertainty (M = 16.95, SE = 1.35) and high uncertainty conditions (M = 19.31, SE = 1.33), $F(2, 122) = 6.35$, $p = .002$, $\eta_p^2 = .09$, showing that participants needed more beads to make a decision with increased uncertainty. Bonferroni corrected pairwise comparisons showed that the difference between the number of beads that participants wanted to see before deciding in low and high uncertainty conditions was the only significant comparison ($p < .05$).

In order to check that participants engaged in the study; another repeated measures ANOVA was conducted on participants' importance ratings that they give as an answer to the question of "how important is it for you to get the answer right?".

Results showed that as expected, the importance of knowing the right answer was not significantly different for the three conditions, $F(1.78, 108.29) = 2.14$, $p = .128$.

3.2. Descriptive, Preliminary and Exploratory Analyses

The number of males and females were not equal in the data. Therefore, Chi-square analyses were conducted to see whether there is a difference between gender, IU groups and ER groups. Results showed that intolerance of uncertainty (χ^2 (1) = 0.58, $p = .445$), suppression (χ^2 (1) = 1.84, $p = .175$) or reappraisal (χ^2 (1) = 0.77, $p = .379$) did not differ for gender.

Two independent samples t-test were conducted to see whether there is a difference between the state and trait anxiety levels of participants who had high or low intolerance of uncertainty. Another four independent samples t-test were carried out to see whether there is a difference between the state and trait anxiety levels of participants who uses suppression and reappraisal as an ER strategy. Results indicated that IU, $t(60) = -1.86$, $p = .068$, suppression, $t(60) = -0.63$, $p = .532$, and reappraisal, $t(60) = 1.85$, $p = .070$, did not have a statistically significant effect on state anxiety. However, participants who had low IU ($M = 36.48$, $SE = 1.14$) had lower trait anxiety levels than those who had high IU ($M = 51.72$, $SE = 1.63$), $t(60) = -7.82$, $p = .000$. In addition, participants who uses reappraisal more likely ($M = 39.57$, $SE = 1.51$) had lower trait anxiety levels than the ones who uses reappraisal less ($M = 47.41$, $SE = 2.05$), $t(60) = 3.05$, $p = .003$. On the other hand, trait anxiety levels of the participants who uses suppression more likely to regulate their emotions and the ones that use it less were not significantly differ, $t(60) = -1.85$, $p = .069$ (see Table 2).

Two ANOVAs were conducted to evaluate the consistency between the participants' self-report anxiety scores and physiological measurement. In line with this purpose, a 2 (Trait anxiety; low, high) *X* 2 (State anxiety: low, high) *X* 3 (Uncertainty level; low, intermediate, high) three-way ANOVA (mixed design) was conducted on VAS anxiety scores and another 2 (Trait anxiety; low, high) *X* 2 (State anxiety: low, high) *X* 4 (Uncertainty level; baseline, low, intermediate, high) three-way ANOVA (mixed design) was conducted on skin conductance measures. For VAS anxiety scores, results showed that the main effect of uncertainty was slightly non-significant, $F(2, 116) = 2.75$, $p = .068$. The main effect of state anxiety was not significant, $F(1, 58) = 0.98$, $p = .327$. The main effect of trait anxiety was statistically significant; participants with

high levels of trait anxiety (M = 2.91, SE = .21) reported that they felt more anxious on VASs than those with low levels of trait anxiety (M = 1.89, SE = .18), $F(1, 58)$ = 13.94, p = .000, η_p^2 = .19. There is no statistically significant interaction effect between uncertainty and trait anxiety, $F(2, 116)$ = 0.86, p = .427, uncertainty and state anxiety, $F(2, 116)$ = 0.15, p = .862, or trait anxiety and state anxiety, $F(1, 58)$ = 3.18, p = .080. Three-way interaction effect between uncertainty, trait and state anxiety was also non-significant, $F(2, 116)$ = 0.06, p = .945. On the other hand, results of the skin conductance data analysis indicated that the main effect of uncertainty, $F(1.80, 104.27)$ = 0.70, p = .485, trait anxiety, $F(1, 58)$ = 0.50, p = .820, and state anxiety, $F(1, 58)$ = 0.42, p = .520, were not significant. The interaction effect between uncertainty and trait anxiety, $F(1.95, 112.97)$ = 1.53, p = .222, uncertainty and state anxiety, $F(1.95, 112.97)$ = 0.82, p = .440, or trait anxiety and state anxiety, $F(1, 58)$ = 0.18, p = .673, and three-way interaction effect between uncertainty, trait and state anxiety were also non-significant, $F(1.80, 104.27)$ = 0.44, p = .622.

Table 2. Results of independent samples t-tests

	IU						Reappraisal						Suppression					
	Low		High		*t*(60)	*p*	Low		High		*t*(60)	*p*	Low		High		*t*(60)	*p*
	M	*SE*	*M*	*SE*			*M*	*SE*	*M*	*SE*			*M*	*SE*	*M*	*SE*		
State Anxiety	34.97	1.48	39.52	2.00	-1.86	.07	39.28	1.79	34.77	1.66	1.85	.07	36.38	1.64	37.96	1.93	-.63	.53
Trait Anxiety	36.48	1.14	51.72	1.63	-7.82	.00**	47.41	2.05	39.57	1.51	3.05	.00*	41.35	1.74	46.36	2.09	-1.85	.07

Note. *$p < .05$. **$p < .01$.

3.3. Reliability and Correlation Analyses

Intolerance of uncertainty scale had a high reliability with Cronbach α = .91. Reappraisal subscale of ERQ had medium reliability, Cronbach α = .80 and suppression subscale also had medium reliability, Cronbach α = .78. State and trait anxiety subscales of STAI had both high reliabilities, Cronbach α = .93 and Cronbach α = .92, respectively.

To examine the relationship between the study variables, correlation analysis was carried out. Results indicated a significant relationship between IU and TA (r = .71, p = .000.) IU is also significantly correlated with SA (r = .26, p = .039) and suppression (r = .29, p = .024), but not with reappraisal (r = -.17, p = .183). Trait and state anxiety were significantly related with each other (r = .47, p = .000) and reappraisal was significantly corelated with trait (r = -.47, p = .000) and state anxiety (r = -.30, p = .016). Finally, the relationship between suppression and reappraisal (r = -.06, p = .652); and suppression and state anxiety (r = .11, p = .389) was not significant. Suppression was marginally significantly correlated with trait anxiety (r = .25, p = .055).

Table 3. Correlations for Study Variables

Variable	1	2	3	4	5
1. IU	—				
2. Suppression	.29*	—			
3. Reappraisal	-.17	-.06	—		
4. Trait Anxiety	.71**	.25	-.47**	—	
5. State Anxiety	.26*	.11	-.30*	.47**	—

*p < .05. **p < .01.

3.4. Main Analyses

A 2 (IU; low, high) *X* 2 (Reappraisal: low, high) *X* 3 (Uncertainty level; low, intermediate, high) three-way ANOVA (mixed design) was conducted to measure the effect of IU, reappraisal, and uncertainty on participants' anxiety levels after each condition of the beads task. Results indicated that there was a main effect of uncertainty on anxiety, $F(2, 116) = 4.44$, $p = .014$, $\eta_p^2 = .07$. Anxiety levels were increased from low uncertainty ($M = 2.00$, $SE = .16$) to intermediate uncertainty ($M = 2.41$, $SE = .15$) and high uncertainty conditions ($M = 2.49$, $SE = .19$). Bonferroni corrected pairwise comparisons showed that the difference between low and high uncertainty conditions was the only significant comparison ($p < .05$). The main effect of IU on anxiety was statistically significant, $F(1, 58) = 7.55$, $p = .008$, $\eta_p^2 = .12$. Participants who had high IU reported that they feel more anxious ($M = 2.67$, $SE = .20$) than those who had low intolerance ($M = 1.92$, $SE = .18$). The main effect of reappraisal was not statistically significant, $F(1, 58) = 0.02$, $p = .879$. There was no statistically significant interaction effect between IU and reappraisal, $F(1, 58) = 0.34$, $p = .563$, IU and uncertainty, $F(2, 116) = 1.18$, $p = .312$ (see Figure 6), reappraisal and uncertainty, $F(2, 116) = 2.41$, $p = .094$ (see Figure 7), on anxiety. Three-way interaction effect between IU, reappraisal and uncertainty was not statistically significant, $F(2, 116) = 1.10$, $p = .335$.

Another 2 (IU; low, high) *X* 2 (Suppression: low, high) *X* 3 (Uncertainty level; low, intermediate, high) three-way ANOVA (mixed design) was conducted on participants' anxiety ratings in each condition of the beads task; to measure the effect of IU, suppression, and uncertainty on anxiety. Results showed that the main effect of uncertainty on anxiety was statistically significant, $F(2, 116) = 3.82$, $p = .025$, $\eta_p^2 = .06$. Anxiety levels were increased from low uncertainty ($M = 1.98$, $SE = .16$) to intermediate uncertainty ($M = 2.38$, $SE = .15$) and high uncertainty conditions ($M = 2.44$, $SE = .19$). Bonferroni corrected pairwise comparisons revealed that participants felt more anxious in the intermediate uncertainty conditions than in the low one ($p < .05$), and they also felt more anxious in high uncertainty condition than low uncertainty condition ($p < .05$). There was a significant main effect of IU on anxiety, $F(1, 58) = 8.31$, $p = .006$, $\eta_p^2 = .13$. Participants who had high IU reported that they felt more anxious ($M = 2.64$, $SE = .19$) than those who had low intolerance ($M = 1.89$, $SE = .18$). The main effect of suppression was not statistically significant, $F(1, 58) = 0.84$, $p =$

.363. There was no statistically significant interaction effect between IU and suppression, $F(1, 58) = 2.68$, $p = .107$, uncertainty and suppression, $F(2, 116) = 0.17$, $p = .846$ (see Figure 8), uncertainty and IU, $F(2, 116) = 0.85$, $p = .430$, on anxiety. Three-way interaction effect between IU, suppression and uncertainty was again not statistically significant, $F(2, 116) = 0.71$, $p = .495$.

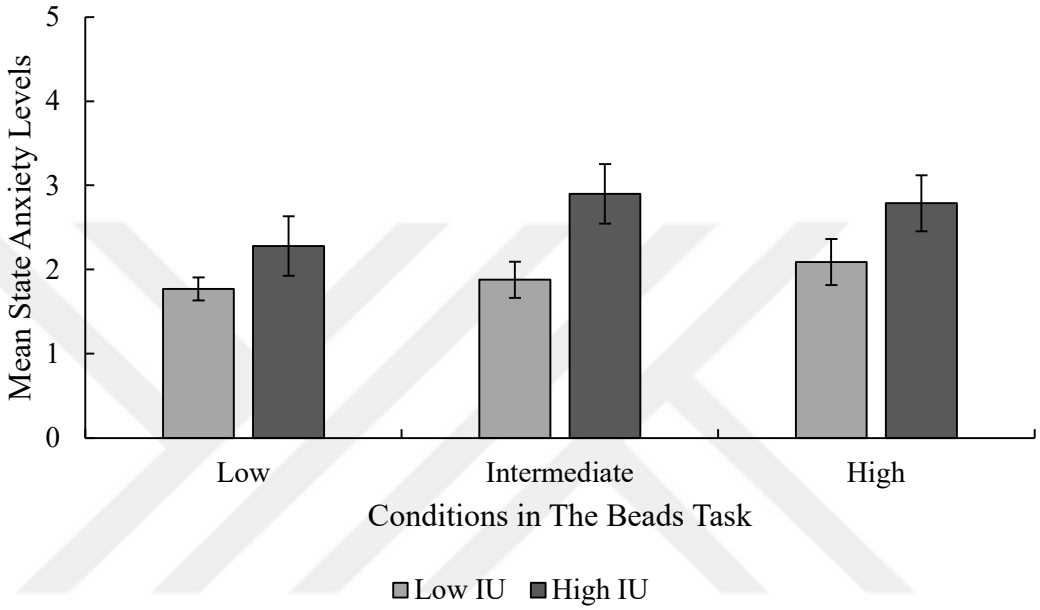

Figure 6. Mean (95% CI) state anxiety levels of the participants with low and high intolerance of uncertainty after completing each condition of The Beads Task.

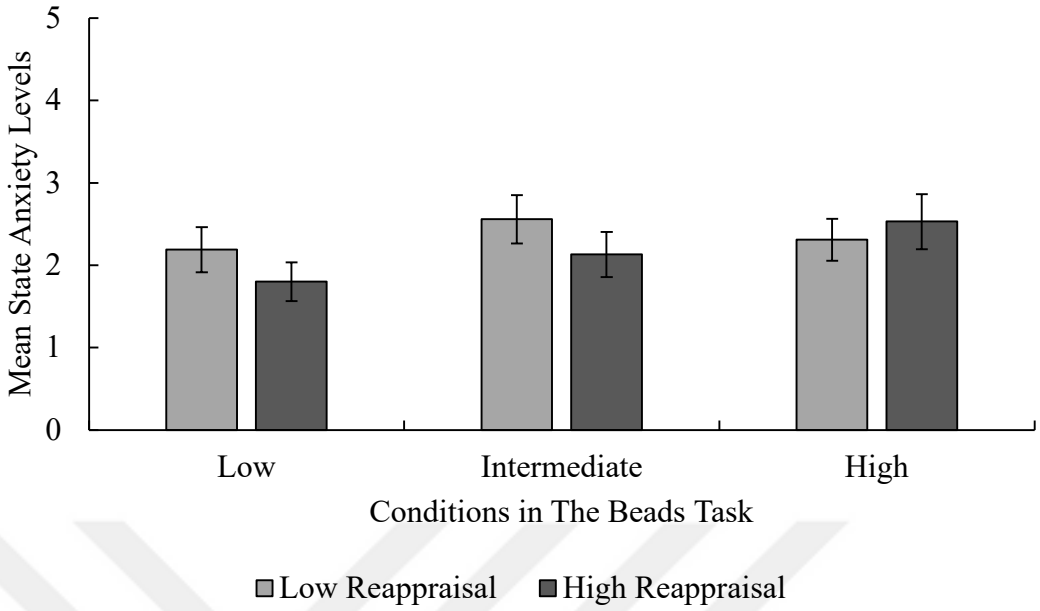

Figure 7. Mean (95% CI) state anxiety levels of the participants with low and high reappraisal after completing each condition of The Beads Task.

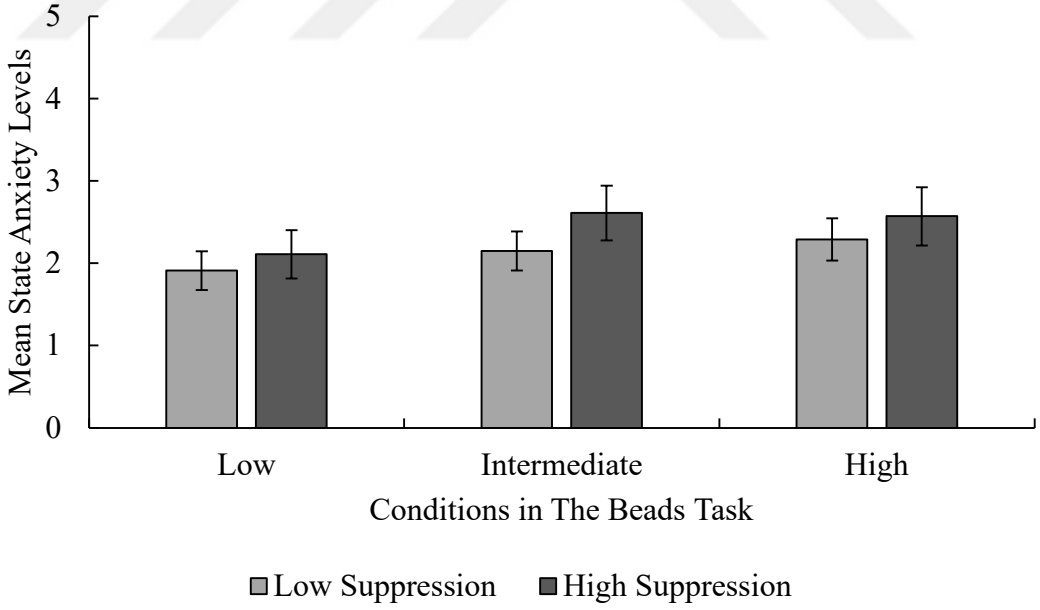

Figure 8. Mean (95% CI) state anxiety levels of the participants with low and high suppression after completing each condition of The Beads Task.

3.5. Skin Conductance Response Results

A 2 (IU; low, high) *X* 2 (Reappraisal; low, high) *X* 4 (Uncertainty level; baseline, low, intermediate, high) three-way ANOVA (mixed design) was conducted on mean SCRs of the participants. Results indicated that mean SCRs did not significantly differ in baseline (M = 3.48, SE = .11), low (M = 3.40, SE = .15), intermediate (M = 3.52, SE = .11), and high uncertainty conditions (M = 3.54, SE = .10), $F(1.96, 113.42) = 1.04$, $p = .357$. There is no significant main effect of IU, $F(1, 58) = 0.79$, $p = .379$. Participants who had high IU (M = 3.39, SE = 0.15), and low IU (M = 3.58, SE = 0.14) did not differ in SRCs. The main effect of reappraisal was not statistically significant, $F(1, 58) = 1.42$, $p = .238$. There is no statistically significant interaction effect between IU and reappraisal, $F(1, 58) = 1.12$, $p = .294$, IU and uncertainty, $F(1.81, 104.67) = 0.67$, $p = .498$ (see Figure 9), uncertainty and reappraisal, $F(1.96, 113.42) = 0.87$, $p = .420$ (see Figure 10). Three-way interaction effect between IU, reappraisal, and uncertainty was not statistically significant, $F(1.81, 104.67) = 0.08$, $p = .907$.

Another 2 (IU; low, high) *X* 2 (Suppression; low, high) *X* 4 (Uncertainty level; baseline, low, intermediate, high) three-way ANOVA (mixed design) was conducted on mean SCRs of the participants to see the effect of IU, suppression, and uncertainty. Results revealed that there was not any significant difference between the mean SCRs of the participants in baseline (M = 3.53, SE = .10), low (M = 3.43, SE = .15), intermediate (M = 3.57, SE = .11), and high uncertainty conditions (M = 3.58, SE = .10), $F(1.96, 113.74) = 1.25$, $p = .291$. There is no significant main effect of IU, $F(1, 58) = 1.63$, $p = .207$. Having high (M = 3.39, SE = .15) or low IU (M = 3.66, SE = .14) did not make a difference on SCRs. The main effect of suppression was not statistically significant, $F(1, 58) = 0.19$, $p = .669$. There is not any statistically significant interaction effect between IU and suppression, $F(1, 58) = 2.49$, $p = .120$, IU and uncertainty, $F(1.81, 104.95) = 0.57$, $p = .549$, suppression and uncertainty, $F(1.81, 104.95) = 0.29$, $p = .729$ (see Figure 11). Three-way interaction effect between IU, suppression, and uncertainty was not statistically significant, $F(1.96, 113.74) = 0.91$, $p = .404$.

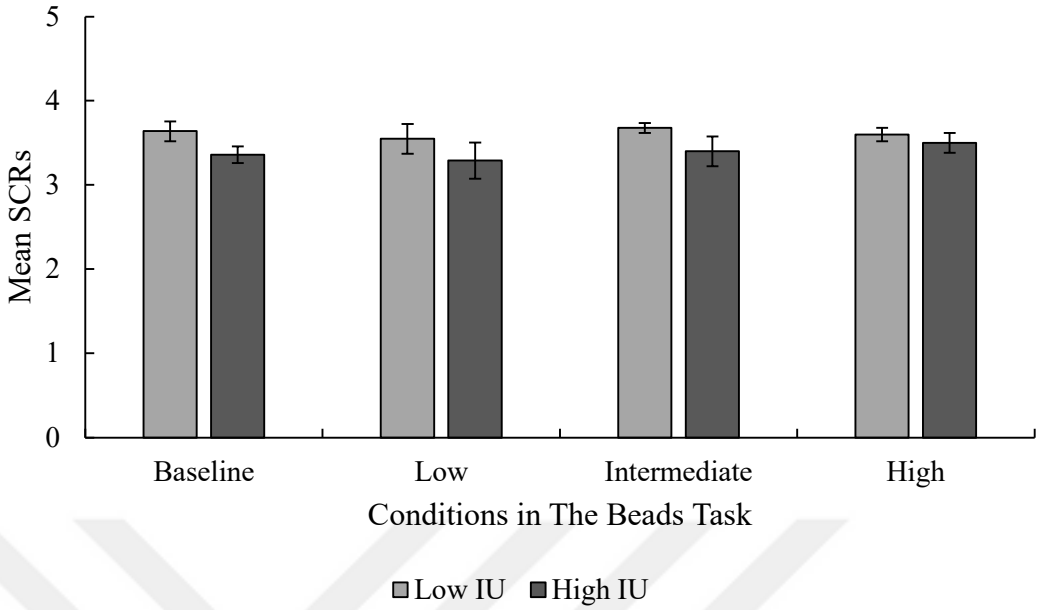

Figure 9. Mean (95% CI) SCRs of the participants with low and high intolerance of uncertainty during baseline and The Beads Task.

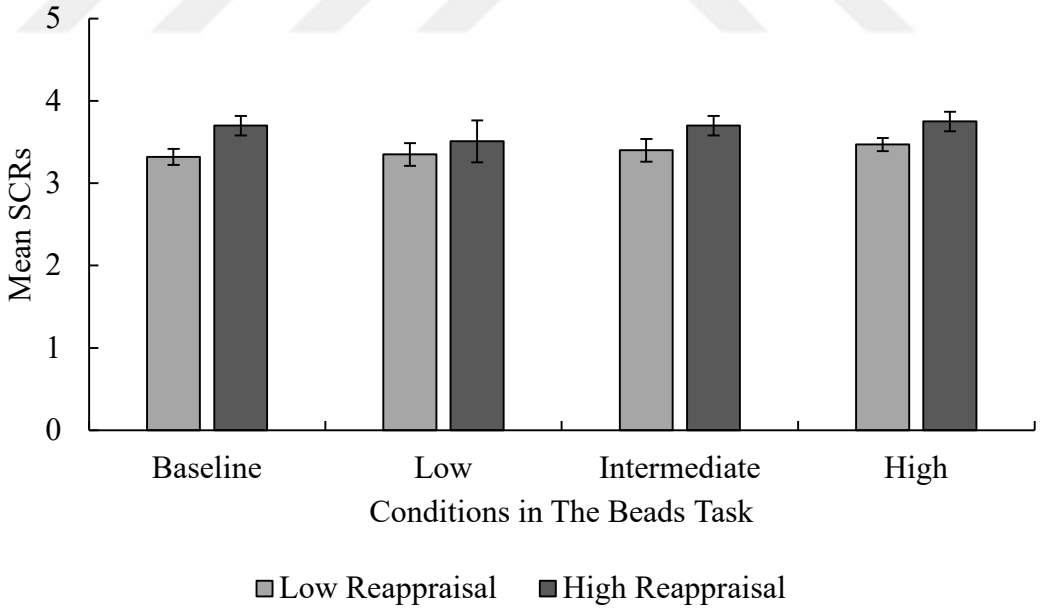

Figure 10. Mean (95% CI) SCRs of the participants with low and high reappraisal during baseline and The Beads Task.

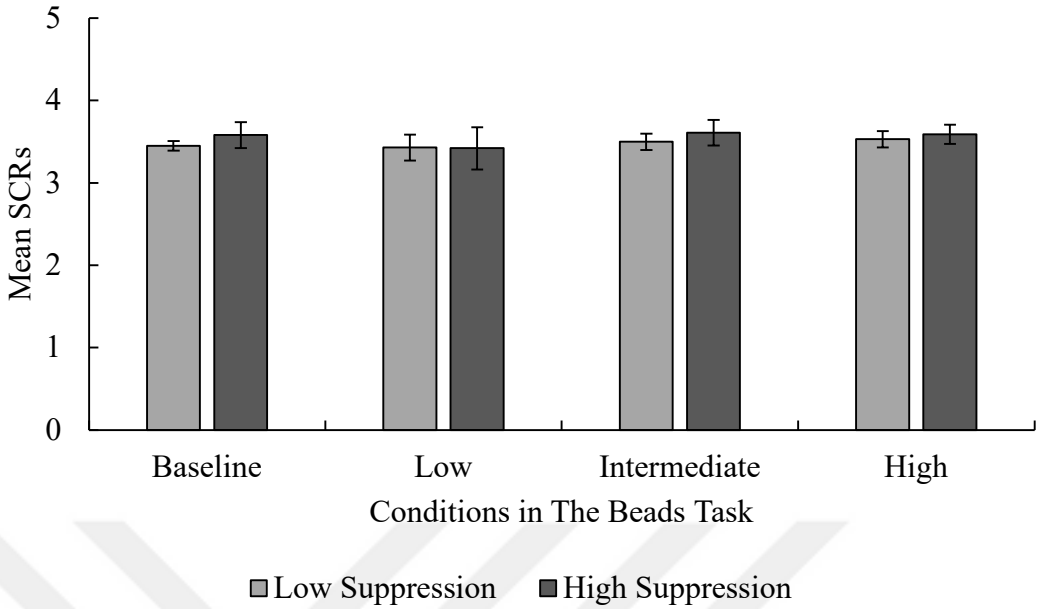

Figure 11. Mean (95% CI) SCRs of the participants with low and high suppression during baseline and The Beads Task.

CHAPTER 4: DISCUSSION

The aim of the current thesis was to examine the influence of uncertainty, intolerance of uncertainty, and emotion regulation on anxiety. Results showed that uncertainty created anxiety in all participants. Individuals with high IU reported more self-rated anxiety compared to low IU when faced with uncertainty. However, these effects were not observed in skin conductance responses. On the other hand, it was found that emotion regulation strategies used by individuals to reduce uncertainty did not make any difference in both, subjectively reported anxiety, and objectively measured skin conductance.

In the following sections, the findings of the study will be discussed in line with the literature. Limitations of the study will be mentioned and recommendations for future studies will be given.

4.1. Correlation Analysis Findings

Correlation analysis showed that suppression was positively correlated with IU while reappraisal was not correlated with IU, which is in line with the expectations regarding the current literature. The study of Smith, Twohy and Smith (2020) aimed to investigate the effect of psychological inflexibility, intolerance of uncertainty and suppression on the relationship between social isolation and mental health outcomes during the COVID-19 pandemic and found similar result with the current study; suppression was significantly correlated with IU. On the other hand, in another study which examined the relation between age and health anxiety, and mediation effect of anxiety-related constructs, IU was found negatively correlated with reappraisal but not correlated with suppression (Gerolimatos and Edelstein, 2012). This mentioned studies also used IUS and ERQ similar in the present study. In addition, the current study revealed negative relationship between reappraisal and trait anxiety and reappraisal and state anxiety. For reappraisal, which is seen as an adaptive ER strategy, the finding of negative associations with anxiety is expected and coherent with the literature (Egloff et al., 2006; Dennis, 2007). Lastly, the finding that IU was found highly correlated with trait anxiety and moderately correlated with state anxiety in non-clinical sample is again not surprising and in accordance with the literature (Khawaja and Yu, 2010; Lauriola et al., 2019). In conclusion, when the relationship between IU and ER as two transdiagnostic constructs for anxiety was examined, higher IU was

associated with the use of suppression, not with reappraisal. Higher IU was also correlated with both higher trait and state anxiety levels. For ER strategies, more reappraisal use was associated with less anxiety levels, both trait and state, while suppression was not related with them. In sum, in line with literature, the results of the present study showed that high IU and the use of suppression as ER strategy was related to increased anxiety. Thus, it underlines the assumption of the importance of IU and ER in anxiety.

4.2. Main Analyses Findings

The Beads task was used as a behavioral measure to induce uncertainty in laboratory. With increased uncertainty, state anxiety, measured using a VAS, was expected to increase accordingly. Manipulation check analysis demonstrated that uncertainty manipulation was successful. Results showed that participants reported higher anxiety levels when the uncertainty levels of the task were increased. This highlights again that uncertainty causes anxiety, which is in line with the literature (Chen, Yao and Qian, 2018; Reuman et al., 2015). Oglesby and Schmidh (2017) investigated the relationship between uncertainty and anxiety by using a different uncertainty manipulation (speech task) and found that IU was associated with state anxiety under uncertainty. In another study that manipulate IU levels with using a roulette game, increased IU caused higher levels of worry (Ladouceur, Gosselin and Dugas, 2000). Jacoby and colleagues (2014) used The Beads Task and found that as the task became more difficult, individuals with anxiety disorders were more distressed compared to non-anxious individuals.

Previous research has shown that suppression is a maladaptive strategy whereas reappraisal is an adaptive one (Gross, 1998, Gross and Levenson, 1997; Gross and John, 2003). On the other hand, there are studies that shows the effects of emotion-regulation strategies depend on the context. For example, in a study, when stress was controllable, using cognitive reappraisal to regulate stress was found related with decreased psychological health (Troy, Shallcross and Mauss, 2013). In the present study, using reappraisal or suppression to decrease uncertainty did not create significant difference on state anxiety. Comparted to other ER research, in the present study participant were not instructed to use a specific ER strategy. It should be mentioned that when participants were told to use certain strategies, ER strategies has

larger effects (Webb, Miles and Sheeran, 2012). Even though the majority of experimental studies instructed participants to implement certain strategies, it hampered the understanding of the mechanisms by which individuals choose their strategies naturally (Aldao, 2013). This is the reason why the present study evaluated the habitual use of ER with a questionnaire, by giving no instruction to the participants. The habitual use of ER refers to "how often an individual habitually uses a particular ER strategy" (McRae, 2013). No additional question was asked about what they did to regulate the feeling of uncertainty created by the task during the experiment. Self-report measurement gives information about what strategy participants uses *generally*; but it may not be that informative about what strategy they used specifically *during the task*. Considering that the sample in the current study was not a clinical sample, it is in line with the literature that most of the participants reported to use reappraisal to regulate their emotions in general. Not having equal groups for the two ER strategies did not allow us to make a reliable comparison between them. These may be the reasons for not finding a significant effect between the ER strategies and anxiety. In addition, suppression was found unrelated with positive psychological functioning among East Asians in which the use of suppression is more normative (Soto et. al., 2011). For this study conducted with Turkish participants, the case may be similar with Soto and colleagues' study. Eventually, Turkey and Asian countries are both collectivist nations and it is known that collectivist nations were more likely to engage in emotion suppressive behaviors (Thomas et al., 2020). Thus, it might be that the use suppression in Turkish people does not particularly result in negative emotion.

Limited access to ER strategies is a significant partial mediator for the association between IU and worry (Ouellet et al., 2019). In the light of this finding and the deficits in the literature, this thesis project aimed to identify the relationship between IU and ER. However, the interaction effect between IU and ER was found non-significant, showing that self-reported anxiety levels of the participants who uses reappraisal and suppression did not differ by their IU levels. Heilman et al. (2010) examined the interaction between uncertainty and ER in a decision-making study. They investigated the effect of emotion regulation on decision making under uncertainty and found that participants who used cognitive reappraisal performed better on the decision-making tasks and showed less aversion to uncertainty than participants who suppressed their emotion or did not use an ER strategy. Nevertheless,

no study has yet been conducted to understand the interaction between IU, reappraisal, and suppression use and their effect on anxiety in healthy subjects, although the deficiency in the literature is evident (Tanovic et al., 2018). In the light of that, it would not be wrong to say that little is known about emotion regulation in the context of IU and further research is needed.

4.3. Skin Conductance Response Findings

Skin conductance measures were taken as indices of anxiety in order to have an objective measure of it. Uncertainty, intolerance of uncertainty or emotion regulation did not have any significant effect on skin conductance measures. In other words, SCR did not differ among the different uncertainty conditions. Participants with high IU did not show higher SCR than those with low IU. Also, the use of ER strategies had no effect on SCR. Thibodeau and colleagues (2013) examined the effect of IU on a typing task that requires typing a section fast and accurate as much as possible and found no relationship between IU and SCR. Another study used a paradigm involving the anticipation and perception of dangerous, safe, or uncertain pictures to assess the effect of IU on worry (Kirschner et al., 2016). Also, no association was found between IU and SCR. Morriss, Biagi and Dodd (2020) examined how IU affects physiological indicators of fear and anxiety to known and unknown threat with using a threat of predictable and unpredictable aversive events task. IU was found non-related with any differences in both self-report ratings and skin conductance responses to the uncertain threat condition. The authors explained that the lack of significant finding might result from the time between events and rating periods, where ratings are provided retrospectively. Results of the current study are in line with the mentioned studies. Unfortunately, there is no study examining the relationship between IU and SCR using The Beads Task. Thus, a direct comparison and discussion of the present results with another study using the same task is not possible. However, an explanation for non-significant results in this study might arise due to the task at hand. Uncertainty created by The Beads Task may not be at a level to causes a change in skin conductivity. Another explanation could be that the response intervals were too short to observe group differences, even though they were enough to measure skin conductance validly.

Regarding to the effect of emotion regulation on SCR, studies found that reappraisal causes decreased SCRs while suppression causes increased SCRs (Driscoll

et al., 2009; Gross and Levenson, 1997). The studies that found these results were the ones that manipulated the emotion regulation; participants were asked to regulate the expression of emotion by focusing on the emotional responses. Studies, in which participants were instructed to suppress internal emotional experience, rather than emotional expression, did not find increased sympathetic activation (Eifert and Heffner, 2003; Levitt et al., 2004; Campbell-Sills et al., 2006). Campbell-Sills (2006) stated that increased sympathetic activation might be more common when participants are instructed to regulate the behavioral expression of emotion. In this study, emotion regulation was not experimentally manipulated and there may have been insufficient power to detect differences in skin conductance. On the other side, instructing participants to regulate their emotions in a specific way might create other problems like missing of understanding the processes by which individuals spontaneously choose strategies or controlling whether the participants really used the instructed strategy (Aldao, 2013). Additionally, considering that no one is instructed to what strategy they use in real life, ecological validity can be considerably reduced by giving instructions to the participants. Everything aside, lack of instruction and low level of anxiety created by the task, might be the reason of lack of significant differences in skin conductance. Because, as mentioned above, studies that found significant differences in skin conductance were often the studies that instructed participants to use certain strategies and used tasks which were too stressing for participants (e.g., showing a movie of arm amputation).

It should be mentioned here about the discrepancy between self-reports, behavioral and physiological measure in emotion literature. Studies stated that individuals differ in their subjective experience of emotion and its coherence with physiology (Mauss et al., 2005). The relationship between the reported and observed measurements is referred to as emotional consistency in the literature (Rosebrock et al., 2017). The research on emotion coherence showed moderate correlation between self-report and physiological measures. Furthermore, when participants use certain strategies to regulate their emotions, coherence was disrupted (Dan-Glauser and Gross, 2013). This discrepancy between self-report and physiological measures was explained by the presence of cognitive and attentional biases (Fisher, Granger, and Newman, 2010). Hoehn-Saric and McLeod (2000) explained this discrepancy between self-reports and physiological activity with saying that alterations of bodily sensations

through psychological factors may lead perceptual distortions. In addition, expectations and extreme attention to anxiety may heighten bodily sensations or cause disregard same sensations. In chronic anxiety, the psychological aspects of the disorder may rule somatic symptoms as well as mental symptoms. Wearne et al. (2019) examined the relationship between physiological and subjective experience of acute stress by using a stress induction task. By doing this, they examined the moderation effect of anxiety sensitivity which is a psychological concept that identify one's fear of the physical symptoms that accompany anxiety and more anxiety sensitive individuals perceive and misconceive physiological sensations as dangerous. They concluded that beliefs about body sensations negatively affect the interpretation of stressful experiences in the absence of changes in physiology. Therefore, it is important to keep in mind that the bodily states of individuals with anxiety disorders are not always congruent with their physical states.

In the current study, ER strategies which participants reported that they generally use, had no significant impact on SCR and also on participants' self-report anxiety level. On the other hand, while self-reported anxiety levels were significantly heightened with increased uncertainty, no difference was found in skin conductance measure. In the same way, individuals with high IU reported higher anxiety levels, but again there was no difference in skin conductance measure. Looking at these findings, the fact that participants reported anxiety despite the absence of physiological indices, emphasizes once again that intolerance of uncertainty is a cognitive feature of anxiety. Attentional theories on the other hand emphasis that anxious individuals tend to turn their attention towards anxiety symptoms (such as heart rate) (Judah, Grant and Carlisle, 2016). Based on their attention bias, they *perceive* a heightened anxiety and rate themselves as more anxious, while objective measures do not show similar results. The differences between subjective and objective measurements of anxiety might underline the importance of cognitive processes in anxiety. Therefore, cognitive processes such as anxiety perception, anxiety sensitivity, or increased self-focused attention may play a more important role in the understanding of factors in anxiety.

Lastly, the interaction effect of IU and ER on skin conductance was found non-significant and there is no study in literature assessing this interaction effect on anxiety with using SCR measure.

4.4. Limitations and Future Research

The currents study has the following limitations. The effect of uncertainty and intolerance of uncertainty were assessed using a behavioral task, The Beads Task, which is a quite successful task for inducing uncertainty in laboratory settings (Jacoby et al., 2014). However, using more ecologically valid tasks such as Cold Pressor Task[1] or creating experimental designs to examine real-life uncertainty will contribute to the IU literature.

In this thesis, due to unequal groups sizes, emotion regulation effect (reappraisal and suppression use) was examined in two different analysis separately. In this way, it was not possible to make a direct comparison between the two strategies and to find out that which ER strategy use (reappraisal or suppression) would be better to eliminate the feeling of uncertainty. Future studies may conduct two equal groups in order to compare these two strategies. In addition, participants could be asked about their emotion regulation use during the experiment. Using a questionnaire may give an information about what ER strategies that the participants use commonly, but their strategy might be different in that moment than they used generally out of laboratory. Because how individuals report regulating in the real life does not represent how they regulate in the laboratory (Burr and Samanez-Larkin, 2020), or the used strategy might change by the task at hand. Additionally, to examine the differences between *habitual* use and *instructed* use of ER strategies, different conditions could be conducted. It is more likely to have significant results when instructions are given. So, it might be conducive to compare the instructed and habitual use of ER strategies and understanding the impact of instructions. Even though Gross (1998) focuses on two ER strategies (reappraisal and suppression), using only these two might limit the full understanding of the effect of emotion regulation. Therefore, further studies may include more ER strategies (e.g., acceptance or distraction). Studying the effect of culture may also contribute to ER literature, because it is known that suppression is more normative in collectivist cultures than individualistic ones.

Furthermore, this study was conducted with healthy participants. However, it

[1] Cold Pressor Task is an experimental method of pain induction which requires "submerging one's dominant hand in a cooler of ice water for as long as is tolerable" (Jacoby et al., 2016).

was not assessed that the participants would meet any anxiety disorder criteria. Future studies should ensure that participants will not be diagnosed with any anxiety disorder. Conducting this study with a clinical sample rather than healthy subjects will also contribute to the literature. Another limitation might be that general anxiety was examined. Even though the trait anxiety scale is a widely used and valid measurement, it does not measure to what anxiety is related (e.g., anxiety related to social situations or specific objects etc.). Thus, it would be very informative to study individuals with different anxiety disorders in order to compare the effect of IU and ER on different types of anxieties.

Future studies may examine the coherence between self-report anxiety and physiological measures in different anxiety disorders. Considering that the discrepancy between self-report anxiety and physiological measures is generally attributed to cognitive biases, it will be very useful to examine cognitive and attentional processes.

4.5. Conclusion

This study is the first to examine the link between intolerance of uncertainty and emotion regulation in healthy adult subjects; and the combination of self-report, behavioral and physiological measures constitute the strength of this study. In these days, with COVID-19 pandemic, we once again understood that it is impossible to know what will happen in the next day; life is ratter uncertain. The fact that it takes so much place in our lives, it shows the need for more information in this area. While some individuals tolerate this uncertainty easier, others cannot. Findings of this study showed that uncertainty created anxiety in all participants, whereas individuals with high intolerance of uncertainty experienced more anxiety than those with low intolerance of uncertainty. Nevertheless, same significant findings were not observed in skin conductance measurement. Even though participants *subjectively* reported increased anxiety for higher uncertainty, no differences were found for *objective* measurements. Thus, findings of the current study also emphasized the importance of cognitive processes involved in anxiety, by studying self-report, behavioral and physiological measures in combination. Such experimental studies will aid in understanding of the etiological and maintaining factors in anxiety as well as contributing the therapeutic purposes by focusing on cognitive processes rather than focusing on symptoms.

REFERENCES

Aldao, A. (2013) *The future of emotion regulation research: capturing context*, Perspectives on Psychological Science, Vol. *8*, pp. 155–172. https://doi.org/10.1177/1745691612459518

Aldao, A., Nolen-Hoeksema, S. and Schweizer, S. (2010) *Emotion-regulation strategies across psychopathology: A meta-analytic review*, Clinical Psychology Review, Vol. *30*, pp. 217–237. https://doi.org/10.1016/j.cpr.2009.11.004

[Anatomy.co.uk]. (2019). Thenar Eminence [Web-based visual]. Available at: https://anatomy.co.uk/thenar-eminence/. (Accessed: 14 April 2021)

Anderson, E. C., Carleton, R. N., Diefenbach, M. and Han, P. K. J. (2019) *The relationship between uncertainty and affect*, Frontiers in Psychology, 10 (2504), pp. 1–17. https://doi.org/10.3389/fpsyg.2019.02504

Anderson, K. G., Deschênes, S. S. and Dugas, M. J. (2016) *Experimental manipulation of avoidable feelings of uncertainty: Effects on anger and anxiety,* Journal of Anxiety Disorders, Vol. 41, pp. 50–58. https://doi.org/10.1016/j.janxdis.2016.03.007

Benedek, M., and Kaernbach, C. (2010) *A continuous measure of phasic electrodermal activity,* Journal of Neuroscience Methods, Vol. 190, pp. 80–91. https://doi.org/10.1016/j.jneumeth.2010.04.028

Borkovec, T. D., Alcaine, O. M. and Behar, E. (2004) *Avoidance theory of worry and generalized anxiety disorder*. In Heimberg, R., Turk, C. and Mennin, D. (eds.) *Generalized anxiety disorder: advances in research and practice* (pp. 77–108). New York, NY, US: Guilford Press.

Borkovec, T. D., Ray, W. J. and Stöber, J. (1998) *Worry: a cognitive phenomenon intimately linked to affective, physiological, and interpersonal behavioral processes*, Cognitive Therapy and Research, Vol. 22(6), pp. 561–576. https://doi.org/10.1023/A:1018790003416

Bradley, M. M. (2000) *Emotion and motivation*. In Cacioppo, J. T., Tassinary, L. G. and Berntson, G. G. (eds.) *Handbook of psychophysiology*. 2nd edition. pp. 602–642. New York, NY: Cambridge University Press.

Braithwaite, J. J., Watson, D. G., Jones, R. and Rowe, M. (2013) *A guide for analysing*

electrodermal activity (EDA) and skin conductance responses (SCRs) for psychological experiments. Psychophysiology, Vol. 49, pp. 1017–1034.

Brown, M., Robinson, L., Campione, G. C., Wuensch, K., Hildebrandt, T. and Micali, N. (2017) *Intolerance of uncertainty in eating disorders: A systematic review and meta-analysis*, European Eating Disorders Review, Vol. 25(5), pp. 329–343. https://doi.org/10.1002/erv.2523

Buhr, K. and Dugas, M. J. (2002) *The intolerance of uncertainty scale: Psychometric properties of the English version*, Behaviour Research and Therapy, Vol. 40, pp. 931–945. https://doi.org/10.1016/S0005-7967(01)00092-4

Buhr, Kristin and Dugas, M. J. (2009) *The role of fear of anxiety and intolerance of uncertainty in worry: An experimental manipulation*, Behaviour Research and Therapy, Vol. 47, pp. 215–223. https://doi.org/10.1016/j.brat.2008.12.004

Burr, D. A. and Samanez-Larkin, G. R. (2020) *Advances in emotion-regulation choice from experience sampling*, Trends in Cognitive Sciences, Vol. 24(5), pp. 344–346. https://doi.org/10.1016/j.tics.2020.02.008

Campbell-Sills, L., Barlow, D. H., Brown, T. A. and Hofmann, S. G. (2006) *Effects of suppression and acceptance on emotional responses of individuals with anxiety and mood disorders*, Behaviour Research and Therapy, Vol. 44, pp. 1251–1263. https://doi.org/10.1016/j.brat.2005.10.001

Carleton, N. R., Mulvogue, M. K., Thibodeau, M. A., McCabe, R. E., Antony, M. M. and Asmundson, G. J. G. (2012) *Increasingly certain about uncertainty: Intolerance of uncertainty across anxiety and depression*, Journal of Anxiety Disorders, Vol. 26, pp. 468–479. https://doi.org/10.1016/j.janxdis.2012.01.011

Carleton, R. N. (2012) *The intolerance of uncertainty construct in the context of anxiety disorders: Theoretical and practical perspectives*, Expert Review of Neurotherapeutics, Vol. 12 (8), pp. 937–947. https://doi.org/10.1586/ern.12.82

Carleton, R. N. (2016) *Into the unknown: A review and synthesis of contemporary models involving uncertainty,* Journal of Anxiety Disorders, Vol. 39, pp. 30–43. https://doi.org/10.1016/j.janxdis.2016.02.007

Carleton, R. N., Duranceau, S., Shulman, E. P., Zerff, M., Gonzales, J. and Mishra, S.

(2016) *Self-reported intolerance of uncertainty and behavioural decisions*, Journal of Behavior Therapy and Experimental Psychiatry, Vol. 51, pp. 58–65. https://doi.org/10.1016/j.jbtep.2015.12.004

Carleton, R. N., Norton, M. A. P. J. and Asmundson, G. J. G. (2007) *Fearing the unknown: A short version of the Intolerance of Uncertainty Scale,* Journal of Anxiety Disorders, Vol. 21 (1), pp. 105–117. https://doi.org/10.1016/j.janxdis.2006.03.014

Carleton, R. N., Sharpe, D. and Asmundson, G. J. G. (2007) *Anxiety sensitivity and intolerance of uncertainty: Requisites of the fundamental fears?*, Behaviour Research and Therapy, Vol. 45 (10), pp. 2307–2316. https://doi.org/10.1016/j.brat.2007.04.006

Chen, S., Yao, N. and Qian, M. (2018) *The influence of uncertainty and intolerance of uncertainty on anxiety,* Journal of Behavior Therapy and Experimental Psychiatry, Vol. 61, pp. 60-65. https://doi.org/10.1016/j.jbtep.2018.06.005

Cordaro, D. T., Sun, R., Keltner, D., Kamble, S., Huddar, N. and McNeil, G. (2017) *Universals and cultural variations in 22 emotional expressions across five cultures*, Emotion, Vol. 18 (1), pp. 75–93. https://doi.org/10.1037/emo0000302

Dan-glauser, E. S. and Gross, J. J. (2013) *Emotion regulation and emotion coherence: Evidence for strategy-specific effects*, Emotion, Vol. 13 (5), pp. 832–842. https://doi.org/10.1037/a0032672

Dawson, M., Schell, A. and Filion, D. (2016) *The electrodermal system*. In Cacioppo, J., Tassinary, L. and Berntson, G. (eds.) *Handbook of Psychophysiology* (Cambridge Handbooks in Psychology, pp. 217-243). Cambridge: Cambridge University Press. https://doi.org/10.1017/9781107415782.010

Dennis, T. A. (2007) *Interactions between emotion regulation strategies and affective style: Implications for trait anxiety versus depressed mood,* Motivation and Emotion, Vol. 31, pp. 200–207. https://doi.org/10.1007/s11031-007-9069-6

Driscoll, D., Tranel, D. and Anderson, S. W. (2009) *The effects of voluntary regulation of positive and negative emotion on psychophysiological responsiveness,* International Journal of Psychophysiology, Vol. 72, pp. 61–66. https://doi.org/10.1016/j.ijpsycho.2008.03.012

Dugas, M. J., Gagnon, F., Ladouceur, R. and Freeston, M. H. (1998) *Generalized*

anxiety disorder: A preliminary test of a conceptual model, Behaviour Research and Therapy, Vol. 36 (2), pp. 215–226. https://doi.org/10.1016/S0005-7967(97)00070-3

Dugas, M. J., and Koerner, N. (2005) *Cognitive-behavioral treatment for generalized anxiety disorder: Current status and future directions*. Journal of Cognitive Psychotherapy, Vol. 19 (1), pp. 61–81. https://doi.org/10.1891/jcop.19.1.61.66326

Egloff, B., Schmukle, S. C. Burns, L. R., and Schwerdtfeger, A. (2006) *Spontaneous emotion regulation during evaluated speaking tasks: Associations with negative affect, anxiety expression, memory, and physiological responding,* Emotion, Vol. 6 (3), pp. 356–366. https://doi.org/10.1037/1528-3542.6.3.356

Eldeleklioğlu, J. and Eroğlu, Y. (2015) *A Turkish adaptation of the emotion regulation questionnaire*, International Journal of Human Sciences, Vol. 12 (1), pp. 1157–1168. https://doi.org/10.1027/1015-5759/a000150

Figner, B. and Murphy, R. O. (2011) *Using skin conductance in judgment and decision making research.* A Handbook of Process Tracing Methods for Decision Research, pp. 163–184.

Fisher, A. J., Granger, D. A. and Newman, M. G. (2010) *Sympathetic arousal moderates self-reported physiological arousal symptoms at baseline and physiological flexibility in response to a stressor in generalized anxiety disorder*, Biological Psychology, Vol. 83, pp. 191–200. https://doi.org/10.1016/j.biopsycho.2009.12.007

Freeston, M. H., Rhéaume, J., Letarte, H., Dugas, M. J. and Ladouceur, R. (1994) *Why do people worry?,* Personality and Individual Differences, Vol. 17 (6), pp. 791–802. https://doi.org/10.1016/0191-8869(94)90048-5

Garnefski, N., Kraaij, V. and Spinhoven, P. (2001) *Negative life events, cognitive emotion regulation and emotional problems,* Personality and Individual Differences, Vol. 30 (2), pp. 1311–1327. https://doi.org/10.1017/S0003356100012952

Gerolimatos, L. A. and Edelstein, B. A. (2012) *Anxiety-related constructs mediate the relation between age and health anxiety,* Aging and Mental Health, Vol. 16 (8), pp. 975–982. https://doi.org/10.1080/13607863.2012.688192

Gosselin, P., Ladouceur, R., Evers, A., Laverdière, A., Routhier, S. and Tremblay-Picard, M. (2008) *Evaluation of intolerance of uncertainty: Development and*

validation of a new self-report measure, Journal of Anxiety Disorders, Vol. 22 (8), pp. 1427–1439. https://doi.org/10.1016/j.janxdis.2008.02.005

Grant, A. M. and Schwartz, B. (2011) *Too much of a good thing: The challenge and opportunity of the inverted U*, Perspectives on Psychological Science, Vol. 6 (1), pp. 61–76. https://doi.org/10.1177/1745691610393523

Gratz, K. L. and Roemer, L. (2004) *Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the difficulties in emotion regulation scale*, Journal of Psychopathology and Behavioral Assessment, Vol. 26 (1), pp. 41–54. https://doi.org/10.1023/B:JOBA.0000007455.08539.94

Greco, V. and Roger, D. (2001) *Coping with uncertainty: The construction and validation of a new measure,* Personality and Individual Differences, Vol. 31, pp. 519–534. https://doi.org/10.1016/S0191-8869(00)00156-2

Grenier, S., Barrette, A. M. and Ladouceur, R. (2005) *Intolerance of uncertainty and intolerance of ambiguity: Similarities and differences,* Personality and Individual Differences, Vol. 39, pp. 593–600. https://doi.org/10.1016/j.paid.2005.02.014

Gross, J. J. (1998a) *Antecedent- and response-focused emotion regulation: Divergent consequences for experience, expression, and physiology*, Journal of Personality and Social Psychology, Vol. 74 (1), pp. 224–237.

Gross, J. J. (1998b) *The emerging field of emotion regulation: An integrative review*, Review of General Psychology, Vol. 2, pp. 271–299.

Gross, J. J. (2002) *Emotion regulation: Affective, cognitive, and social consequences,* Psychophysiology, Vol. 39, pp. 281–291. https://doi.org/10.1017.S0048577201393198

Gross, J. J. (2014) *Emotion regulation: Conceptual and empirical foundations.* In Gross, J. J. (ed.) *Handbook of emotion regulation* (pp. 3–20). The Guilford Press.

Gross, J. J. (2015) *Emotion regulation: Current status and future prospects*, Psychological Inquiry, Vol. 26 (1), pp. 1–26. https://doi.org/10.1080/1047840X.2014.940781

Gross, J. J. (2020) *Supplemental material for emotion regulation*, Emotion, Vol. 20

(1), pp. 1–9. https://doi.org/10.1037/emo0000703.supp

Gross, J. J. and Jazaieri, H. (2014) *Emotion, emotion regulation and psychopathology: and affective science perspective,* Clinical Psychological Science, Vol. 2 (4), pp. 387-401. https://doi.org/10.1177/2167702614536164

Gross, J. J. and John, O. P. (2003) *Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being,* Journal of Personality and Social Psychology, Vol. 85 (2), pp. 348–362. https://doi.org/10.1037/0022-3514.85.2.348

Gross, J. J. and Levenson, R. W. (1993) *Emotional suppression: physiology, self-report, and expressive behavior*, Journal of Personality and Social Psychology, Vol. 64 (6), pp. 970–986. https://doi.org/10.1037//0022-3514.64.6.970

Gross, J. J. and Levenson, R. W. (1997) *Hiding feelings: The acute effects of inhibiting negative and positive emotion*, Journal of Abnormal Psychology, Vol. 106 (1), pp. 95–103.

Gross, J. J. Sheppes, G., and Urry, H. L. (2011) *Emotion generation and emotion regulation: A distinction we should make (carefully),* Cognition and Emotion, Vol. 25 (5), pp. 765–781. https://doi.org/10.1080/02699931.2011.555753

Grupe, Dan W. and Nitschke, J. B. (2013) *Uncertainty and anticipation in anxiety: An integrated neurobiological and psychological perspective*, Nature Reviews Neuroscience, Vol. 14 (7), pp. 488–501. https://doi.org/10.1038/nrn3524

Grupe, Daniel W. and Nitschke, J. B. (2011) *Uncertainty is associated with biased expectancies and heightened responses to aversion*, Emotion, Vol. 11 (2), pp. 413–424. https://doi.org/10.1037/a0022583

Heilman, R. M., Crişan, L. G., Houser, D., Miclea, M. and Miu, A. C. (2010) *Emotion regulation and decision making under risk and uncertainty*, Emotion, Vol. 10 (2), pp. 257–265. https://doi.org/10.1037/a0018489

Hoehn-Saric, R. and McLeod, D. R. (2000) *Anxiety and arousal: Physiological changes and their perception*, Journal of Affective Disorders, Vol. 61, pp. 217–224. https://doi.org/10.1016/S0165-0327(00)00339-6

Hoehn-Saric, R., McLeod, D. R. and Zimmerli, W. D. (1989) *Somatic manifestations*

in women with generalized anxiety disorder, Archives of General Psychiatry, Vol. 46, pp. 1113–1119. https://doi.org/10.1001/archpsyc.1989.01810120055009

Hugdahl, K. (1988) *Psychophysiological aspects of phobic fears: An evaluative review*, Neuropsychobiology, Vol. 20, pp. 194–204. https://doi.org/10.1159/000118499

Huq, S. F., Garety, P. A. and Hemsley, D. R. (1988) *Probabilistic judgements in deluded and non-deluded subjects*, The Quarterly Journal of Experimental Psychology, Vol. 40 (4), pp. 801–812. https://doi.org/10.1080/14640748808402300

Jacoby, R. J., Abramowitz, J. S., Buck, B. E. and Fabricant, L. E. (2014) *How is the Beads Task related to intolerance of uncertainty in anxiety disorders?,* Journal of Anxiety Disorders, Vol. 28 (6), pp. 495–503. https://doi.org/10.1016/j.janxdis.2014.05.005

Jacoby, R. J., Abramowitz, J. S., Reuman, L. and Blakey, S. M. (2016) *Enhancing the ecological validity of the Beads Task as a behavioral measure of intolerance of uncertainty,* Journal of Anxiety Disorders, Vol. 41, pp. 43–49. https://doi.org/10.1016/j.janxdis.2016.02.003

John, O. P. and Gross, J. J. (2004) *Healthy and unhealthy emotion regulation: Personality processes, individual differences, and life span development*, Journal of Personality, Vol. 72 (6), pp. 1301–1334. https://doi.org/10.1111/j.1467-6494.2004.00298.x

Johnson, L. C. and Lubin, A. (1966) *Spontaneous electrodermal activity during sleep and waking cats,* Psychophysiology, Vol. 3 (1), pp. 8–17. https://doi.org/10.1111/j.1469-8986.1966.tb02673.x

Judah, M. R., Grant, D. M. and Carlisle, M. B. (2016) *The effects of self-focus on attentional biases in social anxiety: An ERP study*, Cognitive, Affective and Behavioral Neuroscience, Vol. 16, pp. 393-405. http://doi.org/10.3758/s13415-015-0398-8

Keren, G. and Gerritsen, L. E. M. (1999) *On the robustness and possible accounts of ambiguity aversion,* Acta Psychologica, Vol. 103 (1–2), pp. 149–172. https://doi.org/10.1016/s0001-6918(99)00034-7

Khawaja, N. G. and Yu, L. N. H. (2010*) A comparison of the 27-item and 12-item intolerance of uncertainty scales,* Clinical Psychologist, Vol. 14 (3), pp. 97–106. https://doi.org/10.1080/13284207.2010.502542

Kim, S. H. and Hamann, S. (2012) *The effect of cognitive reappraisal on physiological reactivity and emotional memory,* International Journal of Psychophysiology, Vol. 83, pp. 348–356. https://doi.org/10.1016/j.ijpsycho.2011.12.001

Kirschner, H., Hilbert, K., Hoyer, J., Lueken, U. and Beesdo-Baum, K. (2016) *Psychophsyiological reactivity during uncertainty and ambiguity processing in high and low worriers*, Journal of Behavior Therapy and Experimental Psychiatry, Vol. 50, pp. 97–105. https://doi.org/10.1016/j.jbtep.2015.06.001

Koerner, N. and Dugas, M. J. (2008) *An investigation of appraisals in individuals vulnerable to excessive worry: The role of intolerance of uncertainty*, Cognitive Therapy and Research, Vol. 32, pp. 619–638. https://doi.org/10.1007/s10608-007-9125-2

Ladouceur, R., Gosselin, P. and Dugas, M. J. (2000) *Experimental manipulation of intolerance of uncertainty: A study of a theoretical model of worry*, Behaviour Research and Therapy, Vol. 38 (9), pp. 933–941. https://doi.org/10.1016/S0005-7967(99)00133-3

Ladouceur, R., Talbot, F. and Dugas, M. J. (1997) *Behavioral expressions of intolerance of uncertainty in worry*, Behavior Modification, Vol. 21 (3), pp. 355–371.

Lauriola, M., Carleton, R. N., Tempesta, D., Calanna, P., Socci, V., Mosca, O., Salfi, F., Gennaro, L. D. and Ferrara, M. (2019) *A correlational analysis of the relationships among intolerance of uncertainty, anxiety sensitivity, subjective sleep quality, and insomnia symptoms, I*nternational Journal of Environmental Research and Public Health, Vol. *16* (18), 3253. https://doi.org/10.3390/ijerph16183253

Lazarus, R. S. (1993) *Coping theory and research: Past, present, and future*, Psychosomatic Medicine, Vol. 55, pp. 234–247. https://doi.org/10.1097/00006842-199305000-00002

Lazarus, R. S. and Alfert, E. (1964) *Short-circuiting of threat by experi- mentally altering cognitive appraisal,* Journal of Abnormal and Social Psychology, Vol. 69, pp. 195–205.

Lempert, K. M. and Phelps, E. A. (2013) *Neuroeconomics of emotion and decision making*. *In neuroeconomics: Decision making and the brain*. 2nd Edition (pp. 219-236). Elsevier Inc. https://doi.org/10.1016/B978-0-12-416008-8.00012-7

Levitt, J. T., Brown, T. A., Orsillo, S. M. and Barlow, D. H. (2004) *The effects of acceptance versus suppression of emotion on subjective and psychophysiological response to carbon dioxide challenge in patients with panic disorder*, Behavior Therapy, Vol. 35, pp. 747–766. https://doi.org/10.1016/S0005-7894(04)80018-2

Liao, K. Y. H. and Wei, M. (2011) *Intolerance of uncertainty, depression, and anxiety: The moderating and mediating roles of rumination*, Journal of Clinical Psychology, Vol. 67 (12), pp. 1220–1239. https://doi.org/10.1002/jclp.20846

Lissek, S., Kaczkurkin, A. N., Rabin, S., Geraci, M., Pine, D. S. and Grillon, C. (2014) *Generalized anxiety disorder is associated with overgeneralization of classically conditioned fear,* Biological Psychiatry, Vol. 75, pp. 909–915. https://doi.org/10.1016/j.biopsych.2013.07.025

Mauss, I. B., McCarter, L., Levenson, R. W., Wilhelm, F. H. and Gross, J. J. (2005) *The tie that binds? Coherence among emotion experience, behavior, and physiology*, Emotion, Vol. 5 (2), pp. 175–190. https://doi.org/10.1037/1528-3542.5.2.175

McEvoy, P. M. and Mahoney, A. E. J. (2012) *To be sure, to be sure: Intolerance of uncertainty mediates symptoms of various anxiety disorders and depression,* Behavior Therapy, Vol. 43, pp. 533–545. https://doi.org/10.1016/j.beth.2011.02.007

Mcrae, K. (2013) *Emotion regulation frequency and success: Separating constructs from methods and time scale*, Social and Personality Psychology Compass, Vol. 7 (5), pp. 289–302. https://doi.org/10.1111/spc3.12027

Morriss, J., Biagi, N. and Dodd, H. (2020) *Your guess is as good as mine: A registered report assessing physiological markers of fear and anxiety to the unknown in individuals with varying levels of intolerance of uncertainty*, International Journal of Psychophysiology, Vol. 156, pp. 93–104. https://doi.org/10.1016/j.ijpsycho.2020.07.009

Morriss, J., Macdonald, B. and Van Reekum, C. M. (2016) *What is going on around here? Intolerance of uncertainty predicts threat generalization*, PLoS ONE, Vol. *11* (5), e0154494. https://doi.org/10.1371/journal.pone.0154494

Mosca, O., Lauriola, M. and Carleton, R. N. (2016) *Intolerance of uncertainty: A temporary experimental induction procedure*, PLoS ONE, Vol. 11 (6), pp. 1–15. https://doi.org/10.1371/journal.pone.0155130

Najström, M. and Jansson, B. (2006) *Unconscious responses to threatening pictures: Interactive effect of trait anxiety and social desirability on skin conductance responses*, Cognitive Behaviour Therapy, Vol. 35 (1), pp. 11–18. https://doi.org/10.1080/16506070510011566

Nezlek, J. B. and Kuppens, P. (2008) *Regulating positive and negative emotions in daily life,* Journal of Personality, Vol. *76* (3), pp. 561–580. https://doi.org/10.1111/j.1467-6494.2008.00496.x

Norris, C. J., Larsen, J. T. and Cacioppo, J. T. (2007) *Neuroticism is associated with larger and more prolonged electrodermal responses to emotionally evocative pictures*, Psychophysiology, Vol. 44, pp. 823–826. https://doi.org/10.1111/j.1469-8986.2007.00551.x

Oglesby, M. E. and Schmidt, N. B. (2017) *The role of threat level and intolerance of uncertainty (IU) in anxiety: An experimental test of IU theory,* Behavior Therapy, Vol. 48 (4), pp. 427–434. https://doi.org/10.1016/j.beth.2017.01.005

Ouellet, C., Langlois, F., Provencher, M. D. and Gosselin, P. (2019) *Intolerance of uncertainty and difficulties in emotion regulation: Proposal for an integrative model of generalized anxiety disorder*, Revue Europeenne de Psychologie Appliquee, Vol. 69, pp. 9–18. https://doi.org/10.1016/j.erap.2019.01.001

Öner, N. and Lecompte, A. (1983) *Durumluk sürekli kaygı envanteri el kitabı.* İstanbul: Boğaziçi Üniversitesi Matbaası.

Phillips, L. D. and Edwards, W. (1966) *Conservatism in a simple propabilistic inference task,* Journal of Experimental Psychology, Vol. 72 (3), pp. 346–354.

Reuman, L., Jacoby, R. J., Fabricant, L. E., Herring, B. and Abramowitz, J. S. (2015) *Uncertainty as an anxiety cue at high and low levels of threat*, Journal of Behavior Therapy and Experimental Psychiatry, Vol. 47, pp. 111–119. https://doi.org/10.1016/j.jbtep.2014.12.002

Rosebrock, L. E., Hoxha, D., Norris, C., Cacioppo, J. T. and Gollan, J. K. (2017) *Skin*

conductance and subjective arousal in anxiety, depression, and comorbidity: Implications for affective reactivity, Journal of Psychophysiology, Vol. 31 (4), pp. 145–157. https://doi.org/10.1027/0269-8803/a000176

Rosen, N. O., Knäuper, B., Di Dio, P., Morrison, E., Tabing, R., Feldstain, A., Amsel, R., Mayrand, M. H., Franco, E. L. and Rosberger, Z. (2010) *The impact of intolerance of uncertainty on anxiety after receiving an informational intervention about HPV: A randomised controlled study*. Psychology and Health, Vol. 25 (6), pp. 651–668. https://doi.org/10.1080/08870440902822913

Sarason, I. G., Johnson, J. H. and Siegel, J. M. (1978) *Assessing the impact of life changes: Development of the Life Experiences Survey*, Journal of Consulting and Clinical Psychology, Vol. 46, pp. 932–946. https://doi.org/10.1037/0022-006X.46.5.932

Sarıçam, H. (2014) *Belirsizliğe tahammülsüzlük ölçeği (BTÖ-12) Türkçe formu: Geçerlik ve güvenirlik çalışması*, Route Educational and Social Science Journal, Vol. 1 (3), pp. 148–157. https://doi.org/10.17121/ressjournal.109

Shikatani, B., Antony, M. M., Cassin, S. E. and Kuo, J. R. (2016) *Examining the role of perfectionism and intolerance of uncertainty in postevent processing in social anxiety disorder*, Journal of Psychopathology and Behavioral Assessment, Vol. 38 (2), pp. 297–306. https://doi.org/10.1007/s10862-015-9516-8

Smith, B. M., Twohy, A. J. and Smith, G. S. (2020) *Psychological inflexibility and intolerance of uncertainty moderate the relationship between social isolation and mental health outcomes during COVID-19*, Journal of Contextual Behavioral Science, Vol. 18, pp. 162–174. https://doi.org/10.1016/j.jcbs.2020.09.005

Soto, J. A., Perez, C. R., Kim, Y. H., Lee, E. A. and Minnick, M. R. (2011) *Is expressive suppression always associated with poorer psychological functioning? A cross-cultural comparison between uropean Americans and Hong Kong Chinese,* Emotion, Vol. 11 (6), pp. 1450–1455. https://doi.org/10.1037/a0023340

Spielberger, C. D., Gorsuch, R. L., Lushene, R., Vagg, P. R. and Jacobs, G. A. (1983) *Manual for the state-trait anxiety inventory*. Palo Alto, CA: Consulting Psychologists Press.

Suárez, L. M., Bennett, S. M., Goldstein, C. R. and Barlow, D. H. (2008)

Understanding anxiety disorders from a "triple vulnerability" framework, In Oxford Handbook of Anxiety and Related Disorders. https://doi.org/10.1093/oxfordhb/9780195307030.013.0013

Tanovic, E., Gee, D. G. and Joormann, J. (2018) *Intolerance of uncertainty: Neural and psychophysiological correlates of the perception of uncertainty as threatening*, Clinical Psychology Review, Vol. *60*, pp. 87–99. https://doi.org/10.1016/j.cpr.2018.01.001

Thibodeau, M. A., Carleton, R. N., Gómez-Pérez, L. and Asmundson, G. J. G. (2013) *"what if i make a mistake?": Intolerance of uncertainty is associated with poor behavioral performance*, Journal of Nervous and Mental Disease, Vol. 201 (9), pp. 760–766. https://doi.org/10.1097/NMD.0b013e3182a21298

Tolin, D. F., Abramowitz, J. S., Brigidi, B. D. and Foa, E. B. (2003) *Intolerance of uncertainty in obsessive-compulsive disorder,* Journal of Anxiety Disorders, Vol. 17 (2), pp. 233–242. https://doi.org/10.1016/S0887-6185(02)00182-2

Troy, A. S., Shallcross, A. J. and Mauss, I. B. (2013) *A person-by-situation approach to emotion regulation: Cognitive reappraisal can either help or hurt, depending on the context,* Psychological Science, Vol. 24 (12), pp. 2505–2514. https://doi.org/10.1177/0956797613496434

Turpin, G. and Grandfield T. (2007) *Encyclopedia of stress.* 2nd edition.

Wearne, T. A., Lucien, A., Trimmer, E. M., Logan, J. A., Rushby, J. A., Wilson, E., Filipčíková, M. and McDonald, S. (2019) *Anxiety sensitivity moderates the subjective experience but not the physiological response to psychosocial stress*, International Journal of Psychophysiology, Vol. 141, pp. 76–83. https://doi.org/10.1016/j.ijpsycho.2019.04.012

Webb, T. L., Miles, E. and Sheeran, P. (2012) *Dealing with feeling: A meta-analysis of the effectiveness of strategies derived from the process model of emotion regulation*, Psychological Bulletin, Vol. 138 (4), pp. 775–808. https://doi.org/10.1037/a0027600

Wegner, D. M., Shortt, J. W., Blake, A. W. and Page, M. S. (1990) *The suppression of exciting thoughts,* Journal of Personality and Social Psychology, Vol. 58 (3), pp. 409–418. https://doi.org/10.1037/0022-3514.58.3.409

APPENDIX A

BİLGİLENDİRİLMİŞ ONAM FORMU

Sayın katılımcı,

Katılmakta olduğunuz çalışma, İzmir Ekonomi Üniversitesi – Deneysel Psikoloji Yüksek Lisans öğrencisi Esin Sezgin tarafından, Yüksek Lisans Tezi kapsamında hazırlanmıştır. Çalışmanın amacı, karar verme mekanizmalarını ölçmektir. Çalışmaya dikkatinizi vererek, gerçek duygu, düşünce ve davranışlarınızı göz önünde bulundurarak katılmanız büyük önem taşımaktadır. Çalışma, yaklaşık 20-25 dakika sürecektir, devam etmek istemediğinizi bildirdiğiniz anda çekilebilirsiniz. Sizden elde edilecek bilgiler hiçbir şekilde, herhangi bir kurum ya da şahısla paylaşılmayacaktır. Çalışma, TPD (Türk Psikologlar Derneği)'nin etik yönergesine uygun olarak yürütülmektedir.

Çalışmadan sorumlu kişi:

Esin SEZGİN

İletişim: [redacted]

Bilgilendirme formunu okudum, çalışmaya katılmayı kabul ediyorum.

Tarih:

İmza:

APPENDIX B

DEMOGRAFİK BİLGİ FORMU

Cinsiyet :

Yaş :

Okuyorsanız;

Okul :

Bölüm :

Sınıf : Hazırlık **( )** 1 **( )** 2 **( )** 3 **( )** 4 **( )**

Çalışıyorsanız;

Meslek :

Eğitim Durumu :

Düzenli olarak kullanmakta olduğunuz ilaçlar var mı?

☐ Evet, …… isimli ilaç(lar)ı …… amacıyla kullanıyorum.

☐ Hayır

Herhangi bir görme bozukluğunuz var mı? ☐ Evet ☐ Hayır

Yanıtınız evet ise;

o Miyop - Derece: ….. sol göz / ….. sağ göz

o Hipermetrop - Derece: ….. sol göz / ….. sağ göz

o Astigmat - Derece: ….. sol göz / ….. sağ göz

o Diğer: ……..

Aşağıdakilerden hangisi sizin için uygundur:

☐ Gözlük kullanıyorum. ☐ Lens kullanıyorum. ☐ Gözlük ya da lens kullanmıyorum.

Daha önce herhangi bir psikolojik rahatsızlık tanısı aldınız mı?

☐ Evet ….. hafta / ay / yıl önce …… tanısı koyuldu.

☐ Hayır

Yanıtınız evet ise;

Rahatsızlığınızla ilgili kullandığınız ilaçlar var mı?

☐ Evet, …… isimli ilaç(lar)ı kullandım / kullanmaktayım.

☐ Hayır

Sigara kullanıyor musunuz?

☐ Evet, bugün ……. saat once kullandım. ☐ Dün veya daha önce. ☐ Sigara kullanmıyorum.

En son ne zaman kahve içtiniz?

☐ Bugün ……. saat önce içtim. ☐ Dün veya daha önce. ☐ Kahve içmiyorum.

En son ne zaman alkol tükettiniz?

☐ Bugün ……. saat önce tükettim. ☐ Dün veya daha önce. ☐ Alkol tüketmiyorum.

Dün akşam kaç saat uyudunuz?

☐ ……. saat uyudum. ☐ Hiç uyumadım.

APPENDIX C

Lütfen aşağıdaki maddelerin karşısında bulunan ve maddelere ne kadar katıldığınızı gösteren sayılardan size en uygun olanını işaretleyiniz.

(1) Bana hiç uygun değil, (2) Bana çok az uygun, (3) Bana biraz uygun, (4) Bana çok uygun, (5) Bana tamamen uygun.

	1	2	3	4	5
1. Beklenmedik olaylar canımı çok sıkar.					
2. Bir durumda ihtiyacım olan tüm bilgilere sahip değilsem sinirlerim bozulur.					
3. İnsan sürprizlerden kaçınmak için daima ileriye bakmalıdır.					
4. En iyi planlamayı yapsam bile beklenmedik küçük bir olay her şeyi mahvedebilir.					
5. Geleceğin bana neler getireceğini her zaman bilmek isterim.					
6. Bir duruma hazırlıksız yakalanmaya katlanamam.					
7. Her şeyi önceden ayrıntılı bir şekilde organize edebilmeliyim.					
8. Belirsizlik beni hayatı dolu dolu yaşamaktan alıkoyar.					
9. Harekete geçme zamanı geldiğinde, belirsizlik elimi kolumu bağlar.					
10. Belirsizlik yaşadığımda pek iyi çalışamam.					
11. En küçük bir şüphe bile hareket etmemi engeller.					
12. Tüm belirsiz durumlardan uzak durmak zorundayım.					

APPENDIX D

Lütfen aşağıdaki maddelerin karşısında bulunan ve maddelere ne kadar katıldığınızı gösteren kutucuklardan size en uygun olanını işaretleyiniz.

	Hiç katılmıyorum	Katılmıyorum	Biraz katılmıyorum	Kararsızım	Biraz katılıyorum	Katılıyorum	Tamamen katılıyorum
1) Olumlu duygularımın fazla olmasını istersem (mutluluk veya eğlence) düşündüğüm şeyi değiştirirm.							
2) Duygularımı kendime saklarım.							
3) Olumsuz duygularımın az olmasını istersem (üzüntü veya kızgınlık gibi) düşündüğüm şeyi değiştiririm.							
4) Olumlu duygular hissettiğimde onları ifade etmemeye dikkat ederim.							
5) Stresli bir durumla karşılaştığımda, bu durumu sakin kalmamı sağlayacak şekilde düşünmeye çalışırım.							
6) Duygularımı, onları ifade etmeyerek kontrol ederim.							
7) Olumlu duygularımın fazla olmasını istediğim zaman durumla ilgili düşünme şeklimi değiştiririm.							
8) İçinde bulunduğum duruma göre düşünme şeklini değiştirerek duygularımı kontrol ederim.							
9) Olumsuz duygular hissettiğimde onları ifade etmediğimden emin olmak isterim.							
10) Olumsuz duygularımın az olmasını istersem, durumla ilgili düşünme şeklimi değiştiririm.							

APPENDIX E

Aşağıda kişilerin kendilerine ait duygularını anlatmada kullandıkları bir takım ifadeler verilmiştir. Her ifadeyi okuyunuz ve o anda nasıl hissettiğinizi, ifadelerin sağ tarafındaki parantezlerden uygun olanını işaretlem belirtiniz. Doğru ya da yanlış cevap yoktur. Herhangi bir ifadenin üzerinde fazla zaman sarf etmeksizin genel olarak nasıl hissettiğinizi gösteren cevabı işaretleyiniz. Lütfen boş soru bırakmayınız.

	Hiç	Biraz	Çok	Tümüyle
1. Şu anda sakinim.	( )	( )	( )	( )
2. Kendimi emniyette hissediyorum.	( )	( )	( )	( )
3. Şu anda sinirlerim gergin.	( )	( )	( )	( )
4. Pişmanlık duygusu içindeyim.	( )	( )	( )	( )
5. Şu anda huzur içindeyim.	( )	( )	( )	( )
6. Şu anda hiç keyfim yok.	( )	( )	( )	( )
7. Başıma geleceklerden endişe ediyorum.	( )	( )	( )	( )
8. Kendimi dinlenmiş hissediyorum.	( )	( )	( )	( )
9. Şu anda kaygılıyım.	( )	( )	( )	( )
10. Kendimi rahat hissediyorum.	( )	( )	( )	( )
11. Kendime güvenim var.	( )	( )	( )	( )
12. Şu anda asabım bozuk.	( )	( )	( )	( )
13. Çok sinirliyim.	( )	( )	( )	( )
14. Sinirlerimin çok gergin olduğunu hissediyorum.	( )	( )	( )	( )
15. Kendimi rahatlamış hissediyorum.	( )	( )	( )	( )
16. Şu anda halimden memnunum.	( )	( )	( )	( )
17. Şu anda endişeliyim.	( )	( )	( )	( )
18. Heyecandan kendimi şaşkına dönmüş hissediyorum.	( )	( )	( )	( )
19. Şu anda sevinçliyim.	( )	( )	( )	( )
20. Şu anda keyfim yerinde.	( )	( )	( )	( )

Aşağıda kişilerin kendilerine ait duygularını anlatmada kullandıkları bir takım ifadeler verilmiştir. Her ifadeyi okuyunuz ve genel olarak nasıl hissettiğinizi, ifadelerin sağ tarafındaki parantezlerden uygun olanını işaretleyerek belirtiniz. Doğru ya da yanlış cevap yoktur. Herhangi bir ifadenin üzerinde fazla zaman sarf etmeksizin genel olarak nasıl hissettiğinizi gösteren cevabı işaretleyiniz. Lütfen boş soru bırakmayınız.

	Hiç	Biraz	Çok	Tümüyle
21. Genellikle keyfim yerindedir.	( )	( )	( )	( )
22. Genellikle çabuk yorulurum.	( )	( )	( )	( )
23. Genellikle kolay ağlarım.	( )	( )	( )	( )
24. Başkaları kadar mutlu olmak isterim.	( )	( )	( )	( )
25. Çabuk karar veremediğim için fırsatları kaçırırım.	( )	( )	( )	( )
26. Kendimi dinlenmiş hissederim.	( )	( )	( )	( )
27. Genellikle sakin, kendime hakim ve soğukkanlıyım.	( )	( )	( )	( )
28. Güçlüklerin yenemeyeceğim kadar biriktiğini hissederim.	( )	( )	( )	( )
29. Önemsiz şeyler hakkında endişelenirim.	( )	( )	( )	( )
30. Genellikle mutluyum.	( )	( )	( )	( )
31. Her şeyi ciddiye alır ve etkilenirim.	( )	( )	( )	( )
32. Genellikle kendime güvenim yoktur.	( )	( )	( )	( )
33. Genellikle kendimi emniyette hissederim.	( )	( )	( )	( )
34. Sıkıntılı ve güç durumlarla karşılaşmaktan kaçınırım.	( )	( )	( )	( )
35. Genellikle kendimi hüzünlü hissederim.	( )	( )	( )	( )
36. Genellikle yaşantımdan memnunum.	( )	( )	( )	( )
37. Olur olmaz düşünceler beni rahatsız eder.	( )	( )	( )	( )
38. Hayal kırıklıklarını öylesine ciddiye alırım ki hiç unutamam.	( )	( )	( )	( )
39. Aklı başında ve kararlı bir insanım.	( )	( )	( )	( )
40. Son zamanlarda kafama takılan konular beni tedirgin ediyor.	( )	( )	( )	( )

APPENDIX F

SAYI : B.30.2.İEÜ.0.05.05-020-*38* 20.11.2019

KONU : Etik Kurul Kararı hk.

Sayın Esin Sezgin,

"The Influence of Intolerance of Uncertainity and Emotion Regulation Strategies on Anxiety under Uncertainty" başlıklı teziniz kapsamında yer alan anket çalışmanızın etik uygunluğu konusundaki başvurunuz sonuçlanmıştır.

Etik Kurulumuz 04.11.2019 tarihinde sizin başvurunuzun da içinde bulunduğu bir gündemle toplanmış ve projenin incelenmesi için üç kişilik bir alt komisyon oluşturmuştur. Projenizin detayları alt komisyon üyelerine gönderilerek görüş istenmiştir. Üyelerden gelen raporlar doğrultusunda Etik Kurul 19.11.2019 tarihinde tekrar toplanmış ve raporları gözden geçirmiştir.

Sonuçta 19.11.2019 tarihli Etik Kurul toplantısında "The Influence of Intolerance of Uncertainity and Emotion Regulation Strategies on Anxiety under Uncertainty" başlıklı çalışmanızın etik açıdan uygun olduğuna oy birliği ile karar verilmiştir.

Gereği için bilgilerinize sunarım.

Saygılarımla,

[redacted]

Prof. Dr. İsmihan Bayramoğlu
Fen ve Mühendislik Bilimleri
Etik Kurulu Başkanı