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MUHAMMET COŞKUN

DEPARTMENT OF PSYCHOLOGY

Assist. Prof. Dr. Gülten ÜNAL

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Approval of the Graduate School of Social Sciences

_____

Assoc. Prof. Dr. Seyfullah Yıldırım

Manager of Institute

I certify that this thesis satisfies all the requirements as a thesis for the degree of Master of Science.

_____

Prof. Dr. Cem Şafak Çukur

Head of Department

This is to certify that we have read this thesis and that in our opinion it is fully adequate, in scope and quality, as a thesis for the degree of Master of Science.

_____

Asst. Prof. Dr. Gülten Ünal

Examining Committee Members

Prof. Dr. Cem Şafak ÇUKUR (AYBU, Psychology) _____

Asst. Prof. Dr. Gülten ÜNAL (AYBU, Psychology) _____

Asst. Prof. Dr. Sinan ALPER (Yaşar University, Psychology) _____

I hereby declare that all information in this thesis has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work; otherwise I accept all legal responsibility.

Name, Last Name: Muhammet Coşkun

Signature :

ABSTRACT

FUNCTIONALITY OF COUNTERFACTUAL THINKING IN INTERPERSONAL AND INTERGROUP RELATIONSHIPS

Coşkun, Muhammet

M. A., Department of Psychology

Supervisor: Assist. Prof. Dr. Gülten Ünal

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The main purpose of this dissertation was to open the pave for counterfactual thinking research in Turkey. The second aim was to fulfill a broader gap in counterfactual thinking research, which is to examine the functionality of counterfactuals in both interpersonal and intergroup relationships. Three studies were conducted to serve these purposes. First, by the Study 1 (N = 1127), the Counterfactual Thinking for Negative Events Scale (CTNES; Rye, Cahoon, Ali, & Daftary, 2008) was adapted into Turkish. Its correlations with depression, rumination, self-esteem, self-efficacy, and optimism-pessimism were also tested. In the Study 2 (experimental; N = 110), differences between counterfactual types in relation to reparative intentions in interpersonal relations were questioned, and mediator roles of blame, regret, and quilt were examined in explaining this relationship. By the Study 3 (experimental; N = 44), based on the results of the Study 2, functionality of self-upward counterfactual thinking was investigated in intergroup relationships. In findings of Study 1, confirmatory factor analysis

yielded good fit indices for the CTNES. Scores obtained from internal reliability, test-retest reliability, and construct validity also showed that the CTNES is a reliable and valid tool to use in Turkish sample. Correlations of the CTNES with other variables were also discussed in terms of functionality and dysfunctionality of counterfactuals. Moreover, Study 2 found out that only self-upward counterfactual thinking significantly predicted the reparative intentions in interpersonal relations, and negative emotions of blame, regret, and guilt mediated this relationship. Finally, Study 3 revealed that counterfactual thinking in intergroup level did not have any significant effect on both self-focused negative emotions and reparative intentions in intergroup conflicts. All findings were discussed in the light of the Functional Theory of Counterfactual Thinking and the related literature.

Keywords: Counterfactual thinking, functional negative emotions, reparative intentions, interpersonal conflicts, intergroup conflicts

ÖZET

KARŞIT OLGUSAL DÜŞÜNMENİN KİŞİLERARASI VE GRUPLARARASI İLİŞKİLERDEKİ İŞLEVSELLİĞİ

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Bu tez çalışmasının ana amacı sosyal psikolojideki karşıt-olgusal düşünme kavramının Türkiye'deki araştırma alanının önünü açmak ve bu kavramla ilgili araştırma verisi elde etmektir. Diğer temel amaç ise bu kavramın kişilerarası ve gruplar arası ilişkilerdeki işlevselliğini test ederek karşıt olgusal düşünme literatüründeki daha evrensel bir boşluğun doldurulması amaçlanmaktır. Bu amaçlar doğrultusunda, üç farklı araştırma yapılmıştır. İlk olarak, Çalışma 1 (N = 1127) ile Negatif Olaylar için Karşıt Olgusal Düşünme Ölçeğinin (NOKODÖ; Rye ve ark., 2008) Türkçeye uyarlaması yapılmıştır. Ayrıca, yapı geçerliliği kapsamında ilgili ölçeğin ruminasyon, depresyon, öz-saygı, öz-yeterlilik ve iyimserlik-kötümserlik değişkenleri ile ilişkisi de test edilmiştir. Çalışma 2 (deneysel; N = 110) ile ise bireylerin yapıcı olma niyetleri ile olan ilişkisinde karşıt olgusal düşünme tiplerinin aralarında ne gibi farklılıklar olduğu incelenmiş ve kendini suçlama, pişmanlık ve suçluluk duygularının bu ilişkideki aracı rolleri araştırılmıştır. Çalışma 3'te (deneysel; N = 44), Çalışma 2'de

keşfedilen karşıt olgusal düşünmenin işlevsel rolünün gruplar arası ilişkilere genelleyip genelleyemeyeceği sorgulanmıştır. Sonuçlara bakıldığında, Çalışma 1'deki doğrulayıcı faktör analizi iyi düzeyde uyum indeksleri ortaya çıkarmıştır. İç güvenilirlik, test-tekrar test güvenilirliği ve yapı geçerliliği analizlerinden elde edilen veriler de NOKODÖ'nün Türk örnekleminde kullanmak için geçerli ve güvenilir bir ölçme aracı olduğunu göstermiştir. İlgili ölçeğin yukarıda bahsedilen diğer değişkenlerle olan ilişkileri de karşıt olgusal düşünmenin işlevsel ve işlevsel olmayan yanları yönünden tartışılmıştır. Ek olarak, Çalışma 3'te sadece yukarı yönlü öz-karşıt olgusal düşünme biçiminin kişilerarası ilişkilerdeki yapıcı niyetleri anlamlı şekilde açıkladığı bulunmuştur. Kendini suçlama, pişmanlık ve suçluluk negatif duygularının da bu anlamlı ilişkiye tam aracı değişken rolüyle açıkladıkları keşfedilmiştir. Son olarak, Çalışma 3 kolektif seviyedeki karşıt olgusal düşüncelerin hem ilgili negatif duygular üzerinde hem de gruplar arası çatışmalara yönelik yapıcı niyetler üzerinde anlamlı bir etkisinin olmadığını ortaya koymuştur. Elde edilen tüm bulgular ilgili alan yazındaki ilgili çalışmalar ve Karşıt Olgusal Düşüncenin İşlevselliği Teorisi ışığında tartışılmıştır.

Anahtar kelimeler: Karşıt olgusal düşünme, işlevsel negatif duygular, yapıcı niyetler, kişilerarası ilişkiler, gruplar arası ilişkiler

For 'Him' who increases me in knowledge,

and to those who follow a path in pursuit of knowledge

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LIST OF ABBREVIATIONS

ANOVA	Analysis of Variance
AYBU	Ankara Yıldırım Beyazıt University
BDS	Beck Depression Scale
CFA	Confirmatory Factor Analysis
CTNES	Counterfactual Thinking for Negative Events Scale
EFA	Exploratory Factor Analysis
GSES	General Self-Efficacy Scale
GSR	Galvanic Skin Response
LOT	Life Orientation Test
MANOVA	Multivariate Analysis of Variance
RRS	Ruminative Response Scale
RSES	Rosenberg Self-Esteem Scale
SPSS	Statistical Package for Social Sciences

CHAPTER I

INTRODUCTION

'You cannot go back and change the beginning, but you can start where you are and change the ending.'

Clive Staples Lewis

Although it may sound a cliché discourse, human beings are social creatures. They are a friend, a sibling, a romantic partner, a colleague or undertake any role within interpersonal relationships. They are also inevitable pieces of bigger puzzles that start from their births. They play the social roles under various groups such as members of a family, an ethnicity, a political party, a sport team, an occupational group or a social status within the hierarchy of the society. However, if there is an interaction, whether among humans or animals, conflicts become inevitable. Evolutionarily, people strive for satisfying their interests and desires, but the clash of these interests give birth to conflict. People do not always cooperate and reach the superordinate goals and tend to hold a mentality of win or loss logic. Hence, conflicts become equal to destruction in both interpersonal and intergroup relationships. Divorces, separations, humiliations, fights, wars, and dysfunctional competitions are just some consequences of conflicts. This is what happens most of the time in social relations, and the concept of conflict awakens a negative image in minds. However, whether the possibility of conflicts become functional will be the question that the current paper will seek for an answer.

Social psychologists and other mental health workers have been working on understanding the dynamics of these social relationships, looking for ways and factors to keep the quality high, and drawing preventative, protective and curative solutions for problems that

harm these social bonds. A long list of interventions and protective factors (e.g., empathy, personality, psychological resilience) and interventions (e.g., getting psychotherapy, mediator involvement, medical drugs) can be written for preventing or easing dysfunctional conflicts. However, it can be easily said that conflict resolutions come true by reparative intentions, agreements, and reparative behaviors. In that sense, exploring the ways that take people to reparative intentions and behavior is crucial for conflict resolutions and for a healthier society. By taking this into consideration, the present thesis questions whether goal oriented social cognitions help people learn from their past interpersonal and intergroup conflict experiences, and evolve themselves to deal with future social conflicts by having more reparative intentions.

More specifically, the term "counterfactual thinking" is at the center as goal cognition here so as to improve the quality of future interactions. This concept involves 'what might have been thoughts' about the past experiences that are at the center of human cognitions and emotions (Epstude & Roese, 2008). Especially the specific types of counterfactual thoughts are responsible for social emotions like guilt, and these emotions are responsible for positive outcomes in social relationships (De Hooge, 2012). That is why counterfactual thinking and related emotions may be functional in increasing quality of social relations. Enlightening this possibility is very valuable since it will contribute to interpersonal and intergroup relations research, and practice in the field, hopefully. Furthermore, studies on counterfactual thinking are very rich in social psychology and other psychology disciplines, but in eastern cultures, particularly in Turkey, this phenomenon, to the best knowledge, is like a virgin forest that waits for exploration.

Considering the all information above, the current thesis paper is first going to bring the social psychological concept of counterfactual thinking in Turkey by adapting a psychometrically sound measurement tool that will open the gate for studying this concept in Turkish culture through both correlational and experimental works. Then, upcoming two experimental studies are going to investigate whether counterfactual thinking has a functional role in providing reparative intentions for conflict resolutions in interpersonal and intergroup relationships.

With these aim in mind, the thesis is going to respectively include: (1) operational definition of counterfactual thinking, (2) explanation of functional theory of counterfactual thinking, (3) related research on counterfactual thinking, (4) social psychological theories of interpersonal relations including related study findings for understanding importance of interpersonal relations, (4) counterfactual thinking on conflicts in interpersonal relationships, (5) introducing intergroup relation theories and the related research, (6) possible functional role of counterfactual thinking in intergroup conflicts, (7) introducing current studies of the thesis including their methods, procedures, analyses and findings, (8) general discussion of the results in light of previous research findings, and finally (9) limitations and suggestions for future research.

1.1. Counterfactual Thinking

Introducing the operational definition of the main variable (counterfactual thinking) of the current thesis might be a good starting point before capturing the bigger pictures of the thesis. ‘If only I did not go so fast, my wife would be living now.’, ‘If I did not procrastinate,

I would passed the exam.', 'If he did not physically abuse me, we would still be married.', 'The bullet could shot my heart rather than just harming my bonds.' Every human being experiences these 'If only' thoughts that produce following sentences with 'woulds' and 'coulds'. This process of altering or mutating past facts and thinking about the alternative conditions to the past events called 'counterfactual thinking' (Roese, 1997). It includes sense of regret and/or frustration to some extent, but it might also involve feeling of relief, as well. (VandenBos, 2015). Thus, effects of counterfactual thinking do not occur in one direction and should be checked out deeply.

The way of imagining counterfactuals produces different emotions that may result in different impacts and evaluations, especially by the direction and focus of various counterfactuals. Indeed, these mental representations might directionally center upon better possible alternatives than reality (upward counterfactuals) or worse alternatives then the facts (downward counterfactuals) (Roese & Morrison, 2009). When we narrow down it more, counterfactual thoughts may involve actions caused by the self, called 'self-referent', by other people which is 'other-referent' or by no one called 'non-referent' (Rye, Cahoon, Ali, & Daftary, 2008). In other words, research on counterfactual thoughts designates reference point of the counterfactual, which refers to personal tendencies to attribute the responsibility of the event to internal or to external sources (Gavanski & Wells, 1989; also see Catellani & Bertolotti, 2014).

Overall, illustration of different counterfactual thinking styles are: self-referent upward ('If only I…, things could have been better'), self-referent downward ('If only I…, things could have been worse'), other-referent upward ('If only he/she/they…, things could have been better'), other-referent-downward ('If only he/she/they…, things could have been

worse'), non-referent upward ('If only the event happened like this… things could have been better'), and non-referent downward ('If only the event happened like this… things could have been worse'). To this end, counterfactual thinking is the mental representations of past events with 'If only' thoughts. There are various counterfactual communication types in terms of direction (upward vs. downward) and focus (self-referent, other-referent, non- referent).

The main question here is that how different types counterfactuals affect the human psyche. In other words, question of how what might have been thoughts influence people's emotions, intentions and behavior have attracted attention of researchers quite well. Psychologists are included in this interested group, as well, because counterfactuals immensely appear to be linked to psychological factors such as emotions andself-understanding and some psychological factors (Roese & Morrison, 2009). Especially the experimental social psychologists have been trying to figure out reasons and consequences behind this process for decades (Roese & Olson, 1995). That is why it is reasonable to look at counterfactual thinking research in order to understand the psychological mechanisms of this cognitive phenomenon better. To this end, firstly functional theory of counterfactual thinking will be explained in the following subheading, and then study findings related to counterfactual thinking research will be introduced. Then, well-known interpersonal and intergroup theories with their related research will accompany.

After finishing the theoretical explanations, a counterfactual thinking measurement tool will be adapted in the Study 1, and its correlations with early mentioned variables will be discussed in light of Functional Theory of Counterfactual Thinking. Then, functional hypotheses testing will continue in reparation of interpersonal and intergroup relationships with experimental studies of Study 2 and Study 3.

1.1.1. Functional Theory of Counterfactual Thinking

In this part, in-depth information is going to be given about how counterfactual thinking provides a functional role in daily. According to Roese and Olson (1995b), counterfactual thinking can supply functions in two formats: *preparative function*, which is taking precautions against recurrence of negative situation, and *affective function*, enabling a person to feel better upon a negative event. That is to say, in preparative function, counterfactuals might allow taking lessons from the past experience and not committing the same mistakes for future scenarios while affective function may come out through imagining worst alternatives for an experienced event and being grateful for not getting into worst scenarios. To understand these functional roles better, underlying mechanisms behind these functions should be comprehended, which are *contrast effects* for affective function and *causal inference effects* for preparative function.

Contrast effects and causal inference effects are the two main factors that underpin the psychological effects of counterfactual thoughts (Roese & Olson, 1995; Epstude & Roese, 2008). Contrast effect occurs when the alternative outcome is openly better or worse than the factuality (Roese, 1997). For example, Medvec, Madey, and Gilovich (1995) conducted a study in 1992 Summer Olympics. They concluded that bronze medalists are happier and more satisfied than silver medalists because former group think about alternative scenario of not getting any medals, but latter one imagines about counterfactual of getting a gold medal. Thus, thinking about the contrast through imagining a worst scenario possibly can be comforting, which serves as affective function of counterfactual thinking.

Another way of counterfactual thinking process is called causal inference effect which forms the basis for the experimental studies in this paper. It involves connecting the antecedent of an event to the outcome (Roese, 1999). For instance, one might say that if I had not wasted my money, I could buy a car. Here, a discrepancy exists between the real outcome (e.g., not having money to buy a car) and the counterfactual outcome (e.g., having a car), and this discrepancy makes the antecedent causally significant. This kind of causal information motivates individuals to take lesson from their experience and to boost future performance (Roese, 1999) (e.g., making savings for buying a car). Therefore, causal inference effects form main functional part of counterfactual thinking. In other words, contrast effects lead people just imagine better or worst alternatives, but causal inference effects of counterfactuals lead them to see the discrepancy between actual and counterfactual outcome, and this in return may help taking preventive future actions. With this aspect, counterfactual thinking has potential to serve as a preparative function.

In accordance with this information above, question of how these contrast and causal inference ways of counterfactual thinking impacts human psyche may find an answer through the direction of counterfactuals as downward versus upward. Upward counterfactuals mostly enable people to improve their future actions by the help of elaborating on experiencing a negative event with more controllable and internal characteristics that elicit self-focused affect like sadness and regret. On the other hand, downward counterfactual helps enhancing mood and positive feelings as a response to uncontrollable negative scenario (Epstude & Roese, 2008; Markman & McMullen, 2003). For instance, downward counterfactuals contribute to mood reparations and self-enhancement as a response to negative scenarios (Sanna, 1996). It was found that individuals produce more downward counterfactuals under stressful life events

because it provides more positive affect that help mood regulation (White & Lehman, 2005). In addition, high self-esteem individuals are likely to focus on downward counterfactuals rather than upward ones to sustain their self-improvement (Sirois, 2004). However, downward counterfactuals mainly refer to contrast effect of imagining worse alternatives than factual outcome, so it decreases the possible modification and improvement of future behavior. For example, Sirois (2004) revealed that downward counterfactuals are related to self-defeating behaviors like procrastination and undermines self-enhancement motivation.

Likewise downward, having upward counterfactual thinking has some possible negative and positive effects, as well. However, it captures the attention of scholars more, since people mostly experience upward counterfactuals (Roese, 1997). According to Epstude and Roese (2008), upward counterfactuals resemble to double-edged swords. These counterfactuals are associated with attributing the responsibility to dispositions (to self or others) (Gambetti, Nori, Marinello, Zucchelli, & Giusberti, 2017), and make people to create behavioral intentions and better prospective decision makings (Byrne, 2016). Indeed, upward counterfactual thinking facilitates behavior regulation and enhanced performance of behavior (Markman & McMullen, 2003; Smallman & Roese, 2009). This functional process can happen through content of an upward counterfactual (realizing the discrepancy between factual and counterfactual outcomes cognitively) and/or through motivation that a negative affect (regret or sadness) caused by this discrepancy (Epstude & Roese, 2017).

However, we should be aware that upward counterfactuals may cause some negative effects, as well. Especially, self-referent upward counterfactuals can elicit self-blame and feelings of regret (Howlett & Paulus, 2013), and excessive amount of self-blame and regret may result in depression (Epstude & Roese, 2008). To this end, functionality of counterfactual

thinking may become dysfunctional. There are some studies supporting this hypothesis (Broomhall, Phillips, Hine, & Loi, 2017; Sirois, Monforton, & Simpson, 2010). This is a handicap of counterfactual thinking when thoughts and affects go excessive. Nevertheless, findings in the literature mainly focus on functional side of counterfactual thinking. Saliently, Roese and Epstude (2017) summarized that years of research findings from various disciplines of psychology like social, neurocognitive, clinical, and health that support the functional role of counterfactual thinking on thoughts, emotions and behavior.

Finally, this paper mainly deals with the preparative functions of counterfactual enabled by causal inference effects. Influential theory by Tulving (1972) could be a good example to show how counterfactual thoughts are capable of serving preparative functions. According to this theory, memory can be separated as semantic and episodic memory. Semantic memory includes more general automatic and implicit knowledge whilst episodic memory is more conscious and involves recollection of autobiographical memory prior experience with specific time and place of an event (Greenberg & Verfaellie, 2010). To illustrate, in semantic memory the word 'car' refers to an object with wheels, engine and so on. However, in episodic memory, it refers to, for example, remembering that police was following me on the main highway for exceeding the speed limit yesterday. By the same token, functional theory of counterfactual thinking (Epstude & Roese, 2008) mostly focuses on episodic counterfactuals that form the basis of thoughtful reasoning processes rather than semantic counterfactuals. This theory suggests that episodic counterfactuals implement goals and indicate the ways to reach these goals, which in return helps behavior regulation (Roese & Epstude, 2017). Thus, this theory draws a frame of functional service of counterfactuals, especially to human behavior.

Theory of functional counterfactual thinking proposes two ways about how counterfactuals serve this function that are content-specific and content-neutral pathways. The studies in the present thesis take advantage of content-specific pathway. In other words, whether counterfactual thinking facilitates better social relationships could be answered through content-specific pathway, which is going to be the personally and collectively meaningful past and expected future negative events.

1.1.1.1. The Content-Specific Pathway

Counterfactual thinking mainly facilitates improvement in behavior regulation and behavioral performance (Saffrey, Summerville, & Roese, 2008; Smallman & Roese, 2009). Achieving this functionality can be affected by several factors, but especially it requires (1) a true and effective causal inference, and (2) having opportunity to apply the learned lesson from the causal inference (Roese & Epstude, 2017). This is the general way of how counterfactuals influence behavioral intentions and behavior. If this process within a same content with a specific problem, it is called 'content-specific pathway'. Indeed, the content-specific pathway objectifies the informational content (the causal inference between antecedent and outcome) from counterfactuals toward intentions, and then this promotes behavior for decreasing the discrepancy between actual and factual goal (Epstude & Roese, 2008). As it can be seen, content-specific pathway is built upon causal inference. For example, one can say that 'If had worked harder, I would get the promotion.' which points out the causal effect of working hard on promotion. This causal meaning of counterfactual thinking is

enough to cause a desired outcome that draw the person to corresponding behavioral intention and the behavior later on (Alicke, Buckingham, Zell, & Davis, 2008).

Shortly, it could be stated that counterfactual thinking takes the person to desired goals pursuit. Among several types of counterfactuals (episodic vs. semantic, upward vs. downward, additive vs. subtractive, other vs. self-focused), episodic, personal, and upward counterfactuals are mostly experienced, and they draw individuals to behavior regulation and change (Roese & Epstude, 2017). Episodic counterfactuals help evoking causal inferences; upward ones show the discrepancy between actual and counterfactual outcome; and personal (self-referent) ones lead to attributing the blame and/or responsibility to the self, and led negative affect like guilt. Indeed, negative affect produces more counterfactuals, and it indicates the need for reaching desired goal while positive affect shows enough goal progress (Schwarz & Clore, 1983; as cited in Epstude & Roese, 2008). Moreover, in his theory of core affect, Russell (2003) underlined that even the negative affect lights the sign of discrepancy between actual and ideal goal, so the negative affect itself mediates the behavioral change. For instance, Saffrey, Summerville, and Roese (2008) found out regret as a negative affect which is very beneficial for providing insights of past experience and the self, and enabling approach behaviors. Thus, negative counterfactuals are expected to impact behavioral intentions more.

To sum up, content-specific pathway of theory of counterfactual thinking is a theoretical map that explains how counterfactuals impact behavior. First, a problem or negative antecedent with negative affect comes. Then, upward counterfactuals with ‘should have done’ show up. Later on, these counterfactuals lead to formation of behavioral intentions, and these intentions impact behavior (see Figure 1).

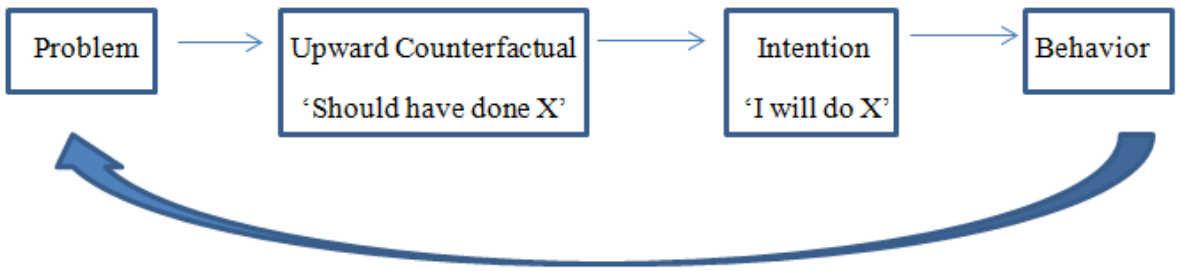


Figure 1. Illustration of how the content-specific pathway counterfactual thinking affects behavior. Adapted from ''Learning from yesterday's mistakes to fix tomorrow's problems: When functional counterfactual thinking and psychological distance collide'' by R. Smallman & K. C. McCulloch, 2012, *European Journal of Social Psychology, 42*, p. 384.

1.1.1.2. The Content Neutral Pathway

Sometimes thinking about alternatives to past events does not happen within the same context. One's counterfactual thought about an event can be generalized to other topics in life. As a dictionary definition: "The content-neutral pathway involves the way information is handled, as opposed to the particulars of the information itself." (Epstude & Roese, 2008, p. 10). To clarify, in content-specific pathway, information in both antecedent and outcome is the same. For example, in the sentence of 'If I had studied harder, I would not fail', both antecedent and outcome is about academic achievement. However, in content-neutral pathway, having same counterfactual about the academic achievement status can produce cognitive and motivational processes that could result in different behavioral change in a different topic. For example, in a study, embodying a counterfactual mind-set about other individual's possibility to win a price altered participants' behavioral performance in a card selection task which is a different domain than winning a prize (Galinsky & Moskowitz, 2000). As a note, since current research is only about content-specific pathway, the current

paper is not going to dive much into details of content-neutral pathway. The next step of this paper is enlightening the related literature of counterfactual thinking in relation to some other variables including emotions, depression, rumination, anxiety, and functional behavior.

1.1.2. Recent Developments in Counterfactual Thinking

Counterfactual thinking is a cognitive process that has active interactions with emotions and behavior. In that sense, some research on counterfactual thoughts' relationship with emotions; its relationships with other variables like depression, rumination, self-esteem, optimism and pessimism (mostly related to emotions that caused by counterfactual thoughts); and adaptive side of counterfactual thinking will be explained.

First of all, in accordance with affective contrast effect, it can be said that upward and downward counterfactuals produce contrast emotions. While upward counterfactuals are more likely to elicit negative emotions, downward ones are more related to positive emotions (Markman, Gavanski, Sherman, & McMullen, 1993; Kahneman & Miller, 1986). In an exemplar study, Roese (1994) asked the participants to recall a personally meaningful life event and to list possible counterfactual thoughts they have. Results pointed out that the participants who listed more upward counterfactual thoughts produced more negative affect. For instance, after recalling a negative academic or interpersonal experience, subjects who had upward counterfactuals significantly produced more negative emotions like guilt, sadness, regret and shame since it leads them to attribute the responsibility for the negative event to themselves (Mandel, 2003). Moreover, real prisoners reported to have experience more

feelings of guilt and self-blame in a counterfactual condition (they produced mostly upward ones) compared to ones in the factual condition (Mandel & Dhami, 2005).

Overall, individuals engage in more upward counterfactuals that produce negative emotions. Whereas individuals are more likely to think about better alternatives to their past events (Rim & Summerville, 2014) and experience negative emotions, sometimes they can elicit downward counterfactuals that may lead the negative emotions away (Byrne, 2016). For example, in a series of studies, Teigen (1997) concluded that thinking about a worst counterfactual scenario was predictor of luck and gratitude/thankfulness toward others and the life in general. Furthermore, survivor tourists of tsunami disaster mostly produced downward counterfactuals about the negative event since they saw no control over the event to think a better alternative, and this caused them feel lucky (Teigen & Jensen, 2011). Moreover, following material purchases, individuals reported to be less happy when they think of buying superior alternatives, but their happiness level increased when they think about buying an inferior product (Ang, Lim, Leong, & Chen, 2015). In terms of positive emotions, several research discovered that relief is the main emotion caused by the counterfactual thoughts (Guttentag & Ferrel, 2004; Habib, Cassotti, Borst, Simon, Pineau, Houde, & Moutier, 2012). As a more substantial example, Sweeny and Vohs (2012) carried out two experimental studies to enlighten the situations that lead to relief. They revealed that one type of relief which is 'near-miss relief' (escaping from a disturbing outcome) is caused mainly by downward counterfactual thinking. In conclusion, different counterfactual thoughts give rise to different emotional reactions. Especially, while upward counterfactuals are generally associated with negative affect like regret, downward ones are characterized with positive emotions, mostly relief in particular.

Particularly upward counterfactual thinking makes people to engage in negative feelings, and possibly these negative emotions may lead to some problems such as decreased well-being, and increased depression and anxiety. According to a study with rape victims, upward counterfactuals of victims about the factuality of their rape led them to blame themselves more, and the increased self-blame reduced the well-being of these participants in return (Branscombe, Wohl, Owen, Allison, & N'gbala, 2003). Previous research results support the hypotheses that especially the self-upward counterfactual thoughts are related to depression, anxiety and rumination because self-upward counterfactual involves blaming the self while imagining a better alternative to a past event. To illustrate, it was explored that high social anxiety makes people to have more ruminative thoughts and upward counterfactual thinking (Kocovski, Endler, Rector, & Flett, 2005). Similarly, frequency of counterfactual thinking was positively associated with higher involvement in rumination and anxiety (Prokopcavoka & Ruiselova, 2008). Likewise, in a study with women who experienced miscarriages, upward counterfactual thinking was significantly and positively correlated with distress and anxiety (Callander, Brown, Tata, & Regan, 2007). Moreover, with an Asian sample, which is an example from a collectivistic culture, self-upward counterfactual thinking was positively and significantly correlated with depression, and feeling of regret was fully mediated this relationship (Broomhall & Phillips, 2018). Additionally, a neuropsychological study concluded that counterfactual thinking about the self is generated in prefrontal cortex of brain, and production of counterfactuals are less in people with depression (Beldarrain, Garcia-Monco, Astigarraga, Gonzalez, & Grafman, 2005). Consequently, excessive amount of counterfactual thoughts may be linked to anxiety and depression (Epstude & Roese, 2008).

In addition to decreased well-being and increased distress, anxiety and depression, upcoming study findings also correlate upward counterfactuals with low self-esteem and pessimism. As Ross and Wilson (2002) explored in their study, the distancing bias (alienation from the past failures) was observed more in individuals with higher self-esteem. For example, individuals with high self-esteem were more likely to produce downward counterfactuals compared to low self-esteem ones, they felt better following producing downward counterfactuals, especially when they are in good mood (Sanna, Turley-Ames, & Meier, 1999). By the same token, both self-referent and non-referent upward counterfactual thinking were shown to be negatively related to self-esteem (Rye et al., 2008). Relationship of counterfactual thoughts with future cognitive expectations called optimism and pessimism has been also studied. Just as high self-esteem individuals, restoration of retrospective experiences can be the tactic of optimist people (Sanna, Chang, Carter, & Small, 2006). For example, by controlling the effects of negative and positive affect, individuals high in optimism significantly produced more downward counterfactual thinking while higher level of pessimism was associated with higher upward counterfactual thinking (Barnett & Martinez, 2015). Likewise, Sanna (1996) also reported that optimist participants involve more downward counterfactual thinking compared to pessimists in order for mood repair. As a final example, Rye et al. (2008) found out that upward counterfactual thinking, especially the self-referent one, significantly and positively associated with pessimism, but negatively with optimism.

In summary, excessive and intense amount of counterfactual thoughts, especially the upward ones can create various problems such as anxiety and depression, and people who are high in pessimism, anxiety and depression are more prone to come up with upward

counterfactuals in which they become stuck with how might things go better. Nevertheless, it can be easily stated that adaptive side of upward counterfactual thinking and related negative emotions motivate people to take precautions and to perform better in the future. More examples in addition to the ones mentioned above might consolidate the preparative functional side of counterfactual thinking. Ardakani, Mehri, and Shandi (2015) investigated the relationship between counterfactual thinking and personality domains, which are the two possible variables that could influence future performance. Their results showed that upward counterfactual thinking was positively associated with openness to experience, which is suggested as sign of achievements for future challenges.

Besides that, in an experimental study with aviation pilots, Morris and Moore (2000) expectedly found that participants who produced more upward counterfactuals also learned more from their near accidents, and this increased their organizational accountability. Over and above, a group of researchers anticipated that belief in free will and self-upward counterfactual thinking should be positively correlated because both variables are scientifically shown to enable social learning, adaptation, and societal change. As they hypothesized, a series of experimental studies revealed that more belief in free will is associated with more production self-referent counterfactual thoughts (Alquist, Ainsworth, Baumeister, Daly, & Stillman, 2015). Moreover, another study showed that counterfactual thinking encourages to process information, and this led people become more sensitive to behavioral intentions in return (Krishnamurthy & Sivaraman, 2002). Smallman, Kathleen and Mcculloch (2012) also presented supportive findings that upward counterfactuals allowed behavioral intentions for fixing future problems.

Furthermore, Smallman and Roese (2009) tested the relationship between counterfactual thinking and behavioral intentions that facilitate behavioral regulation. Their results pointed out that counterfactual thinking significantly facilitates more behavioral intentions compared to baseline and control judgements. They also reached out that facilitation of intention judgements significantly occurs through content-specific pathway rather than content-neutral pathway. As a final example, Roese (1994) asked university students to recall a recent disappointment in one of their previous exams, and then half of the participants were directed to produce upward counterfactuals about their past negative experience in the exam whereas other half asked to produce downward counterfactuals. The results demonstrated that participants in upward counterfactual thinking group produced more intentions for displaying facilitative behaviors.

In the light of all these studies in the literature, it can be concluded that upward counterfactuals help individuals learn from their past, take reparative intentions, and fix their potential future failures. In that sense, two experimental studies in this thesis try to investigate the functional role of counterfactual thinking through content-specific pathway in learning from past negative events and producing reparative intentions in interpersonal and intergroup relationships.

In addition to testing functionality of counterfactuals, already studied correlations of counterfactual thinking with other variables like rumination, depression, self-esteem, optimism-pessimism, and self-efficacy will also be retested for the purpose of examining construct validity of the scale that is tried to be adapted into Turkish. By doing so, a robust scale is tried to be brought into Turkish culture.

Following information and study findings about counterfactual thinking and theory of counterfactual thinking, remaining part of the introduction chapter is going to continue with presenting interpersonal and intergroup studies. Moreover, possible functional role of counterfactuals in these social relationships is going to be explained, and all the theories will be assisted with related research findings in order to understand how significant their hypotheses are for human functioning.

1.2. Interpersonal Relationships

According to American Psychological Association dictionary of psychology, interpersonal relation is defined as "The connections and interactions, especially ones that are socially and emotionally significant, between two or more people." (VandenBos, 2007, p. 555). Similarly, Plutchik (1997) defined this term as styles of emotions, thoughts and behaviors that individuals experience with others. It is hard to compress the meaning of interpersonal relations into one single definition, but it can be easily observed that human being naturally engages in these emotional, thoughtful, and behavioral relations with other people in the society because we are basically social animals. The well-known quote by John Donne (1975) summarizes everything clearly, "No person is an island." Therefore, capturing the importance having social relationships is much more important than comprehending the definition of it. Within this scope, this characteristic of being social to various extents leaves individuals in need of having relations with others. Indeed, based on the famous social psychology theory of self-determination theory (Deci & Ryan, 1985), being related is a psychological need for a human being for his healthy psychological growth and for effective

physical development in return, as well. Aftermath of the claims of this theory, numerous empirical works within various cultures in the world proved that basic psychological needs of autonomy, competence, and belongingness determined the psychological well-being and functioning, regardless of differences between individualistic, collectivistic and egalitarian cultures (Deci & Ryan, 2008).

This addressing of relatedness as a basic psychological need was later on called 'belongingness' by Baumeister and Leary in 1995. They suggested that belongingness is an unescapable and fundamental human drive to create and sustain meaningful and positive interpersonal relationships. Similarly, Maslow (1968) placed the 'love and belongingness needs' into his hierarch of needs model just following the physiological and safety needs in order for individuals to reach self-actualization. All these theoretical suggestions draw a picture with the main lines about the functioning of interpersonal relations, but to understand the nature and significance of it, some major theories at interpersonal level are represented below, and they are also supported by up to date research findings in the related literature.

1.2.1. Social Psychological Theories of Interpersonal Relations

This part deals with introducing some of the well-known and well-tested interpersonal relationship theories. Some research findings in the related literature about these theories are also provided below so that importance of their hypotheses could be understood better. Within this scope, the attachment theory, need-to-belong theory, interdependence theory and the equity theory are respectively explained.

1.2.1.1. Attachment Theory

The attachment theory by Bowlby (1969/1982, 1973) is a theoretical framework that explains lifelong effects of vital intense emotional bond that initially established with parents or caregivers, and then by other loved ones. Based on emotional reactions of infants during separation and reunion with their mothers, Ainsworth, Blehar, Waters, and Wall (1978) classified the attachment into 3 major categories as secure, anxious, and avoidant. In other words, anxiety, distress and comfort levels of infants during these separation and reunion situations indicate the individual differences in these three attachment styles. (1) Infants with secure attachment see their attachment figures (the caregiver) as a secure and trusting base for comforting their distress and anxiety under a stressful situation, (2) children with avoidant attachment pattern are likely to ignore and refrain from their mothers since they do not perceive the caregiver as a secure base, and finally (3) the ones with ambivalent attachment are inconsistent to see their caregivers as a comfort base, so even they hug their caregivers, they still keep showing aggressive and rejective behaviors (Muris, Meesters, Van Melick, & Zwambag, 2001; Stevens, 2014).

To sustain their lives, infants are in need of their caregivers, so they instinctively seek for creating an emotional bond with their caregivers (Sümer, Oruçlar, & Çapar, 2015). If the attachment figure is accessible and caring enough, this means that the caregiver is a secure base that is a determinant for the individual to be mentally healthy and for his capacity to establish emotional bonds with others (Bretherton, 1992). However, if the caregiver is not caring and responsive enough to the child's needs, it paves the way for insecure attachment pattern (ambivalent and anxious) with the caregiver. In that sense, secure and insecure attachment patterns can be associated with the quality level of first relationships in a person's

life. However, according to attachment theory, experiences and quality of the relationship with the caregivers in this early period of life deeply affects an individual's emotion regulation capacity, psychological health, social behaviors, expectations, and quality in close relationships in later years (Ainsworth, 1989; Sümer, 2006). Conspicuously, distribution of attachment categories in adulthood was reflected by the ones in infanthood with 56% for secure, 24% avoidant and 20% for anxious attachment style (Hazan & Shaver, 1987).

Because of these hypotheses, implication of attachment theory to infant-caregiver emotional bond has been extended to new studies with adolescent and adult populations, and researchers has started to test possible effects of this theory on psychological dynamics like interpersonal functioning, psychological resilience, and mental health (Mikulincer & Shaver, 2012). For instance, securely attached adults do not afraid of getting close with others and easily build trust in relationships while insecurely attached ones are prone to be less committed in their relationships, avoid closeness, more jealous, and less trusting (Myers, 2013). More specifically, adults who did not receive high quality care during their toddlerhood were found to be less committed to their romantic relationships in a longitudinal developmental study (Orina, Collins, Simpson, Salvatore, Haydon, & Kim, 2011). In another developmental study, received nurturing and caring parenting style contributed to interpersonal skills of young people, and led them to become more supportive partners in their romantic relationships (Conger, Cui, Bryant, & Elder Jr, 2000).

Furthermore, while secure attachment in adolescents and adults is positively and significantly related to mindfulness (Pickard, Caputi, & Grenyer, 2016), boosted mental health (Mikulincer & Shaver, 2007), higher psychological resilience and well-being (Karreman & Vingerhoets, 2012), increased compassion and caregiving in relationships (Mikulincer &

Shaver, 2005); attachment insecurities were found to be related to various psychopathological symptoms like personality and eating disorders (Mikulincer & Shaver, 2012), less compassion and care to victims of different crises (Westmaas & Silver, 2001), increased fear and anxiety in childhood and adolescent periods (Muris et al., 2001; Warren, Huston, Egeland, & Sroufe, 1997), and lack of emotional awareness and regulation (Stevens, 2014).

The attachment theory, summarily, clarifies embeddedness of the self in relationships with others, and suggests that people are programmed to start seeking proximity and closeness from the birth. The quality of first closeness or emotional bond with the primary caregivers significantly impacts the continuous behavioral, cognitive and emotional development of individuals. If the sense of secure attachment with the caregivers is not set, non-confidence unworthiness in social relationships come out, and it creates many highlighted problems as mentioned above with the related research findings.

1.2.1.2. Need-to-Belong Theory

The need-to-belong theory (Baumeister & Leary, 1995) has the core idea that human nature fundamentally requires to establish and to sustain at least certain amount of coherent, strong and meaningful social relationships. Basically, the developers of the need to belong theory built this theory on two central ideas: (1) belongingness requires reciprocal concern and caring that rooted in the past and continuing into future rather than momentary interactions, and (2) belongingness must have a particular number of non-negative interactions (Baumeister, 2012). Thus, need for belongingness is something more than just having social contacts. The attachment theory and related research shows how important to have high

quality emotional bonds for human functioning as discussed earlier. However, whether having social relations are really a need or just a desire should be addressed.

As Baumeister and Leary (1995) stated, it was already evident that loneliness or poor quality relationships do not only produce potential damages, but it is truly responsible for the majority of psychological and physical disorders (Baumeister, 2012). There are numerous study findings that support this statement about survival role of social relationships (Holt-Lunstad, Smith, Baker, Harris, & Stephenson, 2015; Umberson & Karas-Montez, 2010). For example, MacDonald and Leary (2005) underlined that both physical and social pain involve the mutual physiological mechanisms, and elicit similar neural reactions in human body. Moreover, in a meta-analytic review paper, it is concluded that people lacking social ties have higher risk of premature death because it gives much more harm to individuals than obesity does and it increases the health problems similar to alcohol abuse and overconsumption of smoking (Holt-Lunstad et al., 2015). Invariably, in a study with more than half million adult participants, social isolation was found to be robustly associated with increased early death risk from every cause (Alcaraz et al., 2018).

In addition to examples of direct effects of deficiencies in social bonds on physical health, outnumbered study results on mental health points out the crucial importance of sense of belongingness, as well. Lack of belongingness needs may cause social isolation and loneliness (Mellor, Stokes, Hayashi, & Cummins, 2008). For example, thwarted belongingness is related to more aggression (Stenseng, Belsky, Skalicka, & Wichstrom, 2014), impairments in self-regulation (Baumeister, DeWall, Ciarocco, & Twenge, 2005; Stenseng et al., 2014), more suicide ideation (Van Orden, Witte, Gordon, Bender, & Joiner Jr, 2008) and so on. On the other hand, satisfaction of this need is associated with greater willingness to forgive

(Barnes, Carvallo, Brown, & Osterman, 2010), higher well-being (Baumeister & Leary, 1995), higher life satisfaction (Raijman & Geffen, 2017), and correlated with many other benefits. Within this scope, it is obvious that having meaningful and lasting relationships is vital for sustaining a healthier life.

1.2.1.3. Interdependence Theory

Interdependence theory (Thibaut & Kelley, 1959) is a kind of social exchange theory that formulates how each individual's outcomes rely on the behaviors of others in social relationships. Psychological theories and studies mostly analyze the human psyche from a within-person angle such as intrapersonal functions of cognition, emotions and behavior (Rusbult & Van Lange, 2008). This is very useful and contributive for understanding human psychology. Besides that, analysis of between-person or interpersonal relations in specific situational contexts can also be as valuable as intrapersonal analyses for exploring human psychology (Rusbult & Van Lange, 2008; Van Lange & Balliet, 2015).

The term of interdependence means that individuals in close relationships affect their experiences, and they need each other in order to get desired outcomes like affection, emotional support and closeness, sexual satisfaction and so on (Rusbult & Buunk, 1993). Furthermore, structure of interdependence in social relations consists of a model with matrices and transition lists that display how individuals influence their outcomes during the social interactions (Kelley, 1984). This model explains how an interaction between the partners transpires. To this end, social interaction depends on which situation individuals confront, and the needs, thoughts and drives of the partners related to the situation (Van Lange, & Rusbult,

2012). Whether the interaction in a given situation clearly transpires or not is contingent upon satisfaction (or frustration) of interests and needs like sense of belongingness and exploration (Fiske, 2004). As a result, the present theoretical approach deals with the interpersonal relationships in the light of thoughts, emotions, motives, and need within a situational context rather than intrapersonal aspects.

Consequently, all these hypotheses and theories by pioneering scholars from psychology discipline basically outlines the fundamental and crucial role of forming social bonds and sustaining healthy social relationships for psychological functioning, well-being, wellness, self-actualization, maturity and so on. Moreover, based on the related studies and theoretical claims mentioned above, it would be appropriate to infer that absence of or problematic interpersonal interactions may lead to negative, even pathological, effects on health, well-being and other aspects of human psyche. Therefore, suggesting and finding solutions to interpersonal conflicts which harms the quality of relationships is so valuable. In that sense, the upcoming section touches upon the interpersonal conflicts and explains the possible role of counterfactual thinking on reparation of interpersonal relationships.

1.2.2. Counterfactual thinking on interpersonal relationship conflicts.

All the hypotheses of interpersonal relationships theories and the related research findings mentioned above outstandingly emphasize that we are in need of meaningful, lasting, and high quality social relationships, and otherwise serious damages may take place to our physical and psychological health. Many researchers and health workers endeavor for fixing conflicts in interpersonal relations and increasing the quality of these relationships for heaving

a healthier society. Conflict is pervasive and inevitable in both satisfying and dissatisfying interpersonal relationships, and several research studied conflicts in various types of relations such as romantic relationships (Aloia & Solomon, 2015; Arriaga, Capezza, & Daly, 2016), work place relationships (Frone, 2000), family relationships (Green, 2008) and so on. Noteworthy, conflicts in these relationships, especially with hostile and negative behaviors, are related to an array of negative and detrimental psychological outcomes like increased physiological stress (Aloia & Solomon, 2015), decreased relationship satisfaction and quality (Rehman, Janssen, Newhouse, Heiman, Holtzworth-Munroe, Fallis, & Rafaeli, 2011; Saavedra, Chapman, & Rogge, 2010), greater depressive symptoms (Hammen, 2003), lower self-esteem and higher somatic symptoms (Frone, 2000) and many other maladaptive effects that would be hard to fit them all into here.

Many factors and intervention strategies can be listed for solving interpersonal conflicts, but adding one more functional role of a concept is still very valuable. In that sense, this thesis work suggests the functional role of counterfactual thinking in dealing with interpersonal conflict by learning from the past experiences and fixing and/or preventing from future conflicts. Several examples have supported the hypothesis of content specific pathway that conceptualizes how counterfactuals facilitate behavioral change through learning from past experiences.

It is the adaptive functionality of counterfactual thinking that enables people to learn from their earlier negative practices and to adopt them to future behavior so as to restrain from similar negative outcomes in the future (Byrne, 2016; Epstude & Roese, 2008). One of the example studies was conducted by Smallman and Roese (2009). In their experimental study, participants in counterfactual judgement found easier to complete the behavioral intention

judgements than other groups did. In addition, counterfactuals thoughts on near accidents experienced by university students in flight simulators and the ones reported by real aviation pilots were examined in another study (Morris & Moore, 2000). The authors revealed that imagining upward and self-focused counterfactuals about the accidents enabled the participants to learn from the event, and increased their organizational responsibility. Similarly, in another experimental study, participants were put into a win, neutral or loss situations after playing a computer-based game, and the ones who expected to replay the game produced more upward counterfactuals. This result showed the functional role counterfactual thinking in preparing individuals for the future (Markman et al., 1993).

In addition to the examples explained above, the present thesis seeks answer for whether content-specific counterfactuals also facilitate learning in interpersonal relationships. First of all, conflicts in interpersonal relations such as among friends, romantic partners, relatives are inevitable. Thus, if people hold counterfactuals about their negative conflicts and take lessons from them, they may have more reparative actions for their future contacts with others. Like personal achievements in life (e.g., getting a degree, having promotion), people also have a core motive or life goal of affiliation in interpersonal relations (Roese & Epstude, 2017). That may encourage them to fix things in their interpersonal relations for achieving these life goals.

Most basically, as emphasized in self-determination theory, having connections with others is a fundamental psychological need that people strive to get for their physical and psychological health (Deci & Ryan, 1985). In their review, Roese and Epstude (2017) stated that rather than asking directly, addressing questions like ‘If you could live your life over, what would you do differently?’ reveals the life regrets that make individuals aware of their

personal standards and mistakes. Most of these life regrets were found to be in interpersonal relationships (Morrison, Epstude, & Roese, 2012). Regret is a counterfactual emotion and may serve a reparative function in social relations. For example, in a series of experimental and naturalistic studies, Summerville and Buchanan (2014) found out that expression of regret lets people accept the blame on themselves and to take reparative actions for fixing damaged social relationships.

Similarly, Leith and Baumeister (1998) asked participants to recall and to describe an interpersonal conflict from different perspectives (own perspective and other person's perspective), and measured their levels of guilt, shame, empathy, and perspective taking. They found out that guilt, but not shame, was associated with enhanced perspective taking, and beneficially contributed to relationship outcomes.

To conclude, through content-specific pathway, cognitive function of self-upward counterfactual thinking by facilitating learning and related negative emotions like regret and guilt may enable people to turn crisis in interpersonal relationships into opportunities for improving the quality of their relationships. In accordance with that, the Study 2 (experimental) of this thesis tries to investigate this hypothesis so that it can be understood whether functionality of counterfactuals may be generalized to social relationships.

1.3. Theories on Intergroup Relationships

This part of the current paper forms the theoretical background of the Study 3 (experimental) in which functionality of counterfactual thinking is aimed to be tested in intergroup interactions. There are several social psychological theories draw the picture of intergroup dynamics. However, in this thesis work, social identity theory, relative deprivation

theory and realistic group conflict theory are presented respectively because these theories are thought to explain what is going on between the two groups (i.e. psychology vs. psychological counseling graduates) that are studied in the Study 3.

1.3.1. Social Identity Theory

Social identity theory (SIT), developed by Tajfel and Turner (1979), serves as a social psychological analysis of intergroup relationships, and claims that belonging a social group is the main source of having a positive self-concept. The term of social identity here refers to answer of 'who am I?' question by considering a group membership rather than personal identity. This involves having strong emotional ties with a group such as being a member of political party, ethnicity, football team and so on. Purpose of this theory is to understand how individuals embrace and play the social identity roles, and to explain how these social identities influence people's behaviors, feelings and cognitions (Ellemers & Haslam, 2012). For example, having a group affiliation in center of a person's self-concept is related to in-group assimilation (tendency to conform the group norms), intergroup bias (favoring the in-group over out-group), and more likely to have negative evaluations of outgroup (Leaper, 2011).

Social categorization, social comparison and social identification are the three main concepts for psychological processes that explain how individuals separate their social identities from their personal identities (Ellemers & Haslam, 2012). The first term, social categorization, refers to particularly categorizing or classifying the self within social group categories (Stets & Burke, 2000). People are prone to place others into categories based on

similar characteristics because it is a functional psychological process that help us organize our social information and to understand and anticipate others' behaviors (Ellemers & Haslam, 2012). Categorizing the self and others as Muslim, Christian, Black or white, rich and poor are some examples of this process.

The second psychosocial process of the SIT is social identification. The SIT (Tajfel and Turner, 1979) suggests that people define themselves and others based on group memberships, and they also assign themselves and other to groups so as to create a more meaningful world and to remove uncertainties. In a sense, people do not just make social categorizations, but they also adopt a group, form emotional bonds with that group and act in accordance with the norms of that group. Identifying the self with a group seems like a motivational need because it is associated with having increased self-awareness and coherent view of the self (Tajfel, 1969), less burnout and increased organizational citizenship (Haslam, Jetten, & Waghorn, 2009), decreased anxiety and stress (Castano, Leidner, & Slawuta, 2008).

The third concept, social comparison, means intergroup social comparisons that involve comparing in-group with other groups in terms of various differences and features like traits, attitudes, values, and this comparisons form the basis of group structure, norms and interpersonal relationships (Hogg, 2000). In other words, when social identity is salient, people are tend to make in-group and outgroup comparisons as they compare their personal characteristics when their personal identity is salient (Tajfel, 1982). For example, company managers may perceive themselves higher in status than other workers in company, but comparing the chief executive officers, they may feel more inferior. These comparisons of perceived differences between groups enable people to assess a group as good or bad. Individuals especially are likely to do this through positive group distinctiveness or in-group

bias so that they can maintain their self-esteem and have a positive social identity even there is no conflict or competition between the groups (Tajfel, 1982).

In spite of the motivational benefits of pursuing social identities, social identity salience makes people to look for negative features about outgroup and positive features for in-group (in-group stereotype), which may result in stereotype threats (Davis III, Aronson, & Salinas, 2006) and collective hate toward outgroup (Reicher, Haslam, & Rath, 2008). That is why different social identities affiliated with different social groups attract the attention of many researchers.

1.3.2. Relative Deprivation Theory

The relative deprivation theory's (RDT) logic relies on the idea that people can feel deprived of desired resource relative to their past, other people, other groups or other social categories (Walker & Pettigrew, 1984). In other words, a realized discrepancy between the current status que and compared desires relative to one's past, others and desired standards brings about relative deprivation feelings. Under the RDT, these subjective social comparisons are divided into levels by Runciman (1966) including egoistic relative deprivation and fraternal deprivation. While egoistic deprivation caused by social comparisons at interpersonal level, fraternal deprivation occurs at intergroup level (Mummendey, Kessler, Klink, & Mielke, 1999). As Bilgin (2003) stated, relative deprivation frequently shows up when there is a high expectation and low taking relative to others about distribution of limited resources in a society, and it ends with feelings of insufficiency, detention and victimization.

This differentiation is important to make since interpersonal relative deprivation and intergroup relative deprivation may lead to different outcomes. Whereas egoistic deprivation is mostly associated within interpersonal level aggression and hostility (Greitemeyer & Sagioglou, 2017), personal frustration (Kennedy, Kawachi, Prothrow-Stith, Lochner, & Gupta, 1998), psychological distress (Osborne & Sibley, 2013) and depression, negative automatic thoughts, suicidal ideation (Beshai, Mishra, Meadows, Parmar, & Huang, 2017; Zhang & Tao, 2013); fraternal deprivation resulted in intergroup level outcomes like unpleasant behaviors (e.g., employee theft) (Vatankhah, Raoofi, & Ghobadnezhad, 2017), destructive intergroup competition that decreases collective efficiency (Halevy, Chou, Cohen, & Bornstein, 2010), negative affect (Bernstein & Crosby, 1980), prejudice toward outgroup (Pettigrew, Christ, Wagner, Meertens, Van Dick, & Zick, 2008) and so on.

In conclusion, feeling deprived in both interpersonal and intergroup-based relationships possess negative outcomes. Since in the present paper, the Study 3 deals with intergroup conflict, a fictitious scenario based on relative deprivation between two natural groups will be given to participants, and possible role of counterfactual thinking in reducing this conflict will be tested.

1.3.3. Realistic Group Conflict Theory

Another theory that draws a theoretical framework of intergroup conflict is realistic group conflict theory. According to this theory developed by Sherif (1966), scarce resources (e.g., money, food, status, political power) lead groups to enter in contest, and this competition over these scarce resources cause the intergroup conflicts, stereotypes and discrimination in

return. Indeed, quality of interaction between the groups depends on level of positive or negative interdependence among them. As Böhm, Rusch and Baron (2018) expressed, negative interdependence on limited resources or the incompatible goals within the groups give rise to negative interactions, but if there is a positive interdependence between them to achieve a mutual goal, then more positive intergroup interactions come true as desired.

Actually, the realistic group conflict theory has emerged through the social psychology experiments of intergroup conflict investigation which is the Robber's Cave experiments (Sherif, Harvey, White, Hood, & Sherif, 1961; Sherif & Sherif, 1953). In these series of field experiments, competitive environments were created between children. These competitive conditions between the groups made them display undesirable aggressive behaviors towards each other. Sherif and his colleagues revealed that intergroup conflict occurs over competition for desired resources, and these conflicts conduces to ethnocentrism, prejudice and discrimination among the groups (Böhm et al., 2018).

The realistic conflict theory has been applied to several more studies. For instance, intergroup competition caused deterioration in attitude toward high-status outgroup in an institutional setting in win or loss condition (Echebarria-echabe & Guede, 2003). Similarly, high-status host population did not want to help empowerment of immigrants in an intergroup competition over economic and power resources (Jackson & Esses, 2000). Moreover, Goldman, Cooper and Kugler (2018) found out that black race job applicants with history of criminal conviction were exposed to more severe discrimination in employment that was a scarce source. To be brief, the realistic conflict theory successfully draws a theoretical framework of intergroup conflict and shows how sense of a group threat opens the pave for ethnocentrism, group identity salience; prejudice and negative stereotyping of outgroup.

To sum up, some of the well-known social psychological theories of intergroup relations indicate that having emotional bonds with a group (social identity), perceived deprivation of resources in distribution (relative deprivation), and competition over the scarce resources (realistic group conflict) may lead people to experience intergroup conflicts through in-group bias, negative stereotypes, and discrimination of outgroup members. Searching for possible ways to ease these conflicts and problems is undoubtedly worth doing. Within this scope, following subheading explains how counterfactual thinking may serve a functional role in intergroup relationships.

1.3.4. Counterfactual Thinking in Intergroup Relationship

To the best knowledge, no one has examined whether counterfactual thoughts are applicable at intergroup level. On the other hand, quiet few, but there are intergroup level studies that give clues about testability of counterfactual thinking in cross-group interactions. For example, after participants read about past atrocities between groups (in-group vs. outgroup), feelings of regret and guilt improved their attitudes toward the outgroup members, and increased their intentions to contact with them more (Imhoff, Bilewicz, & Erb, 2012). In another study, group based guilt was found to be predictor of apology and intentions to take actions in collective level (McGarty, Pedersen, Leach, Mansell, Waller, & Bliuc, 2005).

Additionally, two experimental studies examined how emotional expressions by in-group and outgroup members influence resource allocation after breaching the trust in a trust game. The authors of the study concluded that in-group expression of guilt and outgroup communicated anger predict the intergroup resource allocation to the out-group, and these emotional communications determine the intergroup trust (Shore, Rychlowska, van de Schalk,

Parkinson, & Manstead, 2018). Several other studies with similar findings exist in the related literature, and they underline how negative social emotions like guilt and regret facilitates enhancement of intergroup relationships including building intergroup trust and taking reparative intentions (Brown & Cehajic, 2008; Rychlowska, van der Schalk, Gratch, Breitinger, & Manstead, 2019; Shepherd, Spears, & Manstead, 2013).

Considering the all example studies mentioned above, the counterfactual thinking may also have contributive effect on fixing problems of past intergroup interactions, and it may lead to enhancement of their future relationships by facilitating to take reparative intentions. The reason behind this anticipation is that counterfactual thoughts may also provide social negative emotions like guilt, regret and self-blame, which enable the motivation to make things right. For this reason, one of the purpose of this study is to test whether counterfactual thinking about past interpersonal and intergroup conflicts lead to taking reparative actions for fixing damaged relationships under the theory of content-specific pathway of counterfactual thinking. Although it is hard to improve the quality of intergroup relationships like enhancing intergroup trust (Rychlowska et al., 2019), it is still worth to search for dynamics that may help improvement of these relations.

1.4. Current Studies

The present dissertation has 3 separate studies consisting 1 scale adaptation study and 2 experimental studies about the concept of counterfactual thinking. Due to lack of studies of counterfactual thinking within the Turkish culture, the first study (Study 1) aims to adapt a reliable and valid counterfactual measurement tool called 'Counterfactual Thinking for Negative Events Scale (CTNES)' (Rye et al., 2008). By doing so, functionality of counterfactual thinking or its dynamics in different contexts might be examined in further studies by researchers who are interested in this topic. More discussions on the need for having this scale with capacity to measure frequency of different domains of counterfactual thinking is introduced under the Study 1 in Chapter 2.

By the Study 2 (experimental) in Chapter 3, it is aimed to test whether the counterfactual thinking enables individuals to learn from their past conflicts with others, and to take reparative intentions for their future interactions in their interpersonal relationships. Two ideas lie behind this hypothesis. First, especially the upward directed counterfactuals provide a sense of control over life that gives motivation to make things right and better (Nasco & Marsh, 1999). Secondly, again upward counterfactual thoughts produce negative social emotions (e.g., guilt and regret) that facilitate individuals to take responsibility to make things better (Epstude & Jonas, 2015; Mandel & Dhami, 2005). Based on this information, the Study 2 investigates the hypothesis that participants with self-upward counterfactual will be more likely to take reparative intentions for their future interactions with others considering the same context of their past negative memory of an interpersonal conflict. Although the affective functional role of counterfactual thoughts in interpersonal relations was examined in

one study by Studer (2016), not any study examined the preparative function of counterfactuals in interpersonal relationships according to the best of our knowledge.

In Chapter 4, the Study 3 (experimental) again questions the preparative function of counterfactuals through the content-specific pathway of functional theory of counterfactual thinking. Based on the in-group and outgroup identifications, after reminding a past negative intergroup event, question on whether self-upward counterfactual thoughts facilitate more conflict resolutions by taking reparative intentions is tried to be answered. Although there are available studies that emphasize importance of social negative emotions and responsibility taking in enhancement of intergroup relationships (Shepherd et al., 2013; Shore et al., 2018), possible functional contributions of counterfactual thinking have not been tested up till now. That is why the Study 3 has been designed to address this hypothesis in order to fill the gap in the related literature.

Regarding the cognition and emotion interaction, there are various views and theories that discuss which of them cause another. Both emotions and counterfactual thoughts fuel each other, and it is not applicable to clearly distinguish which of them is the trigger of another. While negative emotions trigger the counterfactual thinking, counterfactual thoughts may also fade up positive and negative emotions (Roese, 1997). There are numerous study findings that support this argument. Negative affect might trigger producing counterfactuals (Epstude & Roese, 2008). For instance, Nakamichi (2019) concluded that negative emotions expressed by others trigger counterfactual thoughts in children on physical events. There are also studies indicate the emotional consequences of this cognitive concept. For instance, participants reported to feel significantly guiltier in the counterfactual group compared to the factual group (Mandel & Dhami, 2005). These thoughts were also explored as the predictor of emotions

(Allen, Greenlees, & Jones, 2014). As a result, both emotions and counterfactuals have mutual impacts on each other. However, in the current thesis, whether counterfactual thinking amplifies the negative emotions will be the main interest.

CHAPTER II

STUDY I:

ADAPTING THE COUNTERFACTUAL THINKING FOR NEGATIVE EVENTS SCALE (CTNES): TESTING ITS PSYCHOMETRIC PROPERTIES WITH A TURKISH SAMPLE

Curious interest of researchers in counterfactual thinking brought several approaches to measure this social psychology concept (Miller, Turnbull, & McFarland, 1990). It does not matter whether it is positive or negative; counterfactuals in our daily lives have measurable impacts. That is why researchers sought for possibilities of implementing counterfactual thinking strategies and methods in order to address research questions in psychological studies (Wenzlhuemer, 2009).

One way of doing is giving a scenario with a negative or positive outcome to participants, and asking them to list any 'what if' or 'if only' thoughts that could have been different or might have changed result of the given situation (Roese & Olson, 1993a; Roese & Olson, 1993b). Moreover, rather than encountering with a fictitious scenario, participants may also be instructed to list 'if only' thoughts about their past own life scenarios such as producing counterfactuals about their college decisions (Kray, George, Liljenquist, Galinsky, Tetlock, & Roese, 2010). Upon these instructions, participants initiate to produce any kinds of their counterfactuals about the story in the given scenario, and generally trained raters check out and name what kinds of counterfactual thoughts that the participants produced.

Another method also involves giving a scenario to participants so that they can write down their counterfactuals about it. However, in this method, researchers create various

experimental conditions for each specific counterfactual thinking style. For instance, after reading a negative crime scenario, Gambetti, Nori, Marinello, Zucchelli and Giusberti (2017) assigned the participants into two experimental conditions as upward and downward conditions. Then, they requested participants to list counterfactuals with better alternative outcomes in the former condition, and asked the latter group to write down counterfactuals with alternative worse outcomes compared to actual event.

A third approach to measure counterfactuals comprises including individuals read some vignettes and then they are asked to fill out some counterbalanced incident related Likert type or semantic scales that measure the counterfactual thoughts and emotional reactions of participants (Macrae, 1992; Macrae & Milne, 1992; Turley, Sanna, & Reiter, 1995). For example, Gul and Gul (2018) benefited from 'Counterfactual Inference Test' in which participants read several scenarios and rate the items about preventability of the events and the rumination and regret levels of actors in the scenarios.

The forth one involves using sequential paradigm to measure the effects of counterfactual thinking (Roese, Park, Smallman, & Gibson, 2008; Smallman & Roese, 2009). In other words, they measure the response latencies between counterfactual prime (implying with words) and the dependent variable in the related study.

These mentioned approaches to study counterfactual thinking above are the generally used methods, and absolutely there might be other approaches, as well. Nevertheless, Rye, Cahoon, Ali and Daftary (2008) stated that existing ways of measuring counterfactual thoughts have some limitations. These are: (1) difficulty in training raters and coding items, (2) mostly using artificial scenarios as negative event rather than using personally meaningful

scenarios, and (3) just measuring counterfactual thinking through open-ended questions rather than measuring frequency of having such thoughts. Based on these limitations, Rye et al. (2008) emphasized the need for a psychometrically sound measurement tool that can measure various types of counterfactual thinking following and reflecting retrospectively on a personally meaningful negative event, and it should also be sensitive to experimental manipulations. So as to meet these needs and to ease the measurement of counterfactual thinking in terms of administration and score, they developed a new Likert type measurement tool called Counterfactual Thinking for Negative Events Scale (CTNES).

Within the scope of scale development, Rye et al. (2008) asserted three hypotheses. Respectively, first they expected that exploratory factor analysis would bring out multiple factors based on the distinctive components of counterfactual thinking such as additive-subtractive, upward-downward and different referents (self-referent, other-referent, non-referent). Secondly, they hypothesized that the CTNES would be correlated with the dimensions of counterfactual thoughts produced by replies to an open-ended item like listing 'might have been' thoughts for a past negative event. Finally, they proposed that the CTNES would correlate the measures of depression, rumination, self-esteem and optimism-pessimism.

For testing these hypotheses, they reached 634 university students (female = 67%, male = 33%). As an initial process, the authors asked the participants to reflect on a negative event that affected them badly, and then write it down. Some of the generally expressed negative events consisted of loss of a beloved one, troubles with health issues and break downs and separation from loved ones.

The initial form of the CTNES totally included 30 items with a 5 point Likert type ranges between *never* to *very often*. These items were generated to measure different dimensions of counterfactual thinking mentioned above like upward-downward, additive-subtractive and referent direction. In addition to the developed scale, they administered a procedure of asking open-ended questions to participants that were adapted from Roese and Olson (1995) in order to check out the correlation of the CTNES with an already successfully used method. Moreover, to determine the construct validity, they administered affect and cognitive style measures including scales of depression, rumination, self-esteem and optimism-pessimism.

When they tested their hypotheses, first of all, the principal component analysis with Varimax rotation, initial pool of 30 items were reduced to 16 items after dealing with factors that had less than 1 eigenvalues and eliminating items with less than .40 Cronbach alpha scores. In accordance with their first hypothesis, their results revealed a multiple factor structure. Indeed, factor analysis elicited four factors including four items for each. These factors are respectively: non-referent downward with factor loadings between .78 and .87, other-referent upward loadings between .62 and .87, self-referent upward with .73 to .80 factor loading ranges, and non-referent upward that had loadings between .66 and .79. These four factors all together explained the 65% of the total variance, and their eigenvalues were between 2.38 and 2.86. Furthermore, in terms of reliability analyses, Cronbach alpha scores for the subscales of the CTNES changed between .75 and .86, and test-retest reliability scores were between .73 and .84.

As mentioned earlier above, to investigate the construct validity, self-referent upward, other-referent upward and non-referent downward subscales of the CTNES were positively

correlated with number of same types of counterfactuals that listed within open-ended questions. Moreover, while number of open-endedly responded other-referent upward counterfactual thoughts was associated positively with other-referent upward and non-referent upward subscales, it was negatively related to self-referent upward dimension of the CTNES. In addition, correlations of the CTNES with cognitive styles and affect variables were also supportive for the construct validity. They could not find a significant relationship between non-referent downward and depression or other cognitive style measures. On the other hand, in accordance with past research, both self-referent upward and non-referent upward were found out to be positively associated with pessimism, rumination and depression, and they were negatively correlated with self-esteem. Furthermore, other-referent upward type of counterfactual thinking was just significantly related to rumination positively.

Finally, to check whether the CTNES is also sensitive to experimental manipulations and for further examination of its validity, the authors of the scale carried out an experimental study, as well. To this end, participants in the Study 2 (experimental) were divided into self-caused, other-caused and fate experimental conditions. For example, participants in other-caused condition faced with an event in which someone else was responsible for its consequences. Therefore, individuals in this condition were expected to get higher scores on other-referent subscales of the CTNES. The participants in different conditions produced different types and numbers of counterfactuals that corresponds with related subscales of the CTNES. To illustrate, the participants in the self-caused condition scored significantly higher in self-referent upward subscale compared to participant scores from fate and other-caused conditions.

To sum up, the CTNES is a reliable and valid counterfactual thinking measurement tool that satisfies the need of a psychometrically sound scale for assessing several types of counterfactuals in response to personally meaningful past negative events. Even though the CTNES fills out the gap in the related literature, a much bigger gap exists in counterfactual studies in Turkey in which the term of counterfactual thinking has not been discovered yet. As a general critique, Henrich, Heine and Norenzayan (2010) underlined that most of the studies and experiments on human behavior in psychology discipline have been conducted in Western European and American cultures, which include the concept of counterfactual thinking, as well. Even though counterfactual thinking is prevalent across different cultures (Gilovich, Wang, Regan, & Nishina, 2003), some research findings showed a number of differences in Eastern culture compared to Western (Chen, Chiu, Roese, Tam, & Lau, 2006; Liu, 1985). In that sense, bringing a measurement tool will open the gate in front of exploring the relations, causes and effects of counterfactual thinking on human psyche in a Turkish sample, a collectivistic culture. That will hopefully contribute to cross-cultural understanding of the concept. Moreover, especially adapting the CTNES, an already tested reliable and valid scale, will make a contribution to increase the quality in this future exploration process.

2.1. Present Research

The aim of the present research is to adapt the Counterfactual Thinking for Negative Events Scale (CTNES) (Rye, Cahoon, Ali, & Daftary, 2008) to Turkish by examining its factor structure, verifying its applicability in a Turkish sample, and describing the psychometric properties of the CTNES in a Turkish sample. For determining the reliability of

the translated version, internal reliability and test-retest reliability were addressed. Finally for examining its validity, first discriminant validity was examined through the correlations among the subscales of the CTNES, and weak and/or moderate level correlations were expected. To establish Criterion validity, meaningful correlations of the CTNES with the variables in the original development process were expected. Its correlation with the trait of self-efficacy was investigated as well for further validity, which was mentioned as a limitation by Rye et al. (2008). However, the convergent validity was not investigated since how closely the CTNES is associated with other tool that measures the same construct were not tested.

2.2. Method of Study I

2.2.1. Participants

Totally 1127 university students participated in the Study 1 by using convenient sampling method. 40 (14 men) of them formed the sample for testing the language validity of the adapted scale. Moreover, sample of 574 (118 men, 275 women and 181 unknown) participants attended the study for examining factor structure (Exploratory Factor Analysis) of Turkish version of the Counterfactual Thinking for Negative Events Scale (CTNES). Finally, 171 men and 342 women (N = 513) received a package of measurement tools for confirming the factor structure of the CTNES and its relationships with other variables to test its construct validity.

2.2.2. Instruments

2.2.2.1. Demographic Information Form

Demographic information form was just given to get information about the gender of the participants, and it was also used to get information about the course and student ID of the students solely to detect students who will get right for receiving bonus point in exchange of participating the study (see Appendix A).

2.2.2.2. The Counterfactual Thinking for Negative Events Scale (CTNES)

This scale consists 16 items Likert type questions with 4 subscales as Non-referent Downward, Other-Referent Upward, Self-referent Upward, and Non-Referent Upward. It was originally developed by Rye et al. (2008) and found to be a reliable and valid measurement tool for measuring various types of counterfactual in response to a negative personally meaningful event in the past. Some sample items from the CTNES for each subscale are: '*I feel relieved when I think about how much worse things could have been*' (Non-referent downward), '*If another person (or other people) had not been so selfish, this whole mess could have been avoided*' (Other-referent upward), '*I think about how much better things could have been If I had not failed to take action*' (Self-referent upward), and 'I cannot stop thinking about how I wish things would have turned out' (None-referent upward). In this sample, the Cronbach's alpha scores for the subscales of the CTNES were respectively found as: .57 for non-referent downward, .83 for other-referent upward, .71 for self-referent upward, and .70 for non-referent upward counterfactual thinking. (see Appendix B).

2.2.2.3. The Short Version of Ruminative Response Scale (RRS)

This short version of Ruminative Response Scale (RRS) was formed by Treynor, Gonzalez and Nolen-Hoeksema (2003) by selecting the items with the highest item-total correlations with the total score from the original 22 items long version of the scale that developed by Nolen-Hoeksema and Morrow (1991). The RRS is a 4 points Likert type scale (*almost never* to *almost always*) has 10 items in which 5 of them measure brooding type rumination, and 5 of them measure reflective ruminative thinking. Participants respond to Likert type items that start with 'How frequently you…' Some sample items for brooding subscale are: '*Think 'what am I doing to deserve this?'*' and '*Think 'why do I have problems other people do not have?'*' Some example items for other subscale (reflection) are: '*Analyze your personality to try to understand why you are depressed*' and '*Go away by yourself and think about why you feel this way*'.

As Treyner et al. (2003) reported, the short version of RSS had a good internal reliability with Cronbach alpha score of .85, and perfectly correlated with long 22 items version of it (r = .90). More specifically, the Reflection factor had .72 Cronbach alpha score and .60 test-retest correlation while brooding subscale had also high inter-item reliability (Cronbach's a = .77) and good test-retest correlation (r = .62). Furthermore, Turkish adaptation of short version of the RSS was carried out by Erdur-Baker and Bugay (2010). In that sense, internal consistency coefficient (Cronbach alpha) scores for reflection subscale was .58, for brooding subscale was .58, and for total score for short version of the RSS was .72. The authors checked the convergent validity as well by examining the correlation between the RSS and psychological symptoms scale. The results validated the convergent validity with Pearson correlation coefficient score of .59, p = 00. In this sample, the Cronbach's alpha score

for total rumination score was .82; it was .72 for the reflection subscale; and .74 for the brooding subscale (see Appendix C).

2.2.2.4. Rosenberg Self-Esteem Scale (RSES)

Morris Rosenberg (1965) developed the Rosenberg Self Esteem Scale in order to measure self-esteem of individuals at a global level. This 4 points Likert type scale (*strongly agree* to *strongly disagree*) has one dimension that includes 10 items (5 positive and 5 negative items). As Rosenberg stated, the RSES had good internal consistency (r = .80) and enough test-retest reliability value (r = .85) with two weeks interval. Some sample items from the scale are: '*I feel that I have a number of good qualities*' and '*I feel I do not have much to be proud of*'. Adaptation of the scale to Turkish was carried out by Cuhadaroglu (1986). She reported the Cronbach alpha coefficient reliability score as .76. Moreover, test-retest reliability score was computed as .75 after reapplication of the scale following 4 week time period. Receiving higher scores from the scale indicate the greater level self-esteem. In the current study, the Cronbach's alpha score was .88 for the Rosenberg Self-Esteem Scale (see Appendix D).

2.2.2.5. Beck Depression Scale (BDS)

This 21 items self-report scale (Beck, 1961) aims to measure vegetative, motivational, cognitive and affective symptoms of depression. Based on the severity of depressive symptom, each item has four options (0 to 3), so the minimum and maximum total scores can range between 0 and 63 points. Getting higher scores on the scale indicate the increased level of depression in terms of severity. The BDS items address the depressive symptoms of

depressive mood, pessimism, sense of failure, feeling of dissatisfaction, feeling of guilt, uneasiness, social withdrawal, uncertainty, work inhibition, tiredness, poor appetite, losing weight, decrease in libido and crying jags.

Hisli (1989) conducted the adaptation studies of the BDS into Turkish. As she reported, the BDS was able to measure the depression of participants who scored 17 or more on the scale with 90% accuracy. For construct validity, Hisli (1989) also concluded that Pearson correlation was found as .63 between the BDS and depression scale of MMPI personality test. In the current study, the Cronbach's alpha score was found as .89 (see Appendix E).

2.2.2.6. The Life Orientation Test (LOT)

This 12 item and 4-points Likert type scale was developed by Scheier and Carver (1987) and adapted into Turkish by Aydın and Tezer (1991) in order to test the optimism level of adults. This 5 points Likert type scale (between *strongly disagree* to *strongly agree*) consists of 12 items that assess the optimism level of individuals. In each item, participants respond to four positively expressed, four negatively expressed and four filler items which are not included in scoring. After reverse coding of the negatively expressed items, the maximum total score that can be taken from the scale is 32, and the lowest score is 0. Higher scores mean higher level of optimism or more positive way of looking at life. In terms of reliability testing of the LOT in a Turkish sample, the four week interval test-retest coefficients value was found as .77. Moreover, for determining the validity, correlation between the LOT and Beck Depression scale was investigated with two different groups of university students. In both

cases, significant negative correlation was observed between the optimism and depression (respectively r = -.56 and r = -.45, p < .01) (Aydın & Tezer, 1991). Some example items for the LOT are: '*In uncertain times, I usually expect the best*' and '*If something goes wrong for me, it will*'. Therefore, it can be concluded that the LOT is a reliable and valid measurement tool for assessing optimism level of individuals. In the current study, the Cronbach's alpha score for the total LOT (optimism) was .78, and .77 was computed for pessimism (see Appendix F).

2.2.2.7. The General Self-Efficacy Scale (GSES)

The original version of the General Self-Efficacy Scale (GSES) composed of 30 items and 5 points Likert type (*disagree strongly* to *agree strongly*) is a measurement tool that was developed by Sherer, Maddux, Mercandante, Prentice-Dunn, Jacops and Rogers (1982). In this original version, 17 items measure general self-efficacy, 6 items measure social self-efficacy and other items are the filler items that are not included in scoring. As Scherer et al. (1982) noted down, Cronbach's alpha score for internal reliability was .86 in general self-efficacy subscale and .71 were computed for social self-efficacy subscale. They also examined the construct validity of the GSES by checking out the correlations of the GSES with self-esteem, locus of control, social desirability, social adjustment, and earlier success in areas of military, education and vocation.

Since the developers of the scale suggested to use and to score general self-efficacy and social self-efficacy subscales separately (Sherer & Adams, 1983), Yıldırım and İlhan (2010) solely adapted the GSES like used in another study by Magaletta and Oliver (1999). In

validity studies with a Turkish sample, significant correlation coefficients were revealed between the General Self Efficacy Scale and other criterion scales that measure depression, locus of control, trait anxiety, self-esteem and self-control and coping skills. For reliability analyses, the internal consistency coefficient (Cronbach's alpha) score for total scale was computed as .80, Guttman split-half coefficient for split half reliability was .77, and correlation coefficient (Pearson r) was .69 for test-retest reliability within 3-weeks' time interval (Yıldırım & İlhan, 2010). Some sample items among these 17 items are: '*I avoid facing difficulties*' and '*When unexpected problems occur I do not handle them well*'. In the current study, the Cronbach's alpha score for the GSES was .88 (see Appendix G).

2.2.3. Procedure

Since determining a need for a reliable and valid scale for a culture is crucial in order to start adaptation of a measurement tool to another language (Seçer, 2018), the initial step of study was to determine whether there is a need for adapting a scale in different language to Turkish. After reviewing the related literature, it was obvious that there is not even a single psychometrically sound measurement tool to measure counterfactual thinking of Turkish individuals. Thus, the Counterfactual Thinking for Negative Events Scale (Rye et al., 2008), an already tested reliable and valid scale, was decided to be adapted into Turkish.

Adaptation process got started with contacting the corresponding author of the CTNES original version who is Mark S. Rye, and he was asked for the required permission and materials so as to adapt their scale into Turkish. Moreover, before moving to any implementation processes, it was applied to ethic committee of Kafkas University, Kars, and

ethical approval was taken from there. After getting the permission, next step was the translation process of the CTNES English form. Team of 3 English language experts who are competent in both Turkish and English (from English Language Teaching department) translated the original items into Turkish separately. Following that, these three separate translations were numbered as Translation 1, 2 and 3.

These three translations were put under the each original items and instruction for implementing the CTNES, and they were sent to three academicians from psychology major who are competent in both Turkish and English. These three psychology experts were requested to evaluate the translations, and based on their evaluations they chose the best translation for each item in the CTNES, and they also wrote down their suggestions about the translation if they had any. Considering these feedback and suggestions, a single Turkish translation of the scale was reached. To check the accuracy of this translation, back translation from adapted language to original language must be done, and comparison of translation and back translation should be checked out (Şeker & Gençdoğan, 2006). Therefore, three other language experts from English Language and Literature department carried out the back translations independently. This allowed to compare former and latter translations, and enabled to see whether there are any big differences between the translations. As a result, translations were nearly the same, and there were no need for any arrangement.

Last step for completing the translation process was to examine the language validity with at least 30 participants who have good command of English and Turkish (Şeker & Gençdoğan, 2006; Seçer, 2018). For doing that, 40 senior university students from English Language and Literature department were given both the original and the translated form of the CTNES with a 1 week interval. Then, a correlational analysis was done to test the

language validity, and the Pearson correlation coefficient (Pearson's r) value was .88 that validates the language translation.

Next step was moving to data collection so that the reliability and validity analyses of the Turkish form the CTNES can be performed. Although the structure of the CTNES was already determined, in the current study, data was collected first from a sample for Exploratory Factor Analysis (EFA), and a second group of data collected from a different sample for Confirmatory Factor Analysis (CFA) to test the validity of structure taken from EFA. This is suggested for adaptation studies for avoiding problems rooted in language and cultural differences (Orcan, 2018). Within this scope, two questionnaire set was uploaded to the Google Forms, which is a tool that enables data collection from the participants online. A link on the Google Forms was created, and all questionnaire set was included in this link. The author/researcher collected the data from Dede Korkut Faculty of Education at Kafkas University and Psychology Department at Ankara Yıldırım Beyazıt University (AYBU) by sharing the link and inviting the university students to participate in the study. When the participants click the link online, they first encounter with informed consent form (Appendix H) which explains the information about the study and ensures the confidentiality of the information that they provide. Then, they confirmed their voluntary participation. Afterwards, the participants filled out questionnaires by one by. At the end, the participants were debriefed and thanked with a debriefing form. Finally, for test-retest reliability, the demographic information form and the CTNES were given to 50 of the participants again with a 3-weeks interval, and 35 of them returned.

2.2.4. Data Analysis

First of all, for determining the language validity of translated version of the CTNES, Pearson correlation was calculated between the scores of original CTNES and Turkish version of the CTNES. Then, for reliability of the whole CTNES and it subscales, the Cronbach's Alpha coefficients were computed. Moreover, in terms of test-retest reliability, Pearson correlations between Time 1 and Time 2 CTNES scores were calculated.

To explain the structure of the Turkish version of the CTNES, first an EFA was run, and the factor structure was also checked out by parallel analysis (O'Connor, 2000) for determining number of factors. After that, for investigating the structure obtained from the EFA, a CFA was conducted by using AMOS 23.0 program. Finally, Pearson correlations were calculated between the CTNES and other variables (depression, rumination, self-esteem, optimism and self-efficacy) in order to determine the construct validity. Except the CFA, all other analyses were carried by using the Statistical Package for Social Sciences (SPSS), version 22.0.

2.3. Results of the Study 1

2.3.1. Preliminary Analyses

Since the data was collected through the Google Forms in which participants were required to fill out all items, there was no missing data on the scale items. Moreover, no participant was excluded from the analyses since there were not any outliers that intervene strongly with the data analyses.

2.3.2. Explanatory factor analysis (EFA)

Like in the analysis of original Counterfactual Thinking for Negative Events Scale (CTNES), a principal components analysis with Varimax rotation with Kaiser Normalization on the 16 items of the scale by suppressing coefficient values less than .40. First, to see whether the factor analysis can be applied to the current data, the correlation matrix was checked out. To this end, Kaiser-Meyer-Olkin (KMO) sampling adequacy test was equal to .78, and Bartlett's Test of sphericity value [$X^{2}_{(120)}$ = 2276, 177, $p < 0.01$] was significant. These values enable to apply factor analysis to the data since Bartlett's chi-square is significant at probability level of .05, and the KMO value is higher than .60 (Tabachnick & Fidell, 2007).

Continuing with the EFA, the principal component analysis yielded four factors with eigenvalues higher than 1, which explained the 55% of the total variance. However, since the Item 1 was loaded on two factors at the same time (especially highly loaded on an unexpected factor), it was not included in the further analysis. Therefore, the EFA was rerun with the remaining 15 items. New KMO value was .777, and the new Bartlett's chi-square was equal to $X^{2}_{(105)}$ = 2165,887, $p < .001$, which implies the appropriateness for running factor analysis. Moreover, new set of items again yielded 4 factors with eigenvalues higher than 1 (from 1.20 to 3.55), which explained the 57% of the total variance. This total variance was explained respectively by Factor 1 with 23.7%, Factor 2 with 15.6 %, Factor 3 with 10.6 %, and Factor 4 with 7.5%. Additionally, scree plot and results of parallel analysis of principal components calculated both by Velicer's minimum average partial (MAP) test (O'Connor, 2000) and by Jamovi software (version 1.1) supported this 4 – factor solution, as well (see Figure 2).

Out of 15 items, each factor consists of 4 items except the first factor with 3 items. Factor loadings of the first factor (Non-referent Downward) were between .666 (*I feel relieved when I think about how much worse things could have been*) and .794 (*I count my blessings when I think about how much worse things could have been*). For the Factor 2 (Other-referent Upward), factor loadings interchange between .723 (*If only another person/or other people had spoken up at the time, the situation would have never happened*) and .866 (*If another person/or other people had not been so inconsiderate, things would have been better*). The third factor called Self-referent Upward had factor loadings between .592 (*I think about how much better things would have been if I had acted differently*) and .816 (*If only I had listened to my friends and/or family, things would have turned out better*). Finally, factor loadings of the fourth and the last factor (Non-referent Upward) changed between .661 (*Although the bad situation was nobody's fault, I think about how things could have turned out better*) and .751 (*I think about how much better things could have been*). Thus, despite the small differences in factor loadings compared to the original CTNES, Turkish version of it revealed same factor structure. As results indicate, 4-factor solution with 15 items seems the most applicable within Turkish context (see Table 1).

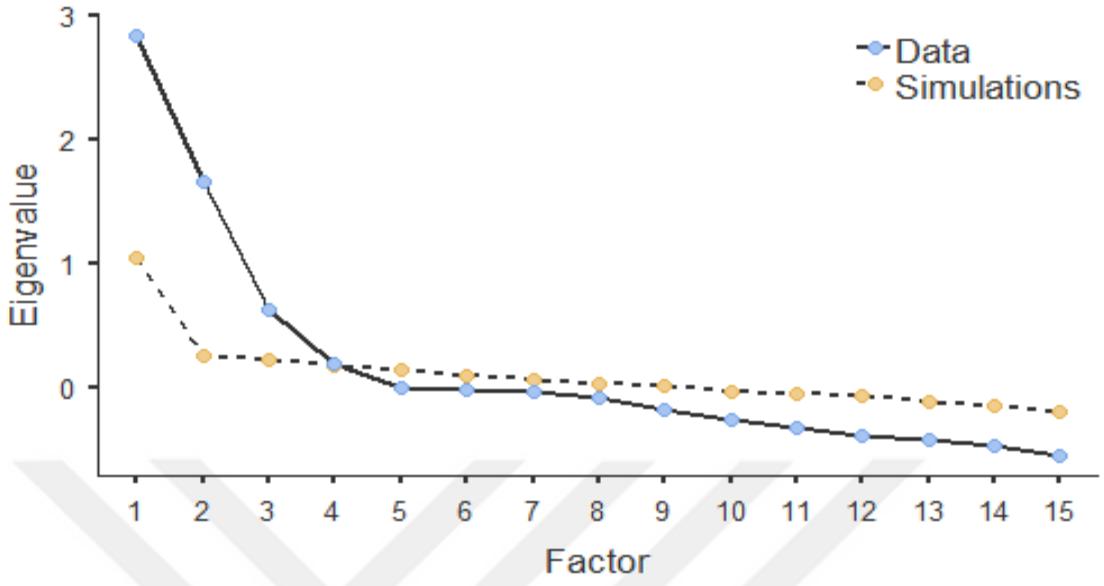


Figure 2. Scree plot of factor structure for the CTNES-Turkish.

Table 1. Principal components analysis for the Turkish version of CTNES

Item	Factor			
	1	2	3	4
1) I feel relieved when I think about how much worse things could have been.	.72			
2) I count my blessings when I think about how much worse things could have been	.79			
3) Although what happened was negative, it clearly could have been a lot worse.	.67			
4) If only another person (or other people) had not been so selfish, this whole mess could have been avoided.		.80		
5) If another person (or other people) had not been so inconsiderate, things would have been better.		.87		
6) If only other people (or another person) would have acted differently, this situation would have never happened.		.83		

7) If only another person (or other people) had spoken up at the time, the situation would have turned out better.	.72	
8) I think about how much better things would have been if I had acted differently.	.59	
9) I wish I had a time machine so I could just take back something I said or did.	.67	
10) If only I had listened to my friends and/or family, things would have turned out better.	.82	
11) I think about how much better things could have been if I had not failed to take action.	.60	
12) I feel sad when I think about how much better things could have been.		.66
13) I think about how much better things could have been.		.75
14) Although the bad situation was nobody's fault, I think about how things could have turned out better.		.66
15) I cannot stop thinking about how I wish things would have turned out.		.70

Note. Extraction method: Principal components analysis. Rotation method: Varimax with Kaiser normalization.

Factor 1: Non-referent Downward.

Factor 2: Other-referent Upward.

Factor 3: Self-referent Upward.

Factor 4: Non-referent Upward

2.3.3. Correlations among the CTNES Subscales

The Pearson correlations among the CTNES subscales are presented under Table 2. The correlation values change from .024 (between *Non-referent Downward* and *Non-referent Upward)* to .484 (between *Self-referent Upward* and *Non-referent Upward)*. These weak

and/or moderate level correlations among the CTNES subscales point out the good discriminant validity of the scale.

Table 2. Counterfactual Thinking for Negative Events (CTNES) Subscale Correlations (N=574).

CTNES Subscales	Non-referent Downward	Other-Referent Upward	Self-referent Upward	Non-referent Upward
Non-referent Downward	-			
Other-Referent Upward	-.061	-		
Self-referent Upward	.105*	.168*	-	
Non-referent Upward	.024	.194**	.484**	-

** Correlation is significant at the .01 level (2-tailed)

* Correlation is significant at the .05 level (2-tailed)

2.3.4. The CTNES Means, Standard Deviations

The mean and standard deviation scores were calculated (see Table 3). While the highest means score belongs to the *other-referent upward* subscale (M = 14.79, SD = 3.53), participants produce the lowest number of counterfactual thinking as *non-referent downward* (M = 9.98, SD = 2.43). However, there was not much difference in eliciting *other-referent* (M = 14.79, SD = 3.53), *self-referent* (M = 13.01, SD = 3.35), and *non-referent* (M = 13.46, SD = 3.19) upward counterfactual thoughts.

2.3.5. The CTNES' Internal Consistency and Test-Retest Reliability Analysis

So as to determine the reliability of the CTNES' subscales (it does not have total score), their internal consistency reliability with Cronbach's alpha coefficient values and test-retest reliability were computed (see Table 3). Only the non-referent downward Cronbach's alpha value (α = .57) remained under .70, so its internal consistency is questionable. Other subscales reached the acceptable Cronbach's alpha values that are .83 for other-referent upward, .71 for self-referent upward and .70 for non-referent upward subscales. Nevertheless, it is worth noting that α value is very sensitive to number of items under a latent variable. Therefore, the questionable alpha score was likely to be caused by this situation.

For the test-retest reliability, the Pearson correlation values yielded significant correlations between Time 1 and Time 2 measurements (N = 35) with a 3-weeks interval. The correlation values range between .49 (*Non-referent Upward*) and .62 (*Other-referent Upward*) (see Table 3).

Table 3. Means, Standard Deviations, and Test-Retest Reliabilities of the CTNES

CTNES Subscales	*M* (*N*= 574)	*SD* (*N*= 574)	Coefficient alpha reliability	Test-retest *r* (*N*= 35)
Non-referent	9.98	2.43	.57	.564**

Downward				
Other-Referent Upward	14.79	3.53	.83	.622**
Self-referent Upward	13.01	3.35	.71	.508**
Non-referent Upward	13.46	3.19	.70 (.698)	.487**

** Correlation is significant at the .01 level (2-tailed)

2.3.6. Confirmatory Factor Analysis

In order to investigate the Counterfactual Thinking for Negative Events Scale (CTNES) to see how well the measured variables represent the number of constructs, confirmatory factor analysis (CFA) was run by using Amos software (Version 24.0) program (Arbuckle, 2014). Previous 4-factor model with 15 items produced by the EFA was tested. The initial results showed that the scales' confirmatory factor analysis for four factors structure fit indexes, it was found out as χ^2 (84, N =513) = 206.627, p < .001, GFI = .950, AGFI = .929, CFI = .942, RMSEA = .053. Furthermore, standardized factor loadings of all items in relation to their latent variables were significant, and they range from .54 to .84. As a result, in evaluation of the model fit, values obtained from the CFA analysis are satisfactory to confirm the four-factor model for the Turkish version of the CTNES. In Table 4, the CTNES's Fit Indexes are indicated. In Figure 3, confirmatory factor analysis results can be seen.

Table 4. Fit Indexes of Counterfactual Thinking for Negative Thinking Scale

		Fit Index	
Fit Index	First Model Fit Index	Acceptable	Good/Excellent
X^2/df	206.627	$0<X^2/df<5$	$0<X^2/df<3$
RMSEA	.053	0,00≤ RMSEA≤0,08	0,00≤ RMSEA≤0,05
AGFI	.929	0,90≤AGFI≤1,0	0,95≤AGFI≤1,0
GFI	.950	0,90≤GFI≤1,0	0,95≤GFI≤1,0
CFI	.942	0,90≤CFI≤1,0	0,95≤CFI≤1,0

Note. RMSEA: Root Mean Square Error of Approximation, AGFI: Adjustment Goodness of Fit Index, GFI: Goodness of Fit Index, CFI: Confirmatory Fit Index.

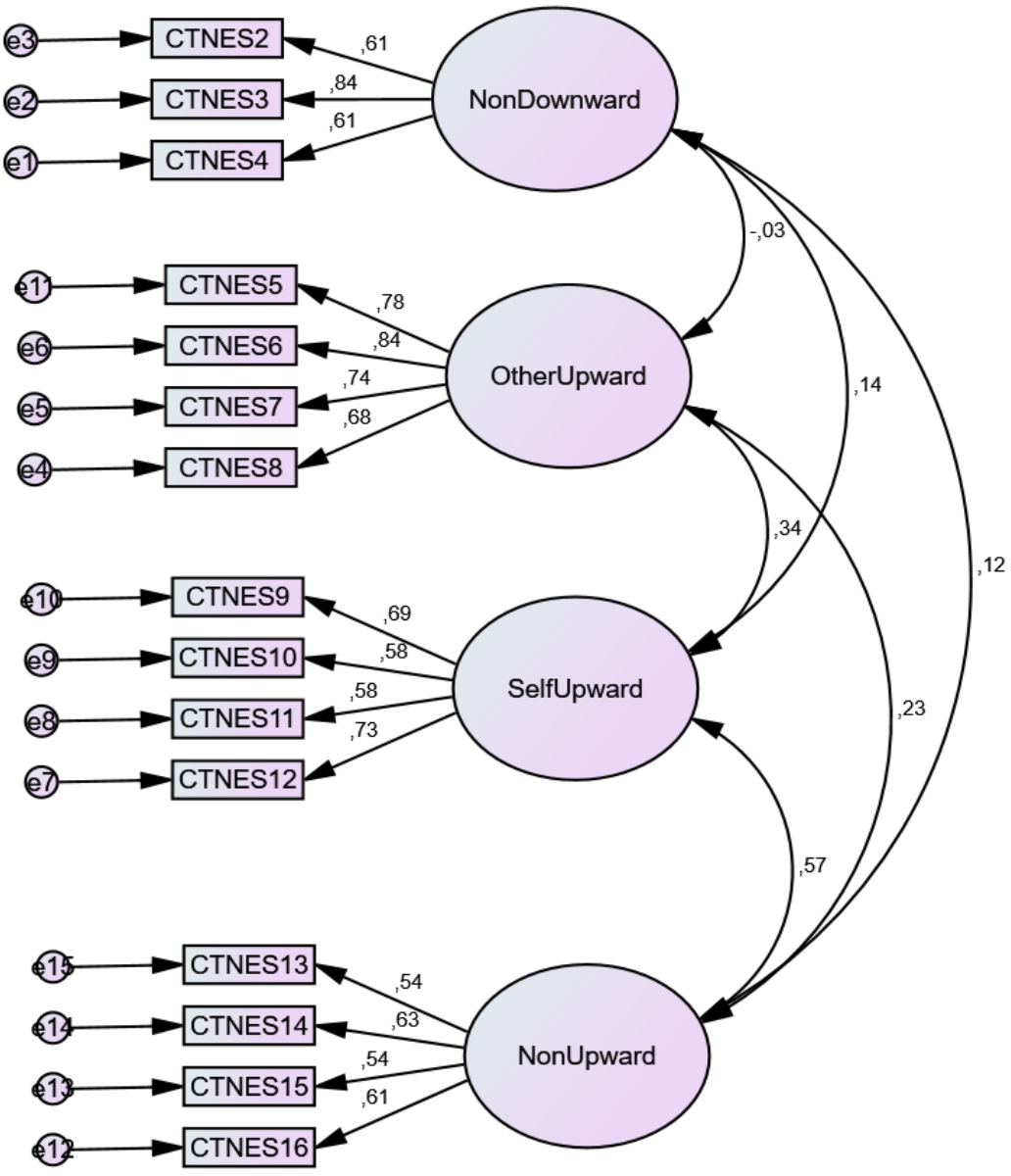


Figure 3. First order multiple factor Confirmatory Factor Analysis (CFA) of the Counterfactual Thinking for Negative Events Scale.

2.3.7. Correlations with Other Measures

The criterion validity (a sub-type of construct validity) was investigated by computing the Pearson correlation coefficients between the CTNES subscales and depression, self-efficacy, self-esteem, optimism-pessimism, total rumination score, and subscales of rumination which are brooding and reflection (see Table 5).

First of all, whilst non-referent downward counterfactual was significantly and negatively correlated with *depression* (r = -.17, p < .01), it was positively correlated with *optimism* (r = .17, p < .01). Down to the last detail, other-referent upward counterfactuals had positive correlations with *rumination* (r = .23, p < .01), *reflection* (r = .20, p < .01), *brooding* (r = .21, p < .01), *depression* (r = .22, p < .01), and *pessimism* (r = .11, p < .05), but negatively correlated with *optimism* (r = -.12, p < .01), *self-esteem* (r = -.12, p < .01), and *self-efficacy* (r = -.10, p < .01).

For the self-referent upward subscale, it is positively related to *rumination* (r = .44, p < .01), *reflection* (r = .31, p < .01), *brooding* (r = .47, p < .01), *depression* (r = .32, p < .01), and *pessimism* (r = .23, p < .01), and negatively related to *optimism* (r = -.21, p < .01), *self-esteem* (r = -.21, p < .01), and *self-efficacy* (r = -.14, p < .01).

Considering the non-referent upward counterfactual, it had positive correlations with *rumination* (r = .45, p < .01), *reflection* (r = .33, p < .01), *brooding* (r = .47, p < .01), *depression* (r = .36, p < .01), and *pessimism* (r = .31, p < .01), but negatively correlated with *optimism* (r = -.30, p < .01), *self-esteem* (r = -.25, p < .01), and *self-efficacy* (r = -.25, p < .01).

Consequently, in terms of the three kinds of upward subscales, despite the differences in correlation coefficients, all of them had positive and significant correlations with

rumination, reflection, brooding, depression, and pessimism; and they were negatively correlated with optimism, self-esteem and self-efficacy. All these results have been discussed in the discussion part of the Study 1.

Table 5. Correlations of the CTNES subscales with rumination, brooding, reflection, depression, self-esteem, self-efficacy, and optimism-pessimism

Variables	Non-referent Downward	Other-Referent Upward	Self-Referent Upward	Non-Referent Upward
Rumination	.058	.228**	.441**	.450**
Reflection	.077	.200**	.315**	.331**
Brooding	.028	.206**	.468**	.469**
Depression	-.167**	.221**	.317**	.362**
Optimism	.173**	-.119**	-.212**	-.297**
Pessimism	-.068	.113*	.227**	.307**
Self-Esteem	.081	-.120**	-.212**	-.255**
Self-Efficacy	.077	-.101**	-.136**	-.247**

** Correlation is significant at the .01 level (2-tailed)

* Correlation is significant at the .05 level (2-tailed)

2.4. Discussion of Study 1

Despite the fact that the concept of counterfactual thinking has been measured by various methods, there was not any tool to directly measure various dimensions of this concept until the CTNES was developed by Rye et al. (2008). Therefore, the need of a measurement tool for measuring different types of counterfactual thinking brought this dissertation to start with adapting a psychometrically sound counterfactual thought scale (the CTNES) into Turkish. Indeed, a valid and reliable assessment tool is imperative for digging out counterfactual thoughts which is a new research topic in Turkey.

In scope of this purpose, Exploratory Factor Analysis (EFA) yielded the same 4-factor structure with the original scale with adequate values. Only the first item did no load on the other-referent downward subscale as expected and excluded from further analysis. Although the translation process was carried out precisely, this may be caused by a mistake in translation. Especially it is highly possible that the item 1 could not be translated in a culturally meaningful and sensitive way. On the other hand, internal consistency reliability analysis (Cronbach's alpha), and calculations of Pearson correlation coefficient values for test-retest reliability indicated that the CTNES is a reliable scale to use. Additionally, Confirmatory Factor Analysis (CFA) was performed to confirm this factor structure, and results revealed adequate model fit for the data, which demonstrates the initial evidence for the construct validity. Moreover, correlations among the subscales of the CTNES, and their relations with other cognitive style and negative affect variables supported the construct validity of the current scale, as well. All in all, the Study 1 showed that Turkish version of the CTNES is a reliable and valid tool with its adequate psychometric aspects in assessment of various types of counterfactual thinking.

To the best knowledge, the current study is the first to examine counterfactual thinking with relation to affect and cognitive style measures including depression, rumination, optimism-pessimism and self-esteem in Turkish culture. Moreover, as Rye et al. (2008) suggested as a future direction, the latent relationship between the CTNES and self-efficacy was questioned for the first time by the help of this study. All these relationships are discussed below.

2.4.1. Correlations of Counterfactuals

In this subheading how different direction of counterfactuals were related to affect and cognitive style variables are going to be discussed. In accordance with the hypotheses, downward counterfactual was positively and significantly correlated with optimism, and negatively with depression. This finding strengthens the past research findings that downward counterfactuals hold an affect regulation role or affective functioning role (Markman, McMullen, Elizaga, & Mizoguchi, 2006; Roese & Olson, 1995; White & Lehman, 2005). Notably, despite the past research findings about downward counterfactuals' role in mood improvement, surprisingly Rye et al. (2008) did not find a significant relationship between downward counterfactual and depression, and they suggested to conduct further research. Thus, this finding in the current study is important since it sheds light on this controversy. Finally, on downward subscale of the CTNES, although the non-referent downward (only downward dimension in CTNES) also had tendency to positively correlate with self-esteem and self-efficacy, it was not at the significant level. This may also be pointed as those downward counterfactuals do not have much effect on preparative function of counterfactual thinking.

Again consistent with the hypotheses, overall, all upward directed counterfactuals positively and significantly associated with rumination and its dimensions, depression, and pessimism, and negatively correlated with self-esteem, self-efficacy, and optimism. In detail, firstly, several research findings identified the undesired role of upward counterfactuals on rumination and depression (Broomhall & Phillips, 2018; for a review see Broomhall, Phillips, Hine, & Loi, 2017; Cheung, Wildschut, & Sedikides, 2018; Kocovski et al., 2005; Prokopcavoka & Ruiselova, 2008). On the other hand, to the best of our knowledge, this present study is the first to examine the counterfactual thinking with subtypes of rumination which are reflection and brooding. Whilst reflection is defined as purposeful overthinking for problem solving for decreasing the depressive symptoms, brooding refers to passive dwelling on issues without action (Treynor, Gonzalez, & Nolen-Hoeksema, 2003). That is to say, brooding, but not reflection, plays a predictor role for depressive symptoms (Schoofs, Hermans, & Raes, 2010). Thus, it is valuable to differentiate these two subtypes in order to understand the triangle of counterfactual thinking, rumination and depression.

As the results of Study 1 predicated, all upward counterfactuals are significantly and positively related to both reflection and brooding, but they were associated with brooding more strongly. What can be inferred from this is that; relation with reflection of upward counterfactuals indicates the facilitator role of these counterfactuals in improvement of performance and problem solving. However, upward counterfactual and brooding relationship reflects the possible dark side of upward counterfactuals, which highly correlates with depressive symptoms.

Present findings for the relationship of upward subscales with future cognitive expectations, positive correlation with pessimism and negative correlation with optimism, are

also in line with past research findings (Barnett & Martinez, 2015; Sanna et al., 2006). For instance, Sanna (1998) discovered that optimist participants are more likely to react to mood manipulations with downward counterfactuals that help mood reparation. Also, del Valle and Mateos (2008) explored that especially the dispositional pessimist individuals tend to produce more upward counterfactuals. In short, in predicting future, it might be concluded that people with downward counterfactual thoughts are more optimistic while others with upward counterfactuals are more prone to being pessimistic.

Not downward but upward counterfactuals were also found to be negatively related to self-esteem and self-efficacy at significant levels. It is worth noting that the current study is the first to investigate the self-efficacy and counterfactual thinking interaction in a correlational study by means of the CTNES. Firstly, in terms of self-esteem, upward counterfactuals and self-esteem relationship can be both in positive and negative direction based on the situation. For example, there are studies that connect upward counterfactuals with decreased self-esteem (Sanna et al., 1999; Sanna et al., 1998). Similarly, Rye et al. (2008) found negative correlations between self-referent and other-referent upward subscales of the CTNES and self-esteem. However, McCrea (2008) found out that upward counterfactual thinking predicts increased self-esteem when individuals find an excuse for a negative event. These different results thereby imply a controversy about whether upward counterfactuals produce positive or negative affect. Actually, Reflection and Evaluation Model (Markman & McMullen, 2003) could be an answer for this controversial issue. Based on this model, Markman, McMullen, and Elizaga (2008) concluded that experiencing upward counterfactuals with evaluating a situation (e.g., I could not pass the exam, but I could.) elicits negative affect,

but upward counterfactuals by reflecting on the situation (e.g., I was almost achieving the exam.) produces positive affect.

After all, it can be summarized that upward counterfactuals may contribute to better self-esteem when people reflect on their experiences by perceiving the better alternatives as chances to do better. However, correlational studies like this current study appears to be measuring the upward counterfactual thoughts of people while they are mentally simulating their events on evaluation mode, and this may be the reason behind why upward subscales of the CTNES were negatively correlated with self-esteem.

Like self-esteem, self-efficacy was negatively and significantly associated with upward subscales of the CTNES, and it did not have a significant relation with downward subscale. The research on this relationship is limited. In the related literature, first study (experimental) on effect of counterfactuals on self-efficacy revealed that upward counterfactual increases the level of self-efficacy compared to downward counterfactuals (Tal-Or, Boninger, & Gleicher, 2004). Furthermore, not directly on self-efficacy, but a relative concept called perception of control was studied by McMullen, Markman and Gavanski (1995). They reached the end that participants with upward counterfactuals reported to perceive having higher sense of control on a target situation.

The contradictive findings between early experimental study findings and the current correlational findings are possibly caused by suggested reason in self-esteem studies mentioned above. In experimental study of Tal-Or et al. (2004), participants counterfactually thought about their past mistakes in an exam, and they reflected on their efficacy to succeed in a similar future exam rather than just evaluating their negative situations. Similarly, McMullen

et al. (1995) underlined that participants with upward counterfactuals had higher perceived control when the counterfactual thoughts are plausible. To conclude, if people are aware of a chance to experience a similar event to their past negative event, they are likely to come up with reflective counterfactuals that positively contribute to their self-efficacy and self-esteem. However, during the direct measurement of counterfactuals with the CTNES, it looks like that the CTNES measures the mental simulations of individuals counterfactuals in evaluation mode rather than reflective.

CHAPTER III

STUDY II:

FUNCTIONALITY OF COUNTERFACTUALS IN INTERPERSONAL RELATIONSHIPS

Conflicts are inevitable parts of both satisfying and dissatisfying relations. Although conflicts are usual parts of daily life; hostile, negative and nonconstructive behaviors in these conflicts lead to harmful psychological outcomes such as psychological distress, decreased quality and satisfaction in relationships, depression, higher somatic symptoms and so on (Aloia & Solomon, 2015; Hammen, 2003; Frone, 2000; Rehman et al., 2011). In that sense, discovering factors for preventing toxic behaviors that are detrimental to interpersonal relationships, human psyche, and the society in return is crucial. In that sense, current study suggests that adaptive functionality of counterfactual thinking may facilitate people to fix their damaged close relationships, and to avoid having future unhealthy conflicts by learning from their past interpersonal conflicts.

In accordance with the content-specific pathway of functional theory of counterfactual thinking, especially the self-upward type of counterfactuals is expected to serve this functional role compared to other types of counterfactuals. Upward directed counterfactuals, particularly the self-upward ones, make individuals to attribute the responsibility to themselves, and they also bring the negative social emotions like blame, guilt and regret into light (Branscombe et al., 2010; Leith & Bumeister, 1998; Mandel & Dhami, 2005). Although these negative emotions might be harmful to well-being of individuals, they possess a motivational functioning that may help people to take actions. For example, regret leads people to take the

blame on the self, and it motivates them to take reparative actions for fixing damaged relationships (Summerville & Buchanan, 2014). Likewise, guilt is also a socially motivated emotion that enables readiness for individuals to change their behavior and take reparative intentions (Dahl, Honea, & Manchanda, 2005; Rodriguez, Young, Neighbors, Campbell, & Lu, 2015). Considering this information above, these social emotions may have mediator roles that might explain the possible relationship between counterfactual thinking and taking reparative intensions in interpersonal relationships.

Among these social and cognitive emotions, it is already known that upward counterfactuals have strong effects on blame (Branscombe, Owen, Garstka, & Coleman, 1996). On the other hand, although upward counterfactuals, especially the self-upward, influences other self-focused emotions of guilt and regret, an earlier research found that guilt results from the *interpersonal* harm, but regret stems from the harm to self or as a consequence of *intrapersonal* negative events (Berndsen, van der Pligt, Doosje, & Manstead, 2004). That is why; Mandel and Dhami (2005) suggested as a further research that self-caused counterfactuals with negative intrapersonal consequences should experience regret while self-caused counterfactuals with interpersonal negative impacts should feel guilt. The current study is going to seek an answer for this research question, as well.

Additionally, participants in the Study 2 are going to recall and write down their past negative experiences in interpersonal relations. This past negative event must be emotionally stimulus for the participants. Otherwise, it would not be rational to measure what emotions this event reveals to them. Emotional arousals intertwine to vital emotions, and they are the essential parts of emotions (Zillmann, 2008). Emotion itself is the reaction to stimuli with components of physiological changes, action tendency, and subjective experience (Gross &

Thompson, 2007). Moreover, an emotionally charged stimulus produces more physiological fluctuations (Bergstrom, 2014). Thus, it can be said that existence of emotions is linked to the existence of physiological changes. Therefore, if the participants recall a negative experience, this must cause some physiological changes in their bodies. That is why prior to asking about negative emotions for their past negative events, checking their physiological reactions to these events may give clue about whether they actually recalled emotionally meaningful events.

Lack of an emotionally arousal event would restrain the Study 2 from testing its main hypothesis, which is that counterfactuals will enable learning from past negative events to fix tomorrow's problems, and negative emotions explain this connection. In that sense, rather than subjective ratings, using objective measures for measuring physiological arousal may safely enable to determine whether the participants recalled emotionally stimulus events.

The Galvanic Skin Response (GSR) may help objective testing of this issue. Galvanic Skin Response (GSR), also called electro-dermal activity (EDA) (Boucsein, 1992), is a psychophysiological tool to measure the fluctuations within the electro-dermal activity of the body that is managed by autonomic nervous system. Emotional arousals of people can show changes as response different environmental situations. This arousal of autonomic nervous system prompts the sweat glands for producing more sweat, and this raises the skin conductivity in return (Westerink, Van Den Broek, Schut, Van Herk, & Tuinenbreijer, 2008). Thus, increased fluctuations through the sweat glance indicate the increased emotional arousal.

The GSR is a well-known technique to detect the physiological signals that used in many studies (Ayata, Yaslan, & Kamasak, 2017). For example, Anderson, Yamaguchi, Grabski, and Lacka (2006) used the GSR for measuring sympathetic arousals to emotional scenes, and revealed that physiological arousal enables better episodic memory with increased emotional reminiscences. Physiological arousals measured by the GSR were effectively used to determine the way about the expression of emotional experiences in another study (Westerink et al., 2008). As a final example, the GSR data was satisfactorily utilized to detect emotion, and suggested that physiological arousal indicates the existences of emotional status (Setyohadi, Kusrohmaniah, Gunawan, Pranowo, & Prabuwono, 2018). As a result, the GSR was shown to be an effective tool to measure the emotional arousals.

In all, the Study 2 is going to remind past crises in interpersonal relations. As suggested above, through content-specific pathway, cognitive function of self-upward counterfactual thinking by facilitating learning and related negative emotions like blame, regret, and guilt may enable people to turn crisis in interpersonal relationships into opportunities for improving the quality of their relationships. In accordance with that, the Study 2 (experimental) of this thesis tries to investigate this hypothesis so that it can be understood whether functionality of counterfactuals may be generalized to social relationships.

In line with this purpose, the hypotheses of the Study 2 were:

1) Dependent variables of the study (negative emotions and reparative intentions) will be significantly correlated with each other.

2) There will be significant differences across counterfactual types (self-upward, self-downward, other-upward, and other-downward) in terms of expected reparative intentions from others.

3) There will be significant differences across counterfactual types (Self-upward, self-downward, other-upward, and other-downward) in terms of self-related reparative intentions.

4) There will be significant differences in dependent variables of blame, guilt, regret, and reparative intentions among the experimental groups (self-upward, self-downward, other-upward, and other-downward).

a) Blame levels of participants in self-upward condition are expected to be significantly higher than other groups.

b) Participants in self-upward condition will significantly differ from other experimental groups in terms of guilt levels.

c) Self-upward thinking is expected to lead individuals to feel more regret compared to other counterfactual types.

5) Social negative emotions of blame, guilt, and regret will have mediator roles between the self-upward counterfactual thinking and reparative intentions relationship.

Hypotheses of the Study 2 related to Galvanic Skin Response Levels are:

1) Baseline GSR means on resting condition will be lower than the baseline GSR means of writing neutral event condition.

2) GSR means of imagining and writing negative event measurements will be significantly higher than the baseline GSR means of resting and writing neutral event measurements.

3.1. Method of the Study 2

3.1.1. Participants

In the Study 2, initially 121 university students were recruited. However, 11 of them were excluded since they could not follow the instructions of the experimental process (not producing the required counterfactual type of their experimental condition). At the end, a total of 110 participants (95 females) attended the Study 2 from department of Psychology at Ankara Yıldırım Beyazıt University (AYBU) through convenient sampling method. Participants involved in the study on voluntary basis, but extra credit for their registered courses was provided as an incentive for their participation in the study. They were all given informed consent form (Appendix H) before the study got started, and ethical permissions had been taken from the Ethical Committee of Ankara Yıldırım Beyazıt University (AYBU). Age range of the participants changed between 18 and 29 (M = 20.63, SD = 1.89).

3.1.2. Materials

3.1.2.1. Demographic Form

At the end of the study, a short demographic form sheet was given to the participants. The form solely included questions about age and gender.

3.1.2.2. Measuring Blame, Guilt and Regret

To determine for whom the concepts of regret, guilt and blame are relevant, participants will be responding some self-report items. For measuring blame, a slider scale

adapted from Epstude and Jonas (2015) was used. Participants was asked (a) who is to blame for occurrence of this negative event on a slider scale from 1(*totally another person*) to 100 (*only me).* For measuring their regret and guilt levels, non-numerical 11-point scales adapted from Mandel and Dhami (2005) was used. Respectively, participants was answering (b) how much guilt they feel for this negative event (*not at all to extremely*), and (c) how much regretful they feel for this negative event (*not at all to extremely*).

3.1.2.3. Galvanic Skin Response (GSR)

In the current study, GSR data was used to check whether the participants remembered a past event that creates significantly enhanced emotional arousals. GSR signals in the current study were measured by Captiv T-Sens Skin Conductance wireless module and by software of Captiv L7000 (TEA Group, France).

3.1.2.4. Reparative Intentions

For measuring self-related reparative intentions for wrongdoings that the participants did in their interpersonal relationships, same 7-points Likert type (*strongly disagree to strongly agree*) items were taken from Rotella and Richeson (2013). Some of these items are 'I will apologize for my actions' and 'I want to make up for the things I did.'. Moreover, 4 more items for measuring reparative intentions were written by the researcher such as 'I want to make an effort for not to experience a similar situation' and 'I will endeavor to spend more and better time with the other person'. At the end, participants received a self-oriented reparative intentions questionnaire with 6-items.

Reversed versions of these 6 items were also included in the scale for measuring the expected reparative intentions from the opposite person(s) in the interpersonal interaction that

takes place in personally meaningful past event of participants. For instance, rather than only asking ‘I will apologize for my actions’, questions like ‘I expect other person to apologize for this negative event’ were directed, as well.

3.1.3. Procedure

To inform and invite the university students at AYBU about the Study 2, a flyer was prepared and uploaded to social media account of Social and Cognitive Laboratory (SOBILAB) of Psychology Department at AYBU. The invitation was also made through announcements in the classrooms, and lab appointments were made. Before participants were taken to lab by one by to collect data, they will be randomly assigned to one of the four experimental conditions in the experimental design of Focus (self vs. other referent) x Direction (upward vs. downward). After the participants were welcomed and seated on the computer, two sensors of the GSR were placed at index and middle fingers of their non-dominant hands. Then, first GSR recording for one minute long was done as a baseline measurement in a waiting position. Following that, the participants were requested to read and write a short neutral text that was unrelated to the context. The text was about cleanliness of the Japan and the secret behind how this country keeps its cleanliness. While writing this neutral text, participants’ GSR levels were recorded as the second baseline measurement in writing mode. This neutral text (in Turkish) is:

> *Japonya’yı ilk defa ziyaret eden turistler ülkenin temizliği karşısında şok olmaktadırlar. Sokaklarda çöp kovaları ve temizlikçilerin olmadığını fark edince ‘Japonya nasıl bu kadar temiz kalabiliyor?' diye sormaya başlarlar. Bu sorunun cevabı*

ise Japon öğrencilerin eğitim hayatları boyunca günlük olarak çevre temizliği yapmalarında saklıdır.

Following the baseline recordings, in both self and other referent groups, participants were asked to remember a recent negative event that led to an interpersonal conflict which affected him/her badly. In self-referent condition, recognition of the event was self-caused. In other words, the participants in self-referent group were instructed as:

Intentionally or unintentionally people may hurt each other in their social relationships. In other words, people experience problems and conflicts within their daily interactions with other people around them. These conflicts may result in frustrations, negative feelings and damage to people's connections with others. Now, please think of a recent negative event or your wrongdoing in which your own actions significantly caused to outcome. Take a few moments to vividly imagine what happened during the event and how bad this event affected you.

In other-referent groups, recognition of a negative event was also required from the participants with the same instruction in self-referent group except that wrongdoing would be done by another person or other people rather than the participant himself. After remembering their past events in interpersonal relations, they were instructed to take a few moments to vividly imagine what happened during the event and how bad this event affected them. During this imagination, the third GSR recording was done in order to see whether this process influences the emotional arousals of the participants. After that, participants wrote what they remembered down. While doing that, the fourth and the last GSR levels of the participant were recorded. Therefore, GSR recording was carried out four times in total so as to observe the

changes in phasic activity with inclines and declines between baseline (waiting) and imagining the negative event, and between baseline (writing neutral event) and writing the past negative event.

Next phase of the data collection was to produce counterfactuals that was adapted from Roese and Olson (1993; also see Epstude & Jonas, 2015). In these earlier studies they required participants to list any 'what might have been' thoughts, then blind raters determined direction (upward vs. downward) and reference (self vs. other) of them, and they also checked which kind of counterfactual thoughts participants are more and less likely to produce. However, in this study, participants were instructed to elicit specific type of a counterfactual thought based on the focus (self vs. other referent) x direction (upward vs. downward). First, participants were informed about 'if only' thoughts and given example of specific counterfactual thought that has no relation with interpersonal relations. For instance, in self-referent upward counterfactual thinking condition, the participants were instructed as (see Appendix I for all instructions):

> *People often have thoughts like 'if only' or 'what if' after experiences like yours. For example, after a car accident, the driver thinks that 'If I did not drive so fast, I would not have this accident.' In the space below, please list any things that, you could have done different, could have changed the outcome of your negative interpersonal relationship experience into better.*

Participants in other experimental groups received the substitute versions of this instruction. Then, to determine for whom the concepts of regret, guilt and blame are relevant, participants responded some questions mentioned in the materials part above. In the next page

of the form, participants filled out items about self-related reparative intentions, and expected reparative intentions from the other person in the past event. Participants completed all these procedures in a computer-based setting in which data collection were carried out by online form through the Google Forms.

3.1.4. Analysis

First of all, GSR means differences in various times of recording were analyzed through repeated measures Analysis of Variance (ANOVA). Then, Pearson correlations were computed for determining correlations between the dependent variables. Moreover, one-way Multivariate Analysis of Variance (MANOVA) was performed to see the group differences among the experimental conditions regarding the negative social emotions and reparative intentions. All these analyses were carried out by using the Statistical Package for Social Sciences (SPSS), version 22.0. Finally, for the mediation analyses, a regression path analysis modeling program called PROCESS Macro program (Hayes, 2013) was used.

3.2. Results of the Study 2

3.2.1. Manipulation Checks

3.2.1.1. Counterfactual Thinking Manipulation

Counterfactual manipulation check was done by the same way as Gambetti et al. (2017) did in their study. In this respect, the researcher checked whether participants effectively produced the required counterfactual type based on the assigned experimental group. Among the initial number of 121 participants, just 11 of them could not follow the instructions, and they did not come up with correct counterfactuals based on what condition

they were in. Other 110 participants successfully produced counterfactuals in accordance with instructions. For instance, the participants in self-upward condition only generated self-upward counterfactuals about their past negative event. Specifically, the participants generated counterfactuals with mean number of 3.68 in self-upward condition, 3.03 in self-upward, 3.22 in other-upward condition, and mean number of 3.10 in other-downward condition.

3.2.1.2. Negative Personally Meaningful Past Event

To determine whether the participants really recalled emotionally meaningful past event, their GSR levels were recorded for four times. These recordings were respectively carried out in resting condition (Resting), writing the neutral text condition (WriteNeutral), imagining the personally meaningful event condition (ImagNegEvent), and writing the personally meaningful event condition (WriteNegEvent).

In order to determine whether there is a significant difference between the repeated measures of GSR levels, a repeated measures ANOVA with Greenhouse-Geisser correction was run. Based on the results, GSR means at baseline conditions of *Resting* (M = .62, SD = .058) and *WriteNeutral* (M = .78, SD = .069), and GSR means at *ImagNegEvent* (M = 1.03, SD = .080) and *WriteNegEvent* (M = 1.18, SD = .095) differed significantly [F (1.286-140.180) = 69.273, $p < .01$].

To see where these significant differences occurred, Post hoc tests through Bonferroni correction were run. Importantly, both remembering and writing the personally meaningful past event conditions were significantly differed from baseline GSR measurements of resting and writing the neutral text ($p < .05$) (Table 6). In other words, the emotional arousal levels of

the participants significantly got higher while they were imagining and writing events compared to baseline conditions. This significant increase in emotional arousals strengthens the expectation that the participants remembered emotionally meaningful events. This in return provides a safer move to asking items about emotions of the participants related to their experiences.

Table 6. GSR Mean Differences of the Study 2

Comparison Conditions				
Condition (*M*, SD)	Condition (*M*, SD)	Mean Difference	SE	*p*
Resting (.62, .058)	- WriteNeutral (.78, .069)	-.16	.021	.000
	- ImagNegEvent (1.03, .080)	-.41	.043	.000
	- WriteNegEvent (1.18, .095)	-.56	.064	.000
WriteNeutral (.78, .069)	- Resting (.62, .058)	.16	.021	.000
	- ImagNegEvent (1.03, .080)	-.25	.031	.000
	- WriteNegEvent (1.18, .095)	-.40	.051	.000

Note. Resting = Resting GSR measurement for 1 minute, WriteNeutral = Writing the neutral text condition for 1 minute, ImagNegEvent = Imagining the personally meaningful event condition, WriteNegEvent = Writing the personally meaningful event condition.

3.2.2. Dependent Variables: Means, Standard deviations and Correlations

Inter-correlations, means and standard deviations of all dependent variables across the all experimental groups were computed (Table 7). In general for the first hypothesis, all dependent variables were significantly correlated with each other, except the relationship between reparative intentions and expected reparative intentions. Especially all negative social emotions of blame (*M* = 45.33, *SD* = 28.67), guilt (*M* = 5.09, *SD* = 3.01), and regret (*M* = 5.36, *SD* = 3.41) were positively and significantly associated with reparative intentions (*M* = 30.32, *SD* = 8.56) while negatively correlated with expected reparative intentions (*M* = 29.95, *SD* = 9.27) from other parties.

Table 7. Means, Standard deviations, and correlations of dependent variables

		Correlations				
	Mean (SD)	Blame	Guilt	Regret	Rep. Int.	Expected Rep. Int.
Blame	45.33 (28.67)	-	-	-	-	-
Guilt	5.09 (3.01)	.76**	-	-	-	-
Regret	5.36 (3.41)	.63**	.67**	-	-	-
Rep. Int.	30.32 (8.56)	.33**	.54**	.57**	-	-
Expected Rep. Int.	29.95 (9.27)	-.33**	-.33**	-.29**	-.18	-

NOTE. Rep. Int.: Reparative Intentions, Expected Rep. Int.: Expected Reparative Intentions from others.

** Correlation is significant at the .01 level (2-tailed)

3.2.3. Effects of Counterfactuals on Dependent Variables

Since 'Expected Reparative Intentions from others' dependent variable was not significantly correlated with all other dependent variables, this variable was not included in the multivariate analysis of variance. A separate variance analysis, one-way Analysis of Variance (ANOVA), was conducted to see the experimental group differences in terms of expected reparative intentions to test the hypothesis 2.

Before the ANOVA analysis, homogeneity of variance assumption was checked out. The Levene's F test was not statistically significant in association with the dependent variable ($p > .05$), which indicates that homogeneity of variance assumption was reached to proceed with ANOVA. Then according to ANOVA results, there was no significant differences among the counterfactual types regarding to expected reparative intentions [$F (3, 106) = 1.79$, $p = .153$, $p > .05$)]. Thus, expected reparative intentions variable was not included in further analyses.

For hypotheses 3 and 4, to test whether experimental groups of the Study 2 significantly differ from each other in terms of negative social emotions (blame, guilt, regret) and reparative intentions, one-way Multivariate Analysis of Variance (MANOVA) was conducted. Prior to this analysis, a series of Pearson correlations were carried out between the dependent variables since moderate range correlations were required to meet the assumption of MANOVA. As shown in Table 7, a pattern of significant correlations was captured among all dependent variables, which indicates the appropriateness of running MANOVA. Moreover, the Box's M value was not significant [$F (44, 773) = 1.39$, $p = .076$, $p > .05$)], which suggests

that covariance matrices of the dependent variables are equal across groups for running MANOVA.

Table 8. Box's Test of Equality of Covariance Matrices of Multivariate Analysis

Box's Test of Equality of Covariance Matrices	
Box's M	44.773
F	1.390
Df1	30
Df2	30814.553
Sig	.076

According to one-way Multivariate Analysis of Variance, there was a statistically significant difference within dependent variables across experimental conditions [F (12-272,804) = 3.29, $p < .01$, Wilks'$\lambda = .703$, $\eta_p^2 = .11$]. Before moving to Univariate test statistics, homogeneity of variance assumption was checked out for all dependent variables.

Table 9. Multivariate Analysis of Variance (MANOVA) for Experimental Groups

Variable or Effect	Wilk's Lambda	F	Hypo. *df*	Error *df*	Sig.	η_p^2
Group	.703	3.29	12	272.804	.000	.11

The Levene's F tests were not statistically significant in association with all dependent variables ($p > .05$), except the reparative intentions variable ($p = .04$). However, the cell sizes of current experimental groups (the independent variable) are nearly the same, and when the cell sizes of independent variable are equal, variance analysis is resistant against violation of homogeneity of variance assumption (Shavelson, 2016). Thus, although homogeneity of variance assumption was appropriate for each outcome variable except the reparative intention variable, it is appropriate to perform this variance analysis. In addition, following up the MANOVA, separate univariate tests on the dependent variables revealed significant counterfactual thinking effects on blame [F (3-106) = 8.98, $p < .01$, $\eta_p^2 = .20$] , guilt [F (3-106) = 4.81, $p < .01$, $\eta_p^2 = .12$], regret [F (3-106) = 6.77, $p < .01$, $\eta_p^2 = .16$], and reparative intentions [F (3-106) = 6.41, $p < .01$, $\eta_p^2 = .15$].

Table 10. Tests of Between-Subject Effects of MANOVA for Group and the Dependent Variables

Source	DV	df	F	Sig.	η2
Group	Blame	3	8.98	.000	.20
	Guilt	3	4.81	.004	.12
	Regret	3	6.77	.000	.16
	Reparative Intentions	3	6.41	.000	.15

Finally, a series of post hoc analyses with Bonferroni correction were performed in order to investigate the mean differences across all four counterfactual thinking conditions and

the four dependent variables. First, in terms of mean scores for Blame, the mean of self-upward condition (M = 65.37) significantly differed from other three experimental conditions of self-downward (M = 46.26), other-upward (M = 29.93), and other downward (M = 40.50) ($p < .05$). Other mean differences for blame were not statistically significant ($p > .05$).

For the variable of Guilt, the self-upward condition had the highest mean score among the experimental groups. However, only significant difference was observed between self-upward (M = 6.74) and other-upward (M = 3.86) conditions ($p < .05$).

Considering Regret, like the blame, the mean of self-upward condition (M = 7.63) significantly differed from other three experimental conditions of self-downward (M = 5.33), other-upward (M = 4.29), and other downward (M = 4.29) ($p < .05$). Other mean differences for regret were not statistically significant ($p > .05$).

Finally on Reparative Intentions, mean scores of self-downward (M = 28.30), other-upward (M = 28.04), and other-downward (M = 29.00) were nearly the same except the self-upward condition (M = 36.15). In that sense, mean score of self-upward significantly differed from other three experimental conditions ($p > .05$). There was no more statistically significant difference among the other conditions for reparative intentions variable.

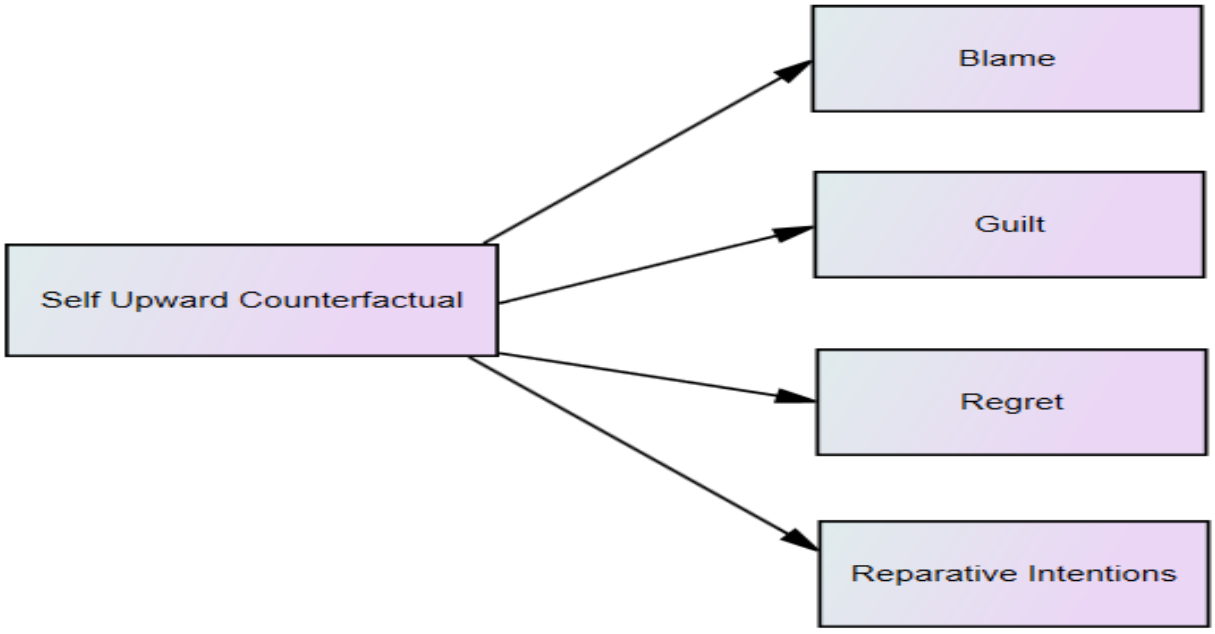


Figure 4. Illustrating the summary of initial key findings in the Study 2

Considering variance analyses results presented above, it can be concluded that the self-upward counterfactuals seem to have the most significant effects on social negative emotions (blame, guilt and regret), and the reparative intentions (see Figure 3). These findings give a supportive clue for the hypothesis that negative emotions of blame, guilt and regret play mediator roles between self-upward counterfactual thinking and reparative intentions in interpersonal relationships. These hypotheses had been tested and explained in the following subheading.

3.2.4. Mediator Roles of Negative Social Emotions between Counterfactuals and Reparative Intentions

In order to examine the relationship between counterfactual thought types and reparative intentions in interpersonal relations, negative social emotions of blame, guilt, and regret were separately included as mediator variables in analyses (Hypothesis 5). According to Hayes and Preacher (2014), estimation of a mediation model with a categorical independent variable yields *k*-1 *a*-coefficients (k equals to number of categories or groups) which quantitatively show the variations between the groups. In other words, one of groups in the categorical variable is kept as the *reference* within a dummy coding system. Upon that, relative direct and indirect effects of the other groups compared to the reference group are computed in a mediation analysis with a categorical variable.

In the current study, mediation analyses were carried out with a multi-categorical independent variable, which equals to the experimental groups of counterfactual thinking types. Although the reparative intention mean scores of self-downward (M = 28.30), other-upward (M = 28.04), and other-downward (29.00) experimental groups are so close to each other, other-downward group was taken as the reference group. Indeed, to more correctly see whether self-upward counterfactuals make a difference in reparative intentions compared to other counterfactual types, it was better to take the other-downward group as the comparison (reference) because it had the highest mean score on reparative intentions except the self-upward counterfactual group. Overall, in all three mediation analyses explained below, experimental groups (counterfactual types) were inserted as the categorical variable, and it was included in the analyses through dummy coding by using the *indicator* coding default option of PROCESS Macro program (Hayes, 2013).

3.2.4.1. Blame as Mediator

In the first step of the analyses, blame was inserted as the mediator variable. To investigate whether blame mediates the effect of counterfactual types on reparative intentions in interpersonal relations, mediation analysis with bootstrap technique was used through Process Macro (Hayes, 2013). While testing this hypothesis, bootstrap estimation approach with 5000 samples was selected by 95% confidence interval level of the CIs. Reference group of the independent variable was other-downward by using indicator coding default option.

As Figure 4 illustrates, only the regression coefficient of self-upward counterfactual thinking was significant in predicting blame [b = 24.87, t (106) = 3.55, SE = 7.00, $p < .01$]. Counterfactual thinking overall explained the 20% of variance in blame. In the second model, showing the effects of counterfactual groups and blame together, blame level significantly predicted the reparative intentions [b = .12, t (106) = 4.27, SE = .03, $p < .01$]. In addition to blame, direct effect of the self-upward group on reparative intentions was also significant [b = 4.27, t (105) = 2.02, SE = 2.13, $p < .05$], but not the other two groups ($p > .05$). Blame and counterfactual thinking groups together explained the 28% (R^2 = .28) of the variance in reparative intentions.

Finally, counterfactual thinking alone significantly and positively predicted the reparative intentions in interpersonal relations [R^2 = .15, F (106) = 6.41, $p < .01$]. Among the counterfactual types, again only the relative total effect of self-upward counterfactuals on reparative intentions was significant [b = 7.22, t (106) = 3.35, SE = 2.15, $p < .01$]. When the relative indirect effects of counterfactual groups were examined by bootstrap estimation with 5000 samples, the effect was revealed to be significant for self-upward counterfactual thinking

[*b* = 2.95, *SE* =1.20, *95% CI* = .92 – 5.56]. These results supported partial mediation of blame between the self-upward counterfactuals and reparative intentions relationship (see Figure 4 and Table 11 for the detailed results).

Table 11. Self-upward counterfactual and reparative intentions relationship with blame mediation (N = 110)

	B	*SE*	*t*	*p*
Mediation path a_3 (Self-upward on blame)	24.87	7.00	3.55	.01
Mediation path *b* (Blame on reparative intentions)	.12	.03	4.27,	.01
Indirect effect bootstrapped	2.95	1.20	-	-
95% Confidence Interval [.92-5.56]				
Total effect, path c_3	7.22	2.15	3.35	.01
(Self-upward on reparative intentions)				
Direct effect path c'_3	4.27	2.02	2.13	.05
(Self-upward on reparative intentions with mediation)				

NOTE. *B* = unstandardized coefficient.

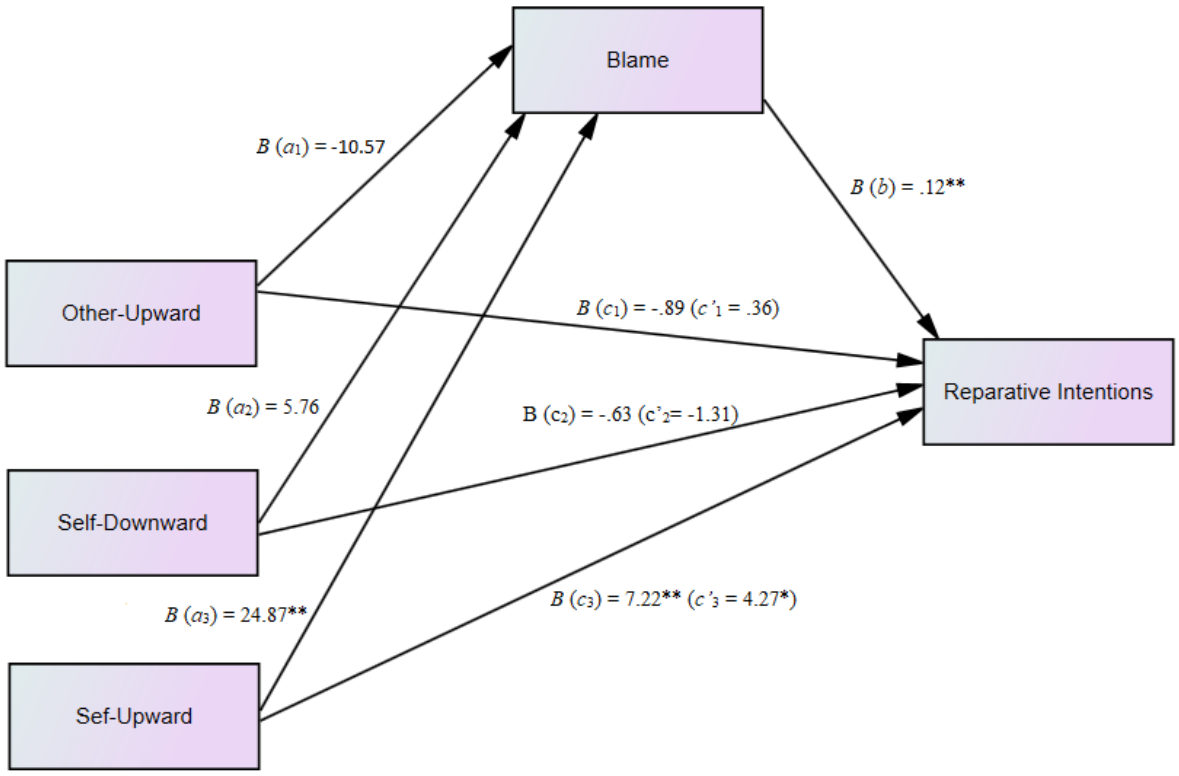


Figure 5. The counterfactual thinking types (four categories) and reparative intentions relationship with mediation of blame

3.2.4.2. Guilt as Mediator

This time the guilt variable was put as the mediator variable. Bootstrap estimation approach with 5000 samples by 95% confidence interval level was selected to test the possible mediator role of guilt between counterfactual thinking and reparative intentions. First, among the counterfactual groups, only self-upward counterfactual significantly predicted the guilt [b = 1.78, t (106) = .77, SE = 7.00, p < .05]. Counterfactual thinking in the model explained the 12% (R^2 = .12) of the variance in guilt.

In the second regression model with the effects of counterfactual thinking and guilt on reparative intentions, guilt significantly predicted the reparative intentions [b = 1.32, t (105) =

5.51, *SE* = .24, $p < .01$]. In the same model, only self-upward counterfactual type significantly predicted the reparative intentions [$b = 4.87$, t (105) = 2.49, *SE* = 1.95, $p < .05$], but not the other two groups ($p > .05$). Counterfactual thinking and guilt together explained the 34% (R^2 = .34) of the variance in reparative intentions.

Considering the total effect model, counterfactual thinking alone significantly and positively predicted the reparative intentions in interpersonal relations [$R^2 = .15$, F (106) = 6.41, $p < .01$]. However, among the counterfactual types, solely the relative total effect of self-upward counterfactual was significant on reparative intentions [$b = 7.22$, t (106) = 3.35, *SE* = 2.15, $p < .01$]. When the relative indirect effects of counterfactual groups were examined by bootstrap estimation with 5000 samples, the effect was revealed to be significant only for self-upward counterfactual thinking [$b = 2.35$, *SE* =1.19, *95% CI* = .19 – 4.89]. These results revealed that there is a positive and significant relationship between self-upward counterfactual type and reparative intentions, and guilt partially mediates this relationship (see Table 12 and Figure 5 for the detailed results).

Table 12. Self-upward counterfactual and reparative intentions relationship with guilt mediation (N = 110)

	B	*SE*	*t*	*p*
Mediation path a_3 (Self-upward on guilt)	1.78	.77	2.30	.05
Mediation path *b* (Guilt on reparative intentions)	1.32	.24	5.51	.01
Relative indirect effect bootstrapped	2.35	1.19	-	-

95% Confidence Interval [.19 - 4.89]

Total effect, path c_3	7.22	2.15	3.35	.01
(Self-upward on reparative intentions)				
Direct effect path c'_3	4.87	1.95	2.49	.05
(Self-upward on reparative intentions with mediation)				

NOTE. *B* = unstandardized coefficient.

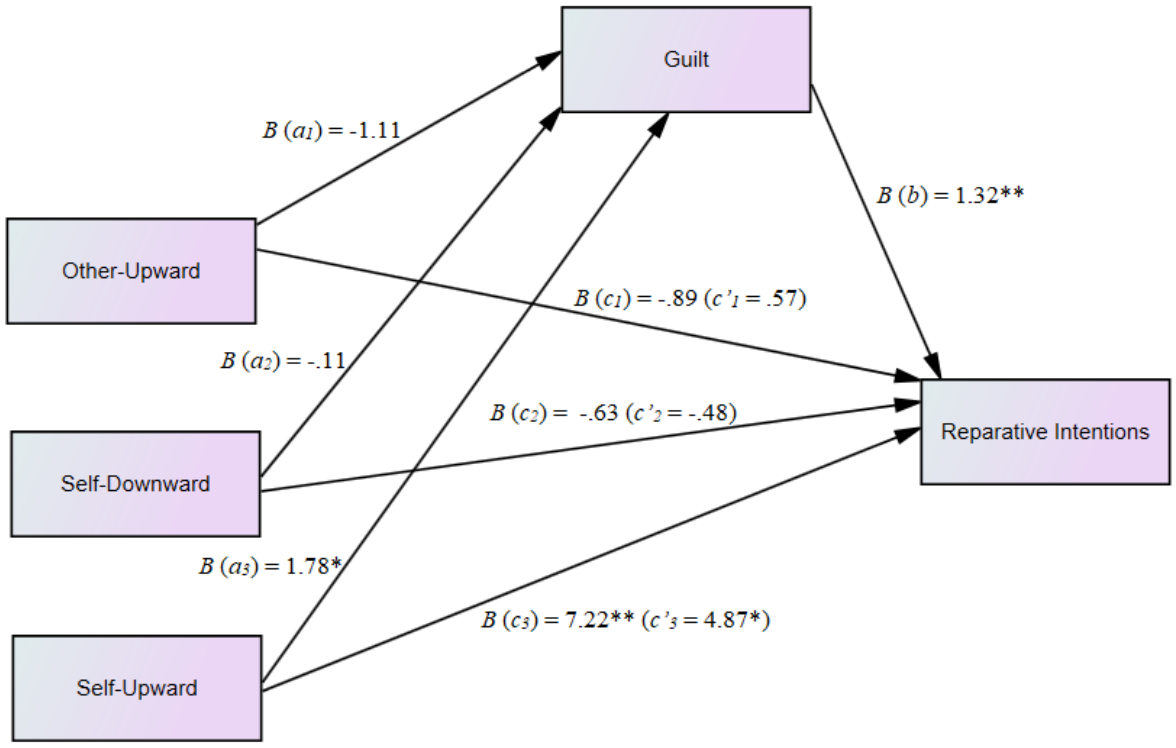


Figure 6. The counterfactual thinking types (four categories) and reparative intentions relationship with mediation of guilt

3.2.4.3. Regret as the Mediator

The last negative social emotion of the Study 2, regret, was inserted as the mediator variable in this step for counterfactual thinking and reparative intentions interaction. In the first model, only the direct path of self-upward counterfactual type on regret was significant [b = 3.34, t (106) = 3.91, SE = .85, $p < .01$], but not the other counterfactual types ($p > .05$). Counterfactual thinking overall explained the 16% (R^2 = .16) of the variance in regret.

When counterfactual thinking and regret were included in the model together, regret significantly predicted the reparative intentions [b = 1.27, t (105) = 5.97, SE = .21, $p < .01$], and all relative direct effects of counterfactual types on reparative intentions were not significant ($p > .05$). Furthermore, counterfactual thinking and regret together explained the 37% (R^2 = .37) of the variance in reparative intentions.

Finally, in the total effect model, counterfactual thinking alone significantly and positively predicted the reparative intentions in interpersonal relations [R^2 = .15, F (106) = 6.41, $p < .01$], as already known from the earlier analyses. Within this scope, among the counterfactual types, only the relative total effect of self-upward counterfactual was significant on reparative intentions [b = 7.22, t (106) = 3.35, SE = 2.15, $p < .01$]. Notably, the relative indirect effects of counterfactual groups were examined by bootstrap estimation with 5000 samples, the effect was revealed to be significant only for self-upward counterfactual thinking [b = 4.25, SE = 1.40, *95% CI* = 1.89 – 7.38]. Considering this significant confidence interval without the value of zero, the results showed that regret fully mediated the relationship between self-upward counterfactual thinking and reparative intentions in interpersonal relationships.

Table 13. Self-upward counterfactual and reparative intentions relationship with regret mediation (N = 110)

	B	*SE*	*t*	*p*
Mediation path a_3 (Self-upward on regret)	3.34	.85	3.91	.01
Mediation path *b* (Regret on reparative intentions)	1.27	.21	5.97	.01
Relative indirect effect bootstrapped	4.25	1.40	-	-
95% Confidence Interval [1.89 – 7.38]				
Relative total effect, path c_3	7.22	2.15	3.35	.01
(Self-upward on reparative intentions)				
Direct effect path c'_3	2.97	2	1.49	>.05
(Self-upward on reparative intentions with mediation)				

NOTE. *B* = unstandardized coefficient.

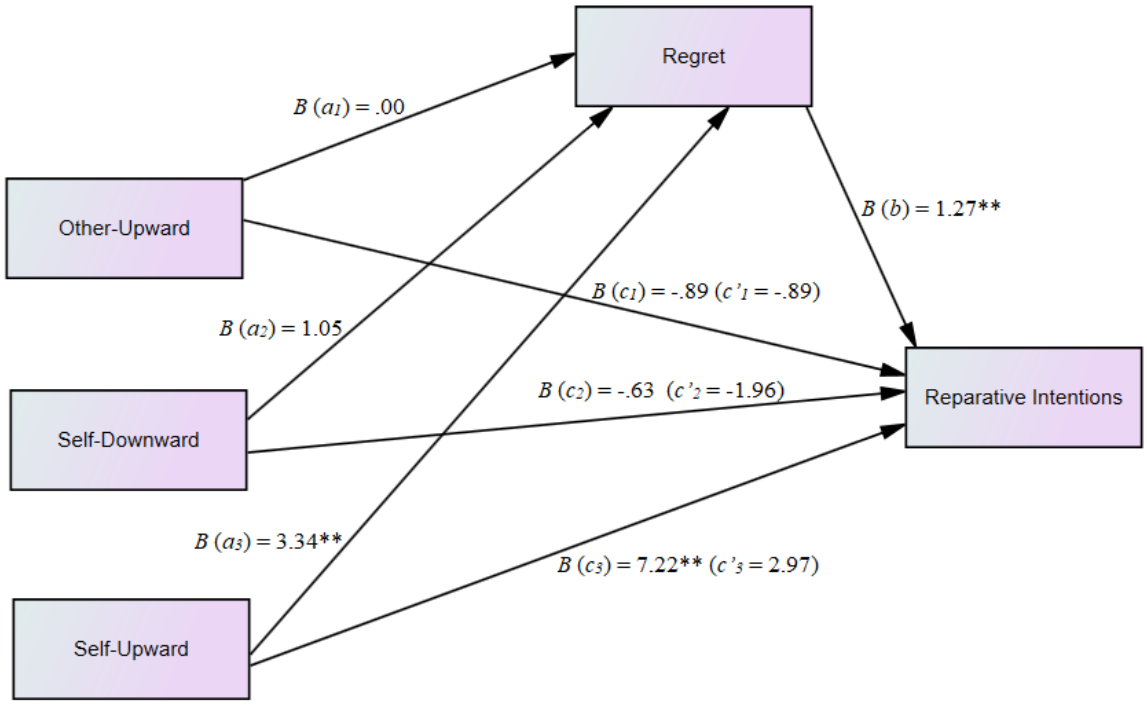


Figure 7. The counterfactual thinking types (four categories) and reparative intentions relationship with mediation of regret

3.3. Discussion of the Study 2

In the Study 2, participants in each group remembered a past personally meaningful event happened in their interpersonal relationships. To check whether the participants actually recalled emotionally arousal experiences, Galvanic Skin Response (GSR) recordings were used. GSR related hypotheses testing showed that both recalling and writing the personally meaningful events led to significant physiological fluctuations. Then, participants were instructed to produce specific types of counterfactuals as self-upward, self-downward, other-upward, and other-downward.

First of all, a separate variance analysis was computed to see the group differences across expected reparative intentions from others in interpersonal relations. Results pointed out that counterfactual thinking seems to have no effect on individuals' expectations from others in interpersonal events. In a sense, in their interpersonal interactions, counterfactuals do not lead people to wait others to do something to save their relationships. Moreover, there is no similar study in the related literature to compare and contrast this finding.

In further analyses, variance analyses results showed that only self-upward counterfactuals made a significant difference in all three negative emotions, and it was positively correlated with increased blame, guilt, and regret. This finding is coherent with the early findings in the related research. Upward counterfactuals with the differential effect of self-focused ones direct the attribution of responsibility to the self, and this causes internalization of blame (Callander et al., 2007). Therefore, according to Mandel and Dhami (2005), increased responsibility for an event leads to higher self-blame, and this in return enhances the feeling of guilt. Similarly, several studies emphasized the link between generating self-upward counterfactual and increased intensity in feeling of regret (Broomhall et al., 2017; Broomhall & Phillips, 2018; Mandel, 2003).

With respect to guilt and regret, however, there are also some contradictory views about counterfactual thinking and social negative emotions interaction in interpersonal relations. For instance, Berndsen et al. (2004) found that guilt shows up after behaviors during the interpersonal occurrences, but regret grows out of negative intrapersonal behaviors. In that sense, Mandel and Dhami (2005) suggested that counterfactual thinkers' consequences of interpersonal harm should result in guilt, but not regret. Discrepant from these views, current

study discovered that interpersonal negative events lead individuals to feel both regret and guilt.

In terms of reparative intentions, as hypothesized, only the self-upward counterfactual thinking had the significant predictor role. This means that when people generate self-upward counterfactuals, they learn from their past experiences, and they become more likely to take reparative intentions for having better and healthier in future relationships. As Epstude and Roese (2008) stated, particularly the self-upward counterfactual is the strongest facilitator of behavioral change among the counterfactual types as functional theory of counterfactual thinking suggested so. In accordance with this theoretical view, investigation of present study (Study 2) demonstrated that only the self-upward counterfactual thinking significantly and positively contributed to reparative intentions in interpersonal relationships.

It was also hypothesized that negative emotions would contribute to preparative function of self-upward counterfactual thinking on reparation of interpersonal relationships. The negative affect itself might help gaining insights of past experience and self, which might facilitate behavioral intentions (Saffrey et al., 2008). For example, experiencing regret led individuals to internalize the blame, and they took more reparative behaviors for saving their damaged social relationships. Furthermore, guilt was also revealed to be beneficial for better perspective taking in social relations (Leith & Baumeister, 1998). Thus, self-upward counterfactuals do not only function by providing cognitive reasoning, but also collaborates with self-conscious negative emotions that motivate behavioral change. This hypothesis of functional model of counterfactual thinking (Roese, 1997) was examined by three separate mediation analyses in the Study 2. The results brought out that self-upward counterfactuals may enable people to turn crisis in interpersonal relations into opportunities for improving the

quality of their relationships by the mediations of blame, guilt, and regret. That is a sign that functionality of content-specific counterfactuals can be generalized into interpersonal relations.

In the past, several studies showed that counterfactual thinking has a preparative function by providing insights about behavioral intentions (Morris & Moore, 2000; Markman & McMullen, 2003; Smallman, 2013; Smallman & Roese, 2009). However, no study investigated this preparative function of counterfactuals in interpersonal relations thus far the current study. As discussed in the introduction of the thesis, all interpersonal relation theories like attachment, interdependence, need-to-belong, and equity underline that people are in need of each other. They all draw attention to crucial importance of forming social bonds and sustaining healthy social relationships for psychological functioning, well-being, wellness, self-actualization, maturity and so on. Otherwise, detrimental negative effects on mental health are inevitable. That is why it is thought that findings of the Study 2 on functionality of counterfactual thinking in interpersonal relationship reparation have contributed to the related field.

CHAPTER IV

STUDY III:

FUNCTIONALITY OF COUNTERFACTUALS IN INTERGROUP RELATIONSHIPS

Like in interpersonal relations, conflicts are also in nature of intergroup relations. As already explained under intergroup theories subheading, just identification of the self with a group forms a basis for negative escalations between groups. Addition to group identification, scarce sources in a society or sense of a relative deprivation among the groups fosters intergroup conflicts (Böhm et al., 2018; Halevy et al., 2010; Tajfel, 1982). In that sense, looking for preventative factors against undesirable interactions among groups is valuable for intergroup research in social psychology.

In accordance with Functional Theory of Counterfactual Thinking (Epstude & Roese, 2008), self-upward counterfactuals may serve a functional role, and the Study 2 revealed this functionality in interpersonal relationships following interpersonal conflicts. Self-related counterfactuals make individuals to attribute the causality to themselves for an event (Gambetti et al., 2017). Additionally, by upward direction of counterfactuals, people may think about how they missed achieving a better alternative (Broomhall & Phillips, 2017). When it becomes a self-referent upward together, people may initiate to gain insight that they can assume the responsibility to make things better. That is why the participants in self-upward counterfactual condition significantly felt higher negative motivational emotions in the Study 2. In return, they got significantly higher reparative intentions compared to others within other counterfactual thinking conditions in the Study 2.

In this thesis, the Study 3 had examined the functionality of self-upward counterfactuals like in the Study 2, but it was in intergroup setting. In other words, it was tested whether counterfactual thinking functions at intergroup level or not. To the best of our knowledge, this is the first study that tests 'counterfactual thinking' in intergroup relations. Indeed, there are studies that show how feelings of regret, blame, shame and guilt contribute to reparative intentions and attitudes in intergroup relations (Brown & Cehajic, 2008; Clark, 2008), but no study included the role of counterfactuals for this issue.

Thus, the Study 3 mainly examined the hypothesis that generating self-upward counterfactuals is associated with increased negative emotions that in return it will improve the reparative intentions following intergroup conflicts. However, this time, functionality testing was not among the different counterfactual types since only the self-upward type made a significant difference in reparative intentions in the Study 2. Moreover, measurement of expected reparative intentions from the others was not included as well since counterfactuals did not make any significant change on this variable. A fictitious scenario based on relative deprivation and group identity between two natural groups was given to participants. Then, whether producing self-upward counterfactuals functions in reparation of a damaged intergroup relationship were questioned.

For this investigation, the Study 3 addressed the following hypotheses:

1) Dependent variables (negative emotions and reparative intention) of the study will be significantly correlated with each other.

2) Participants in self-upward counterfactual condition will significantly differ from the control group in terms of negative emotions.

a) Blame levels of participants in self-upward condition are expected to be significantly higher than the control group.

b) Participants in self-upward condition will significantly differ from the control group in terms of guilt levels.

c) Regret levels of participants in self-upward condition are expected to be significantly higher than the control group.

3) Producing self-upward counterfactuals will be significantly associated with increased reparative intentions in intergroup relations.

Hypotheses of the Study 3 related to Galvanic Skin Response levels are:

1) GSR means of reading negative intergroup event will be significantly higher than the baseline GSR means on resting condition.

4.1. Method of the Study 3

4.1.1. Participants

In the Study 3, initially 46 university students (22 in experimental, 24 in control group) were recruited. However, 2 of them in experimental condition were excluded since they could not produce self-upward counterfactuals as instructed. At the end, a total of 44 participants (38 females) attended the Study 3 from department of Psychology at Ankara Yıldırım Beyazıt University (AYBU) through convenient sampling method. Participants involved in the study on voluntary basis, but extra credit for their registered courses was provided as an incentive to take participation in the study. They were all given informed consent form before the study got started, and ethical permissions had been taken from Ethical Committee of Ankara Yıldırım

Beyazıt University (AYBU). Age range of the participants changed between 19 and 24 (M = 21.23, SD = 1.05).

4.1.2. Materials

4.1.2.1. Galvanic Skin Response (GSR)

Same psychophysiological tool with the Study 2 was used to determine the electro-dermal activity in the body of the participants. In the current study, GSR data was used to check whether the intergroup conflict in the given vignette meaningfully leads emotional arousal changes within participants. Thus, increased fluctuations through the sweat glance indicate the increased emotional arousal. If the given intergroup conflict cannot create emotional fluctuations, it will be hard to talk about neither cogency nor emotional meaningfulness of the scenario to the participants.

4.1.2.2. Fictitious Intergroup Conflict Vignette

A fictitious scenario with intergroup conflict was formed by the researcher. The scenario was formed based on the three social psychological intergroup theories. As Social Identity Theory (SIT) claimed, people tend to identify themselves with groups, and they like making in-group and outgroup comparisons. According to the Realistic Group Conflict Theory, people may also find their collective identities in destructive competitions over scarce sources (food, money, social status). Even they may feel deprived of sources compared to an out-group as Relative Deprivation Theory suggests so. All these theories and related study

findings were deeply explained under theories of intergroup relationships heading in the introduction part.

Relying on these theories, a vignette with an in-group and outgroup conflict based on a scarce source was written. Since the participants were psychology major students, this so-called intergroup conflict takes place between the Psychology, and Guidance and Psychological Counseling (GPC) department groups. In the vignette, the Ministry of Labor, Social Services, and Family plans to hire 1000 mental health workers. To decide who will fulfill these job positions, the ministry arranges a meeting with the representatives of the Turkish Psychological Association (TPA) and Turkish Psychological Counseling and Guidance Association (TPCGA). During this meeting, representatives of the TPA claims that graduates of Psychology department are much better than the psychological counselors for this job position, and they also imply that psychological counselors are lack of skills to work in the field. Upon these views, instead of sharing this job opportunity, all the 1000 job positions go for Psychology students. At the end, the relationship between these two mental health departments is affected negatively, and many of the psychological counseling graduates stay unemployed (see Appendix J for full scenario).

4.1.2.3. Measuring Group-focused Negative Emotions

For measuring blame, same slider scale in the Study 2 was be used by adapting this scale into group level. Participants will be responding to items about who should be blamed for occurrence of this negative event on a slider scale from 1(*totally another group*) to 100 (*only us).* Measurement of guilt was done by adapting three 7-point scale ranges between

completely disagree (1) to *completely agree* (7) taken from Szabo, Meszaros and Csertö (2017). These items are (a) I feel guilty about the event(s), (b) When I read about events like this (these), I feel guilty as a ground oriented, (c) When I read about event(s) like this, I feel ashamed as a ground oriented. Moreover, how much regretful they feel for this negative event (*not at all* (1) *to extremely* (7)) aims to measure the level of regret.

4.1.2.4. Reparative intentions

For achieving that, four items in order to measure reparative intentions at collective level was adapted from Szabo, Meszaros, and Csertö (2017). Based on the vignette content, these items were (a) We Psychology people should compensate GPC people, (b) The Psychology community owes apologies to the GPC ones for the event(s), (c) The Psychology group owes apologies to the GPC group for the event, and (d) The Psychology community should compensate the GPC for the event.

4.1.3. Procedure

To inform and to invite the university students at AYBU about the Study 3, the same flyer in the Study 2 was uploaded to social media account of Social and Cognitive Laboratory (SOBILAB) of Psychology Department at AYBU. The invitation was also made through announcements in the classrooms, and then lab appointments were made. Before participants were taken to lab by one by to collect data, they will be randomly assigned to one of the two conditions that are self upward counterfactual (experimental), and the control condition. After

the participants were welcomed and seated on the computer, two sensors of the GSR were placed at middle and index fingers of their non-dominant hands. Then, first GSR recording for one minute long was done as a baseline measurement in a waiting position. Following that, the participants were requested to read the vignette about the negative event between Psychology and Psychological Counseling graduates. While reading this vignette, participants' GSR levels were recorded as second time of emotional arousal measurement.

Next step for the experimental group was the manipulation of self-upward counterfactual thinking. For doing that, the participants in the experimental condition were first read:

> *As you just the read the given vignette, we can hurt people from other groups in our relationships by having problems and conflicts. As a result of these conflicts, we can experience negative emotions and damages in our relationships. In the face of such negative events, people often have 'if only' or 'what if' thoughts. For example, in relationship between White and Black Americans, a White American may think that 'If we did not think that we have more rights just because we are White, we might have been living more peacefully in this country.'*

After reading this example explanation of self-upward counterfactual with no relation to vignette of the Study 3, the participants in the experimental group was instructed as:

> *Now, in the space below, please list any thoughts that start with 'What if we did act as Psychology group…', which could have changed the outcome of scenario in the vignette into better.*

Participants in the control condition did not receive this counterfactual manipulation. In the final step of data collection, all participants were asked to complete the reparative intention items regarding the Psychology and Psychological Counseling relationship. At the end, participants were debriefed and thanked. Especially, they were informed that the scenario in the vignette was fictitious.

4.1.4. Analysis

First of all, GSR means in two repeated times of recording were analyzed through a Wilcoxon signed-rank test. Then, Pearson correlations were computed for determining correlations between the dependent variables. Moreover, one-way Multivariate Analysis of Variance (MANOVA) was performed to see the group differences among the experimental and control conditions regarding the negative social emotions and reparative intentions. All these analyses were carried out by using the Statistical Package for Social Sciences (SPSS), version 22.0.

4.2. Results of the Study 3

4.2.1. Manipulation Checks

4.2.1.1. Counterfactual Thinking Manipulation

The counterfactual manipulation check was done similar to one in the Study 2. Based on the method of Gambetti et al. (2017), the researcher checked out whether participants in the experimental group produced self-upward counterfactuals as instructed. Out of 22 participants in the experimental condition, 2 of them could not produce self-upward counterfactual about

the vignette, and they were excluded from the analysis. The remaining participants generated self-upward counterfactuals with mean number of 3.10.

4.2.1.2. Emotional Arousal Check by GSR

To determine whether the negative vignette emotionally influenced the participants in both experimental and control group, their GSR levels were recorded twice. These recordings were respectively carried out in resting condition (Resting), and reading condition (reading the vignette with a group conflict).

Before performing a related samples analysis with a parametric test, the assumption of normality was examined. As the Kolmogorov-Smirnov test result indicated, both resting and reading measures did not follow a normal distribution. Therefore, in order to determine whether there is a significant difference between the repeated measures of GSR levels, a Wilcoxon signed-rank test was performed (see Table 14). The results revealed that the intergroup conflict in the given vignette significantly elicited emotional arousal difference in reading condition (M = .60, SD = .47) compared to resting condition (M = .60, SD = .47) (Z = -3.79, p = .00, p < .01).

Table 14. GSR Mean Difference of the Study 3

Comparison Conditions			
Condition (*M*, SD)	Condition (*M*, SD)	Mean Difference	*p*

Resting (.60, .47)	- Reading (.72, .60)	-.12	.000

Note. Resting = Resting GSR measurement for 1 minute, Reading = Reading the intergroup conflict event measurement for 1 minute.

4.2.2. Dependent Variables: Means, Standard Deviations and Correlations

Inter-correlations, means and standard deviations of all dependent variables across the all groups were computed in line with the first hypothesis (see Table 15). Firstly, reparative intentions (M = 13.54, SD = 5.42) in intergroup setting was positively and significantly correlated with negative emotions of regret (M = 2.11, SD = 1.12) and guilt (M = 7.41, SD = 3.24), but not with the blame (M = 44.73, SD = 13.72). Indeed, blame was positively associated with other dependent variables, but this association was only significant with guilt. Overall, unlike blame, all other dependent variables significantly correlated with each other.

Table 15. Means, Standard deviations, and correlations of dependent variables

		Correlations			
	Mean (SD)	Blame	Regret	Guilt	Reparative Intentions
Blame	44.73 (13.72)	-	-	-	-
Regret	2.11 (1.12)	.14	-	-	-
Guilt	7.41 (3.24)	.41**	.62**	-	-
Reparative Intentions	13.54 (5.42)	.21	.57**	.50**	-

** Correlation is significant at the .01 level (2-tailed)

4.2.3. Effects of Self-Upward Counterfactual on Intergroup Reparative Intentions

For determining how dependent variables of regret, guilt, and reparative intentions differ based on the self-upward counterfactuals, a multivariate analysis of variance (MANOVA) was performed (Hypotheses 2 and 3). Since the dependent variable of 'blame' was not significantly correlated with other dependent variables, this variable was not included in the MANOVA. Since the assumption of meaningful correlations among each pair of dependent variables should be met for MANOVA (Can, 2017), a separate independent samples t-test was performed for the blame variable (Hypothesis 2a).

First, in order to examine whether the experimental group and the control group of the Study 3 significantly differ from each other in terms of negative social emotions (guilt, and regret) and reparative intentions, one-way Multivariate Analysis of Variance (MANOVA) was conducted. Prior to this analysis, a series of Pearson correlations were carried out between the dependent variables since moderate range correlations were required to meet the assumption of MANOVA. As shown in Table 15, a pattern of significant correlations was captured among regret, guilt, and reparative intentions, which indicates the appropriateness of running MANOVA.

Covariance matrices of the dependent variables are also equal across groups for running MANOVA as the Box's M value was not significant ($p > .05$). Moreover, The Levene's F tests were not statistically significant in association with all dependent variables ($p > .05$), which suggests that the error variance of the dependent variables is equal across the study groups.

Table 16. Box's Test of Equality of Covariance Matrices of Multivariate Analysis

Box's Test of Equality of Covariance Matrices	
Box's M	6.455
F	.991
Df1	6
Df2	11632.605
Sig	.429

According to one-way Multivariate Analysis of Variance, there was not a statistically significant difference between the control and self-upward counterfactual conditions regarding the dependent variables [F (3-40) = 1.33, $p > .05$, Wilks'λ = .910, η_p^2 = .09] (see Table 17). As self-upward counterfactuals at collective level did not make a significant difference in regret, guilt, and reparative intentions overall, there was no need to carry out further tests to see how the dependent variables differ for the independent variable (see Table 18 for group differences).

Table 17. Multivariate Analysis of Variance (MANOVA) for the study groups

Variable or Effect	Wilk's Lambda	F	Hypo. *df*	Error *df*	Sig.	η2
Group	.910	1.33	3	40	.279	.09

Table 18. Tests of Between-Subject Effects of MANOVA for Group and the Dependent Variables

DV	IV	N	$\bar{X}$	SD	F	Sig.
Regret	Control	24	1.83	.87	3.46	.070
	Experimental	20	2.45	1.32		
Guilt	Control	24	6.67	3.13	2.90	.096
	Experimental	20	8.30	3.21		
Reparative Intention	Control	24	12.46	4.89	2.18	2.18
	Experimental	20	14.85	5.86		

Note. Experimental = Self-upward counterfactual condition, DV = Dependent variable, IV = Independent variable.

Finally, an independent samples t-test was performed to test the hypothesis that there is a statistical difference in the associated means of blame between control group (M = 42.21, SD = 14.53) and experimental group (M = 47.75, SD = 12.37). First, Levene's F test was not statistically significant ($p > .05$), which indicates that assumption of homogeneity of variance was satisfied. Moreover, the independent samples t-test did not have a statistically significant effect [t (42) = -1.346, $p > .05$]. In other words, although blame mean score of participants in

the experimental group was higher than the ones in the control group, this difference was not statistically significant (see Table 19).

Table 19. Independent samples t-test results for the dependent variable of blame

Groups	N	$\bar{X}$	SD	df	t	p
Control	24	42.21	14.53	42	-1.35	.299
Self-Upward Counterfactual	20	47.75	12.37			

4.3. Discussion of the Study 3

In the previous experimental study (Study 2), self-upward counterfactuals, but not other types, facilitated the reparative intentions in interpersonal relations by the mediator roles of blame, guilt, and regret. However, people also have collective selves that are vulnerable to threats of intergroup conflicts. Some of the well-known social psychological theories of intergroup relations indicate that emotional bonds with a group (social identity), perceived deprivation of resources in distribution (relative deprivation), and competition over the scarce resources (realistic group conflict) may cause people to have intergroup conflicts through in-group bias, negative stereotypes, and discrimination of outgroup members. To this respect, searching for preventive and alleviator factors against the intergroup conflicts is as valuable as the ones in interpersonal conflicts.

The Study 3 questioned whether functionality of self-upward counterfactual can be generalized to intergroup level. In that sense, both in control group and experimental group, the participants were exposed to a fictitious intergroup conflict based on their natural group

identity as a Psychology major student. In both groups, their physiological changes in reaction to the scenario were computed by the GSR recordings. The conflict created increased emotional arousals in line with the GSR related hypothesis. Distinctively from the control group, the ones in the experimental group generated self-upward counterfactuals. Then, potential distinctive effects of counterfactuals on blame, regret, guilt, and reparative intentions were tested in a intergroup context.

Overall, the results were not in accordance with the current hypotheses. Producing self-upward counterfactuals did not meaningfully make the participants feel more blame, guilt, and regret. Several study results confirmed that remembering past intergroup wrongdoings led individuals to feel more guilty and regretful, and this in return resulted in having more reparative intentions toward outgroups (Imhoff et al., 2012; McGarty et al., 2005; Zebel, Zimmermann, Tendayi Viki, & Doosje, 2008). Hence, connection between the past atrocity and the reparative intentions was missing in the present study. Consequently, lack of these motivational negative emotions did not prompt the participants to take intentions for reparative policies with the outgroup.

No equivalent study in the related literature exists to discuss the causes and consequences of counterfactual thinking in intergroup relations. Finally and remarkably, more investigations with different study methods are needed to talk about the functionality of counterfactuals in intergroup relations.

CHAPTER V

GENERAL DISCUSSION

This thesis had two major purposes. The first and general purpose was to beat the first hammer to virgin forest of counterfactual thinking literature in Turkey. The second major purpose was to fulfill a universal gap in counterfactual thinking research, which is to examine the functionality of counterfactuals in both interpersonal and intergroup relationships. In this general discussion, what has been done to reach these goals, and how they were concluded are going to be handled.

Since the general purpose was to open the pave in front of the counterfactual research in Turkey, it was taught that it would be better to bring a psychometrically sound measurement tool in Turkish culture. By doing so, researchers would have a material that would ease conducting research about this concept. In that sense, the Counterfactual Thinking for Negative Events Scale (CTNES) developed by Rye et al. (2008) was adapted into Turkish. Moreover, despite the several methods to measure counterfactual thoughts, the CTNES was the first and only scale with capacity to directly measure various dimensions of this concept. Indeed, a valid and reliable assessment tool is necessary for exploring counterfactual thoughts which is a new research topic in Turkey.

At the end of the Study 1 in the current thesis, it was reached out that the Turkish version of the CTNES is a reliable and valid tool with its adequate psychometric aspects in assessment of various types of counterfactual thinking. Both internal consistency reliability analysis and test-retest reliability analysis showed that the CTNES is reliable to use. Furthermore, validity of this measurement tool was supported by adequate values from

Confirmatory Factor Analysis (CFA), meaningful correlations among the subscales of the CTNES, and their relations with other cognitive style and negative affect variables.

By testing the construct validity of the CTNES, first correlational findings were obtained between the counterfactuals and some cognitive style and negative affect variables. Correlations with depression, self-esteem, rumination, and optimism-pessimism were the replications of the earlier studies in different cultures. However, examining the counterfactual thinking with self-efficacy and sub-dimensions of rumination (reflection and brooding) was original to the Study 1.

These correlational findings also gave important clues about the functionality of counterfactual thinking under Functional Theory of Counterfactual Thinking (Epstude & Roese, 2008). Downward counterfactuals' positive association with optimism and negative correlation with depression indicate the mood improvement or affective functioning role of counterfactual thinking. This finding supported earlier findings about the affective functioning of counterfactuals (Markman et al., 2006; Roese & Olson, 1995; White & Lehman, 2005).

In terms of upward counterfactuals, it was already mentioned earlier that upward counterfactuals are like double edged swords since they might be both functional and dysfunctional. In the Study 1, all upward directed counterfactuals positively and significantly associated with rumination and its dimensions, depression, and pessimism, and negatively correlated with self-esteem, self-efficacy, and optimism. This finding shows how producing upward counterfactuals negatively influence human psyche (McCrea, 2008; Sanna, 1998; for a review see Broomhall et al., 2017).

These results seem to only emphasize the dark side of upward counterfactuals, but there are some points in these results that point out the functional side of them, as well. First of all, all upward counterfactuals were positively correlated with the both reflection and brooding dimensions of rumination. It is known that while reflection refers to purposeful overthinking for problem solving, brooding refers to passive dwelling on issues without action (Treynor, Gonzalez, & Nolen-Hoeksema, 2003). Brooding, but not reflection, plays a predictor role for depressive symptoms (Schoofs, Hermans, & Raes, 2010). As a result, these correlations with rumination types tell that upward counterfactuals have potential to be both functional and dysfunctional.

This double edged sword situation in upward counterfactuals exists in their relationships with self-esteem and self-efficacy. Earlier studies found controversial findings in which upward counterfactuals and self-esteem relationship could be both in positive and negative direction based on the situation (McCrea, 2008; Sanna et al., 1999; Rye et al., 2008). Based on Reflection and Evaluation Model (Markman & McMullen, 2003), this controversy was explained that experiencing upward counterfactuals with evaluating a situation (e.g., "I could not pass the exam, but I could.") elicits negative affect, but upward counterfactuals by reflecting on the situation (e.g., "I was almost achieving the exam.") produces positive affect. Moreover, there is no equivalent correlational study in the literature to discuss self-efficacy and counterfactuals relationship. On the other hand, an experimental study for effect of counterfactuals on self-efficacy revealed that upward counterfactual increases self-efficacy compared to downward counterfactuals (Tal-Or et al., 2004).

Correlational studies like the Study 1 appears to be measuring the upward counterfactual thoughts of individuals while they are mentally simulating their events on

evaluation mode, but not reflection. This may be the reason behind why upward subscales of the CTNES were negatively correlated with self-esteem and self-efficacy. Within this scope, the Study 1 did not only contribute to counterfactual thinking literature by adapting a psychometric tool, but also gave the first correlational findings in Turkish literature that enlightens the functional and dysfunctional sides of counterfactuals, as well.

By the Study 2 (experimental), enhancing the quality of interpersonal relations was aimed through counterfactual thinking. Interpersonal relationships have been always one of top topics in psychology discipline. Emotionally meaningful, healthy, and satisfying social bonds have been seen as a psychological and physiological need by famous interpersonal theories of attachment, interdependence, need-to-belong, and equity. While these theories explain the nature of interpersonal relations, they also warn about the negative effects of poor social relations. In that sense, how detrimental effects on human functioning become inevitable was proven by outnumbered works (Aloia & Solomon, 2015; Arriaga et al., 2016; Hammen, 2003; Frone, 2000; Saavedra, Chapman, & Rogge, 2010).

Although humans inevitably experience problems and conflicts in their interpersonal relations, they may also evolve out of their conflicts. As a well-known proverb says: 'A trouble/scare is better than a thousand advice.' The Study 2 showed that counterfactual thinking has ability to help this proverb come true. The self-upward counterfactual thoughts increased the reparative intentions of participants after imagining a personally meaningful negative event in their interpersonal interactions. As Functional Theory of Counterfactual Thinking (Epstude & Roese, 2008) suggested, the adaptive functionality of counterfactual thinking facilitated people to learn from the earlier negative practices and to adopt them to restrain from similar negative outcomes in the future (Epstude & Roese, 2008).

This functional effect was explained by the self-focused negative emotions of blame, regret, and guilt. These negative emotions might be helpful for better responsibility and perspective taking (Leith & Baumeister, 1998), and lead individuals to take reparative actions for healing damaged social relationships. These mediator roles of blame, guilt, and regret explain how self-upward counterfactuals motivate people to take action for making things better. In conclusion, counterfactual thinking holds a functional role in increasing the quality of interpersonal relations. Just being aware of this information could make people to reflectively think about their negative experiences, and lead them taking the best of their action options to have healthier interpersonal relations.

In the last main hypothesis testing of the thesis, the Study 3 (experimental) questioned whether the functionality of counterfactual thinking can be generalizable to intergroup setting. As functional theory of counterfactual thinking suggested, only the self-upward counterfactuals made significant difference in reparative intentions in the Study 2. That is why the Study 3 just induced the self-upward counterfactuals in intergroup setting within the experimental group. Results did not confirm the hypothesis. Neither the negative emotions nor collective level reparative intentions significantly increased by self-upward counterfactuals compared to non-counterfactual control group. Producing these counterfactuals did heighten the self-blame, guilt, and regret levels of the participants. However, since these increases were not significant enough, increase in reparative intentions toward the out-group could not reach a meaningful level.

Hypotheses testing of the Study 3 were not significant, but results are still promising. Replicating this study with different groups and participants with different scenarios may change the results. Counterfactual thinking refers to thinking about alternative scenarios to the

past events. The negative event scenario in the current study was also given as a past event to a natural group in the Study 3. Nevertheless, the participants of these natural groups are still students, and still endeavoring to take a piece in the scarce source of job opportunities in Turkey. Therefore, although the scenario in vignette happened in the past, it is possible that the participants could not internalize it as something happened in the past. Consequently, this was the first use and test of counterfactual thinking concept in intergroup setting, and it is worth keeping investigation of it.

CHAPTER VI

CONCLUSION AND SUGGESTIONS

Overall, by conducting three studies, the current thesis paper investigated first evidences of social psychological concept of counterfactual thinking in Turkish culture. By adapting a psychometrically sound measurement tool and an experimental process to study counterfactuals, it is thought to open the door for counterfactual thinking research in Turkey. In addition to that, hypotheses of the Functional Theory of Counterfactual Thinking were examined in different contexts, as well. First, by the correlational findings in the Study 1, possible affective and adaptive functions of counterfactual thinking were discussed. Then, by the Study 2 (experimental), first evidence about the functionality of counterfactual thoughts in reparation of interpersonal relations was captured and discussed.

Finally, by the Study 3 (experimental), a test of intergroup level counterfactual thinking was propounded first time in the counterfactual thinking literature. Moreover, possible functional role of this new concept was questioned in reparation of intergroup conflicts. The results were not significant, and the hypotheses were rejected. As last note, the experimental studies revealed that self-focused emotions of blame, regret, and guilt explain the relationship between counterfactual thinking and reparative intentions. Otherwise, lack of them resulted in poor impact of counterfactuals on reparative intentions.

It is also important to touch upon the limitations of the current studies, and related suggestions for future research. There are three main limitations that worth to mentioning, and suggestions for the future research relies on these limitations. To begin with, the Counterfactual Thinking for Negative Events Scale (CTNES) was successfully adapted, but its

sensitiveness in experimental studies was not tested. Its experimental sensitiveness was approved in the original development study of the CTNES by Rye et al. (2008). However, nature of the experimental studies in this thesis was not appropriate to use the CTNES. Therefore, utilizing the CTNES is strongly recommended in later studies.

The second limitation shows itself in the Study 2. Since the main study question is about which counterfactual type is functional, there was no control group in Study 2. Therefore, during the multivariate mediation analysis, one of the experimental groups had to be the reference group in dummy coding. Although the results showed that it is not a big deal, having a control group and not losing an experimental group in analyses would be better.

In addition, the Study 3 could not reach out the desired number of participants. Conducting this study with a larger sample would provide powerful result. Moreover, as discussed earlier, it is believed that replicating the Study 3 with different groups and scenarios could give more meaningful findings about use of counterfactual thinking, and its functionality in intergroup relations. Finally, again in the Study 3, to which extent the Psychology major students socially identify themselves as a psychologist could have been asked. By determining the level of group identification, clearer information could be captured about how the participants perceived the fictitious intergroup conflict in the Study 3. Considering these limitations, retesting the hypotheses of the Study 3 may provide more information about the role of counterfactual thoughts in intergroup relations.

As a final touch, there might be possible confounding variables like some individual differences that might intervene the current studies like personality differences (Allen, Greenlees, & Jones, 2014). For example, religious affiliation or religiousity level of

individuals may influence their ways of producing counterfactuals. Generating downward counterfactuals were positively associated with increased religiosity since participants perceived God's role in their events (Buffone, Gabriel, & Poulin, 2016). Similarly, people may also create downward counterfactuals in order not be a complainant against God's will. Gender-related inclinations might also be another confounding variable, and counterfactual thinking levels might change based on gender (Migliore, Curcio, Mancini, & Cappa, 2014). However, it could not be addressed in the current studies since the data were not good enough to represent gender differences. These sort of possible third variables should be addressed within future research.

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APPENDICES

APPENDIX A: DEMOGRAPHIC INFORMATION FORM

DEMOGRAFİK BİLGİ FORMU

1- Cinsiyetiniz? Kadın ☐ Erkek ☐

2- Yaşınız? _____

3- Ek puan istenilen ders? _____

(Sadece 'PSY 103-Research Methods I' ve 'PSY 205-Experimental Psychology' dersleri için geçerlidir. Aksi takdirde lütfen boş bırakınız.)

4- Okul numaranız? _____

(Sadece 'PSY 103-Research Methods I' ve 'PSY 205-Experimental Psychology' dersleri için geçerlidir. Aksi takdirde lütfen boş bırakınız.)

APPENDIX B: THE COUNTERFACTUAL THINKING FOR NEGATIVE EVENTS SCALE (CTNES)

Negatif Olaylar için Karşı-Olgusal Düşünme Ölçeği (NOKODÖ)

Lütfen yakın zamanda gerçekleşen ve sizde olumsuz bir etkiye sahip bir olayı düşünün. Bu deneyimi ve bu deneyimin sizin için nasıl bir şey olduğunu canlı bir şekilde hatırlamak için birkaç dakikanızı ayırın.

Şimdi bu istenmeyen olayın sonrasında ne tür düşünceler deneyimlediğinizi düşünün. Aşağıdaki ölçeği kullanarak, aşağıda belirtilen düşünceleri ne sıklıkla yaşadığınızı değerlendirin.

	Asla	Nadiren	Ara Sıra	Sıklıkla	Çok Sık
1) İşler daha ne kadar kötüye gidebilirdi diye düşünürüm.					
2) İşler daha da kötüye gidebilirdi diye düşündüğümde rahatlamış hissederim.					
3) İşler daha ne kadar kötüye gidebilirdi diye düşündüğümde çokça şükrederim.					
4) Olanlar olumsuz olsa da, bariz bir şekilde daha da kötü olabilirdi.					
5) Eğer diğer kişi (ya da kişiler) bu kadar bencil olmasaydı, bu berbat durumdan kaçınılabilirdi.					
6) Eğer diğer kişiler (ya da diğer kişi) farklı şekilde davransalardı, bu durum daha iyiye gidebilirdi.					
7) Eğer diğer insanlar (ya da diğer kişi) farklı şekilde davransalardı, bu durum hiç gerçekleşmeyebilirdi.					
8) Keşke diğer kişi (ya da kişiler) zamanında açıkça konuşsalardı, bu durum daha iyi sonuçlanabilirdi.					
9) Eğer farklı bir şekilde davransaydım, işler ne kadar daha iyi olurdu diye düşünürdüm.					
10) Keşke bir zaman makinem olsaydı, böylece söylediğim veya yaptığım bir şeyi geri alabilirdim.					
11) Keşke arkadaşlarımı ve/veya ailemi dinleseydim, durum daha iyi sonuçlanabilirdi.					

12) Eğer harekete geçmekte başarısız olmasaydım, işlerin ne kadar daha iyi olabileceğini düşünürüm.					
13) İşler daha ne kadar iyi olabilirdi diye düşündüğümde üzgün hissederim.					
14) İşler daha ne kadar iyi olabilirdi diye düşünürüm.					
15) Bu kötü durum kimsenin hatası olmamasına rağmen durum/işler nasıl daha iyi sonuçlanabilirdi diye düşünürüm.					
16) İşlerin nasıl daha iyi sonuçlanmasını istediğimi düşünmeden edemiyorum.					

APPENDIX C: THE SHORT VERSION OF RUMINATIVE RESPONSE SCALE

İnsanlar kötü bir deneyim yaşadıklarında bir sürü farklı şey yapar ya da düşünürler. Lütfen aşağıdaki cümleleri okuyup, son iki hafta içinde, belirtilenleri ne kadar sıklıkta yaptığınızı işaretleyin. Lütfen, ne yapmanız gerektiğini değil, gerçekte ne yaptığınızı belirtin.

1	2	3	4
Hiçbir Zaman	Bazen	Çoğunlukla	Her Zaman

1. ___"Bunu hak etmek için ne yaptım" diye ne sıklıkla düşünüyorsun?
2. ___ Son zamanlarda yaşadığın olayları analiz edip "Kendimi niye böyle üzgün hissediyorum" diye "ne sıklıkla düşünüyorsun?
3. ___"Niye bu şekilde bir tepki gösteriyorum?" diye ne sıklıkla düşünüyorsun?
4. ___ Bir köşeye çekilip "neden bu şekilde hissediyorum" diye ne sıklıkla düşünüyorsun?
5. ___ Ne sıklıkla, düşüncelerini yazıp, çözümlemeye ve anlamaya çalışıyorsun?
6. ___ Son zamanlarda yaşadığın olaylar hakkında "Keşke daha iyi sonuçlansaydı" ne sıklıkla düşünüyorsun?
7. ___"Niye benim problemlerim var da, diğer insanların yok" diye ne sıklıkla düşünüyorsun?
8. ___"Neden olayları daha iyi idare edemiyorum" diye ne sıklıkla düşünüyorsun?
9. ___ Kişilik özelliklerini analiz edip "Kendimi niye böyle üzgün hissediyorum" ne sıklıkla düşünüyorsun?
10. ___ Ne sıklıkla tek başına bir yere gidip duygularını anlamaya çalışıyorsun?

APPENDIX D: ROSENBERG SELF-ESTEEM SCALE (RRS)

1) Kendimi en az diğer insanlar kadar değerli buluyorum.
   a) Çok doğru
   b) Doğru
   c) Yanlış *
   d) Çok yanlış *
2) Bazı olumlu özelliklerim olduğunu düşünüyorum.
   a) Çok doğru
   b) Doğru
   c) Yanlış *
   d) Çok yanlış *
3) Genelde kendimi başarısız bir kişi olarak görme eğilimindeyim.
   a) Çok doğru *
   b) Doğru *
   c) Yanlış
   d) Çok yanlış
4) Ben de diğer insanların birçoğunun yapabildiği kadar birşeyler yapabilirim.
   a) Çok doğru
   b) Doğru
   c) Yanlış *
   d) Çok yanlış *
5) Kendimde gurur duyacak fazla bir şey bulamıyorum.
   a) Çok doğru *
   b) Doğru *
   c) Yanlış
   d) Çok yanlış
6) Kendime karşı olumlu bir tutum içindeyim.
   a) Çok doğru
   b) Doğru

c) Yanlış *

d) Çok yanlış *

7) Genel olarak kendimden memnunum.

a) Çok doğru

b) Doğru

c) Yanlış *

d) Çok yanlış *

8) Kendime karşı daha fazla saygı duyabilmeyi isterdim.

a) Çok doğru *

b) Doğru *

c) Yanlış

d) Çok yanlış

9) Bazen kesinlikle kendimin bir işe yaramadığını düşünüyorum.

a) Çok doğru *

b) Doğru *

c) Yanlış

d) Çok yanlış

10) Bazen kendimin hiç de yeterli bir insan olmadığını düşünüyorum.

a) Çok doğru *

b) Doğru *

c) Yanlış

d) Çok yanlış

APPENDIX E: BECK DEPRESSION SCALE

Aşağıda, kişilerin ruh durumlarını ifade ederken kullandıkları bazı cümleler verilmiştir. Her madde bir çeşit ruh durumunu anlatmaktadır. Her maddede o ruh durumunun derecesini belirleyen 4 seçenek vardır. Lütfen bu seçenekleri dikkatle okuyunuz. Son bir hafta içindeki (şu an dahil) kendi ruh durumunuzu göz önünde bulundurarak, size en uygun olan ifadeyi bulunuz.

1) a. Kendimi üzgün hissetmiyorum
b. Kendimi üzgün hissediyorum
c. Her zaman için üzgünüm ve kendimi bu duygudan kurtaramıyorum
d. Öylesine üzgün ve mutsuzum ki dayanamıyorum

2) a. Gelecekten umutsuz değilim
b. Gelecek konusunda umutsuzum
c. Gelecekten beklediğim hiç bir şey yok
d. Benim için bir gelecek olmadığı gibi bu durum değişmeyecek

3) a. Kendimi başarısız görmüyorum
b. Herkesten daha fazla başarısızlıklarım oldu sayılır
c. Geriye dönüp baktığımda, pek çok başarısızlıklarımın olduğunu görüyorum
d. Kendimi bir insan olarak tümüyle başarısız görüyorum

4) a. Her şeyden eskisi kadar doyum (zevk) alabiliyorum
b. Her şeyden eskisi kadar doyum alamıyorum
c. Artık hiçbir şeyden gerçek bir doyum alamıyorum
d. Bana doyum veren hiçbir şey yok. Her şey çok sıkıcı

5) a. Kendimi suçlu hissetmiyorum
b. Arada bir kendimi suçlu hissettiğim oluyor
c. Kendimi çoğunlukla suçlu hissediyorum
d. Kendimi her an için suçlu hissediyorum

6) a. Cezalandırılıyormuşum gibi duygular içinde değilim
b. Sanki bazı şeyler için cezalandırılabilirmişim gibi duygular içindeyim
c. Cezalandırılacakmışım gibi duygular yaşıyorum
d. Bazı şeyler için cezalandırılıyorum

7) a. Kendimi hayal kırıklığına uğratmadım
b. Kendimi hayal kırıklığına uğrattım

c. Kendimden hiç hoşlanmıyorum
d. Kendimden nefret ediyorum

8) a. Kendimi diğer insanlardan daha kötü durumda görmüyorum
b. Kendimi zayıflıklarım ve hatalarım için eleştiriyorum
c. Kendimi hatalarım için her zaman suçluyorum
d. Her kötü olayda kendimi suçluyorum

9) a. Kendimi öldürmek gibi düşüncelerim yok
b. Bazen kendimi öldürmeyi düşünüyorum ama böyle bir şey yapamam
c. Kendimi öldürebilmeyi çok isterdim
d. Eğer bir fırsatını bulursam kendimi öldürürüm

10) a. Herkesten daha fazla ağladığımı sanmıyorum
b. Eskisine göre şimdilerde daha çok ağlıyorum
c. Şimdilerde her an ağlıyorum
d. Eskiden ağlayabilirdim. Şimdilerde istesem de ağlayamıyorum

11) a. Eskisine göre daha sinirli veya tedirgin sayılmam
b. Her zamankinden biraz daha fazla tedirginim
c. Çoğu zaman sinirli ve tedirginim
d. Şimdilerde her an için tedirgin ve sinirliyim

12) a. Diğer insanlara karşı ilgimi kaybetmedim
b. Eskisine göre insanlarla daha az ilgiliyim
c. Diğer insanlara karşı ilgimin çoğunu kaybettim
d. Diğer insanlara karşı hiç ilgim kalmadı

13) a. Eskisi gibi rahat ve kolay kararlar verebiliyorum
b. Eskisine kıyasla şimdilerde karar vermeyi daha çok erteliyorum
c. Eskisine göre karar vermekte oldukça güçlük çekiyorum
d. Artık hiç karar veremiyorum

14) a. Eskisinden daha kötü bir dış görünüşüm olduğunu sanmıyorum
b. Sanki yaşlanmış ve çekiciliğimi kaybetmişim gibi düşünüyor ve üzülüyorum
c. Dış görünüşümde artık değiştirilmesi mümkün olmayan ve beni çirkinleştiren değişiklikler olduğunu hissediyorum
d. Çok çirkin olduğumu düşünüyorum

15) a. Eskisi kadar iyi çalışabiliyorum
b. Bir işe başlayabilmek için eskisine göre daha çok çaba harcıyorum

c. Ne olursa olsun, yapabilmek için kendimi çok zorluyorum
d. Artık hiç çalışamıyorum

16) a. Eskisi kadar kolay ve rahat uyuyabiliyorum
b. Şimdilerde eskisi kadar kolay ve rahat uyuyamıyorum
c. Eskisine göre bir veya iki saat erken uyanıyor, tekrar uyumakta güçlük çekiyorum
d. Eskisine göre çok erken uyanıyor ve tekrar uyuyamıyorum

17) a. Eskisine göre daha çabuk yorulduğumu sanmıyorum
b. Eskisinden daha çabuk ve kolay yoruluyorum
c. Şimdilerde neredeyse her şeyden, kolayca ve çabuk yoruluyorum
d. Artık hiçbir şey yapamayacak kadar yorgunum

18) a. İştahım eskisinden pek farklı değil
b. İştahım eskisi kadar iyi değil
c. Şimdilerde iştahım epey kötü
d. Artık hiç iştahım yok

19) a. Son zamanlarda pek fazla kilo kaybettiğimi/aldığımı sanmıyorum
b. Son zamanlarda istemediğim halde iki buçuk kilodan fazla kaybettim/aldım
c. Son zamanlarda beş kilodan fazla kaybettim/aldım
d. Son zamanlarda yedi buçuk kilodan fazla kaybettim/aldım

20) a. Sağlığım beni pek endişelendirmiyor
b. Son zamanlarda ağrı, sızı, mide bozukluğu, kabızlık gibi sıkıntılarım var
c. Ağrı sızı gibi bu sıkıntılarım beni çok endişelendiriyor
d. Bu tür sıkıntılar beni öylesine endişelendiriyor ki başka bir şey düşünemiyorum

21) a. Son zamanlarda cinsel yaşantımda dikkatimi çeken bir şey yok
b. Eskisine göre cinsel konularla daha az ilgileniyorum
c. Şimdilerde cinsellikle pek ilgili değilim
d. Artık cinsellikle hiç bir ilgim kalmadı

APPENDIX F: THE LIFE ORIENTATION TEST (LOT)

Aşağıda 12 cümle verilmiştir. Her cümleyi dikkatle okuyarak beşli ölçek üzerinde size uygun olan dereceyi işaretleyiniz. ‘Doğru’ ya da ‘Yanlış’ cevap söz konusu değildir. Yardımlarınız için teşekkür ederiz.

	Kesinlikle	Katılmıyorum	Kararsızım	Katılıyorum	Kesinlikle
1. Ne olacağının önceden kestirilemediği durumlarda hep en iyi sonucu beklerim.					
2. Kolayca gevşeyip rahatlayabilirim.					
3. Bir işimin ters gitme olasılığı varsa mutlaka ters gider.					
4. Herşeyi hep iyi tarafından alırım.					
5. Geleceğim konusunda hep iyimserimdir.					
6. Arkadaşlarımla birlikte olmaktan hoşlanırım.					
7. Yapacak birşeylerimin olması benim için önemlidir.					

8. İşlerin istediğim gibi yürüyeceğini nerdeyse hiç beklemem.					
9. Hiçbir şey benim istediğim yönde gelişmez.					
10. Moralim öyle kolay kolay bozulmaz.					
11. Her türlü olayda bir iyi yan bulmaya çalışırım.					
12. Başıma iyi şeylerin geleceğine pek bel bağlamam.					

APPENDIX G: THE GENERAL SELF-EFFICACY SCALE (GSES)

Aşağıda çeşitli konulardaki düşüncelerinizi öğrenmek üzere cümleler verilmiştir. Cümlede geçen ifadenin sizi ne kadar tanımladığını, lütfen, size uygun olan bölmeye işaretleyiniz.

Sizi ne kadar tanımlıyor?

	Hiç				**Çok İyi**
	1	**2**	**3**	**4**	**5**
1. Planlar yaparken, onları hayata geçirebileceğimden eminimdir.	1	2	3	4	5
2. Sorunlarımdan biri, bir işe zamanında başlayamamamdır.	1	2	3	4	5
3. Eğer bir işi ilk denemede yapamazsam, başarana kadar uğraşırım.	1	2	3	4	5
4. Belirlediğim önemli hedeflere ulaşmada, pek başarılı olamam.	1	2	3	4	5
5. Her şeyi yarım bırakırım.	1	2	3	4	5
6. Zorluklarla yüz yüze gelmekten kaçınırım.	1	2	3	4	5
7. Eğer bir iş çok karmaşık görünüyorsa onu denemeye bile girişmem.	1	2	3	4	5
8. Hoşuma gitmeyen bir şey yapmak zorunda kaldığımda onu bitirinceye kadar kendimi zorlarım.	1	2	3	4	5
9. Bir şey yapmaya karar verdiğimde hemen işe girişirim.	1	2	3	4	5
10. Yeni bir şey denerken başlangıçta başarılı olamazsam çabucak vazgeçerim.	1	2	3	4	5
11. Beklenmedik sorunlarla karşılaştığımda kolayca onların üstesinden gelemem.	1	2	3	4	5
12. Bana zor görünen yeni şeyleri öğrenmeye çalışmaktan kaçınırım.	1	2	3	4	5
13. Başarısızlık benim azmimi arttırır.	1	2	3	4	5
14. Yeteneklerime her zaman çok güvenmem.	1	2	3	4	5
15. Kendine güvenen biriyim	1	2	3	4	5
16. Kolayca pes ederim.	1	2	3	4	5

17. Hayatta karşıma çıkacak sorunların çoğuyla başedebileceğimi sanmıyorum.	1	2	3	4	5

APPENDIX H: INFORMED CONSENT FORM

GÖNÜLLÜ KATILIM FORMU

Değerli katılımcı, bu çalışma Ankara Yıldırım Beyazıt Üniversitesi Psikoloji Bölümünde Dr. Öğr. Üyesi Gülten Ünal danışmanlığında yüksek lisans yapmakta olan Muhammet Coşkun tarafından yürütülen bir tez çalışmasıdır. Çalışmanın amacı bireylerin bilişsel düşünme çeşitleri ve sosyal ilişkileri hakkında bilgi toplamaktır. Araştırmanın süresi 15-25 dakika arasında değişmektedir.

Çalışmaya katılım tamamıyla gönüllülük esasında olmalıdır. Çalışmada size rahatsızlık verecek hiçbir bilgi bulunmamakta ve kimlik belirleyici hiçbir bilgi istenmemektedir. Bunun yanı sıra, bu çalışmaya katılmak sizin için hiçbir risk barındırmamaktadır. Ancak, çalışma sırasında herhangi bir nedenden dolayı kendinizi rahatsız hissederseniz çalışmadan ayrılmakta serbestsiniz. Böyle bir durumda, araştırmacıya çalışmayı tamamlamak istemediğinizi söylemeniz yeterli olacaktır.

Bu çalışmadan elde edilecek bilgiler tamamıyla gizli tutulacak ve sadece araştırmacılar tarafından değerlendirilerek bilimsel yayınlarda kullanılacaktır. Çalışma sonunda çalışma ile ilgili sormak istediğiniz sorular cevaplanacaktır. Çalışmaya katılımınız için şimdiden teşekkür ederiz. Çalışma hakkında daha fazla bilgi almak Psikoloji Bölümü öğretim üyesi Yrd. Doç. Dr. Gülten Ünal (Tel: +90 312 906 1456; e-posta: gunal@ybu.edu.tr) ve Psikoloji Bölümü yüksek lisans öğrencisi (e-posta: mcoskun@kafkas.edu.tr) ile iletişim kurabilirsiniz.

Bu çalışmaya tamamen gönüllü olarak katılıyorum ve istediğim zaman yarıda kesip çıkabileceğimi biliyorum. Verdiğim bilgilerin bilimsel amaçlı yayımlarda kullanılmasını kabul ediyorum. (Formu doldurup imzaladıktan sonra uygulayıcıya geri veriniz).

Tarih İmza

___/___/_____

APPENDIX I: RECOGNITION OF A NEGATIVE EVENT & PRODUCING COUNTERFACTUALS

Self-referent upward condition. 'Günlük hayatımızda çevremizdeki insanlarla olan ilişkilerimizde problemler ve çatışmalar yaşayarak birbirimizi incitebilmekteyiz. Bu problem ve çatışmaların sonucu olarak hayal kırıklığı, olumsuz duygular ve ilişkilerimizde zedelenmeler yaşayabilmekteyiz. Şimdi yakın zamanda çevrenizdeki bir kişiyle yaşadığınız ve kendi davranışlarınızın ya da hatalarınızın, sonucu doğrudan etkilediği olumsuz bir olayı hatırlayın. Olayın nasıl gerçekleştiğini açık bir şekilde kafanızda canlandırmak ve sizi ne kadar kötü etkilediğini anımsamak için birkaç dakikanızı ayırın. Ardından, lütfen bu olayı aşağıdaki bölüme ana ayrıntılarıyla beraber yazın. (Olaydaki kişiler için sahte isimler kullanabilirsiniz.)'

İnsanlar yaşadığı olumsuz durumlar karşısında zihinlerinde 'Eğer böyle olsaydı...' diye başlayan cümleler kurarlar .Örneğin, bir araba kazası sonrasında, sürücü 'Eğer bu kadar hızlı gitmeseydim bu kazayı yaşamazdım.' diye düşünebilir. Şimdi, az önce yazdığınız olayın sonucunu daha olumlu hale getirebileceğini düşündüğünüz 'Eğer böyle davransaydım...' diye başlayan düşüncelerinizi lütfen maddeler halinde listeleyiniz. (Lütfen en az 3 madde listeleyiniz.)

Self-referent downward condition. Günlük hayatımızda çevremizdeki insanlarla olan ilişkilerimizde problemler ve çatışmalar yaşayarak birbirimizi incitebilmekteyiz. Bu problem ve çatışmaların sonucu olarak hayal kırıklığı, olumsuz duygular ve ilişkilerimizde zedelenmeler yaşayabilmekteyiz. Şimdi yakın zamanda çevrenizdeki bir kişiyle yaşadığınız ve kendi davranışlarınızın ya da hatalarınızın, sonucu doğrudan etkilediği olumsuz bir olayı hatırlayın. Olayın nasıl gerçekleştiğini açık bir şekilde kafanızda canlandırmak ve sizi ne kadar kötü etkilediğini anımsamak için birkaç dakikanızı ayırın. Ardından, lütfen bu olayı aşağıdaki bölüme ana ayrıntılarıyla beraber yazın. (Olaydaki kişiler için sahte isimler kullanabilirsiniz.)'

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Other-referent upward condition. Günlük hayatımızda çevremizdeki insanlarla olan ilişkilerimizde problemler ve çatışmalar yaşayarak birbirimizi incitebilmekteyiz. Bu problem ve çatışmaların sonucu olarak hayal kırıklığı, olumsuz duygular ve ilişkilerimizde zedelenmeler yaşayabilmekteyiz. Şimdi yakın zamanda çevrenizdeki bir kişiyle yaşadığınız ve karşınızdakinin davranışlarının ya da hatalarının, sonucu doğrudan etkilediği olumsuz bir olayı hatırlayın. Olayın nasıl gerçekleştiğini açık bir şekilde kafanızda canlandırmak ve sizi ne kadar kötü etkilediğini anımsamak için birkaç dakikanızı ayırın. Ardından, lütfen bu olayı aşağıdaki bölüme ana ayrıntılarıyla beraber yazın. (Olaydaki kişiler için sahte isimler kullanabilirsiniz.)'

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İnsanlar yaşadığı olumsuz durumlar karşısında zihinlerinde 'Eğer böyle olsaydı...' diye başlayan cümleler kurarlar .Örneğin, bir araba kazasında sürücü çok hızlıdır ve zamanında frene basamadığı için bir yayaya çarpar. Bu olay sonrasında yaya 'İşler daha da kötü olabilirdi (örn., Küçük sıyrıklarla atlatmak yerine ölebilirdim)' diye düşünebilir. Şimdi, az önce yazdığınız olayın sonucunu daha olumsuz hale getirebileceğini düşündüğünüz 'Eğer diğer kişi böyle davransaydı...' diye başlayan düşüncelerinizi lütfen maddeler halinde listeleyiniz. (Lütfen en az 3 madde listeleyiniz.).

APPENDIX J: FICTITIOUS INTERGROUP CONFLICT VIGNETTE

Aile ve Sosyal Politikalar Bakanlığı toplum ruh sağlığı yararına yeni açılacak olan bir birim için çok sayıda ruh sağlığı çalışanı almaya karar vermiştir. Bakanlık bu yeni oluşturulacak kadronun kimlerden oluşacağı ile ilgili karar verebilmek için Türk Psikologlar Derneği ve Türk PDR (Psikolojik Danışmanlık ve Rehberlik) Derneği temsilcileriyle buluşup bir toplantı düzenlemiştir. Türk Psikologlar Derneği başkanı: 'PDR bölümü mezunlarının aksine, Psikoloji bölümü mezunları özellikle sahada çalışmak için eğitilmektedirler ve gereken beceri ve donanıma sahiptirler. PDR mezunları maalesef insanlara danışmanlık hizmeti verebilecek ve onlara ruh sağlığı hizmeti sunabilecek bir kapasitede bölümlerinden mezun olmamaktadırlar. İlgili açılan kadroda sadece Psikoloji mezunlarının atamasının yapılması çok daha doğru olacaktır.' diyerek kadronun Psikoloji öğrencilerinin hakkı olduğunu savunmuştur. Ayrıca Psikoloji bölümü öğrencileri de sosyal medya araçlarıyla ilgili kadronun sadece kendilerinin hakkı olduğunu savunan mesajlar atmışlardır ve PDR mezunlarına bu kadrodan bir pay verilmemesi gerektiğini belirtmişlerdir. Bakanlık da bu savunmaları ve talepleri dikkate alarak, PDR mezunlarını dışarıda bırakmış ve açılacak olan kadronun tamamının Psikoloji mezunlarına verilmesine karar vermiştir. Bu karar Psikoloji mezunlarının iş olanaklarını genişletirken, PDR mezunlarının iş bulma ihtimalini iyice azaltmıştır. Bu gelişmeler iki ruh sağlığı bölümü arasındaki ilişkilerin olumsuz yönde etkilenmesiyle sonuçlanmıştır. Çünkü iki ruh sağlığı grubu ilgili kadroyu paylaşabilecek iken, PDR mezunlarının bir çoğu mezuniyet sonrası açıkta kalmışlardır.

APPENDIX K: CURRICULUM VITAE

ÖZGEÇMİŞ

KİŞİSEL BİLGİLER
Adı Soyadı: Muhammet Coşkun
Doğum Tarihi: 1994
Doğum Yeri: Gazipaşa
Medeni Hali: Bekar
Adres: Kafkas Üniversitesi Eğitim Fakültesi, Eğitim Bilimleri Bölümü, Rehberlik ve Psikolojik Danışmanlık Ana Bilim Dalı, Merkez/KARS.
Tel: 5511094017
E-mail: muhammetcoskun0794@gmail.com
EĞİTİM
Lise: Elmalı Anadolu Lisesi/2012
Lisans: Orta Doğu Teknik Üniversitesi/Rehberlik ve Psikolojik Danışmanlık/2017
Yüksek Lisans: Ankara Yıldırım Beyazıt Üniversitesi/Psikoloji/2020
İŞ TECRÜBESİ
Araştırma Görevlisi: 2018-Devam
YABANCI DİLLER
- İngilizce : İyi - İspanyolca: Başlangıç
ÖDÜLLER
- ODTÜ/METU Merit Scholarship/2014,2015,2016,2017 - ODTÜ Rehberlik ve Psikolojik Danışmanlık Program Birinciliği/2017
YAYINLAR
- Gözüm, A. İ. C., **Coşkun, M**., & İpek, Z. H. (2019). The endless well in early childhood period: Executive functions in classroom activities. In F. Alisinanoğlu, V. Bayraktar, & A. İ. C. Gözüm (Eds.), *New horizons in early childhood education*. Lithuanian: SRA Academic Publishing. - Can, İ., Gelmez-Burakgazi, S., Çapa-Aydın, Y., & **Coşkun, M.** (2019). *Capturing peer research mentoring experience in undergraduate education: A qualitative case study,* 6. International Eurosian Educational Research Congress, Ankara, Turkey. - Kaymak-Özmen, S., Özmen, A., Er, E., & **Coşkun, M.** (2018, Ekim). *Ortaöğretimde rehberlik uygulamalarının engeller, kolaylaştırıcı etmenler ve öneriler bağlamında değerlendirilmesi*, Sözlü Bildiri, 6. Uluslararası Eğitim Programları ve Öğretim Kongresi, Kars, Türkiye. -

APPENDIX L: ETİK KURULU PROJE ONAY BELGESİ