

**THE MEDIATING ROLE OF COPING
MECHANISMS IN THE RELATIONSHIP
BETWEEN LOCUS OF CONTROL AND
POSTTRAUMATIC GROWTH IN EMERGING
ADULTHOOD PERIOD**

İCLAL AYDIN

İSTANBUL, 2021

THE MEDIATING ROLE OF COPING MECHANISMS IN THE RELATIONSHIP
BETWEEN LOCUS OF CONTROL AND POSTTRAUMATIC GROWTH IN
EMERGING ADULTHOOD PERIOD

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

BY

İCLAL AYDIN

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

APRIL 2021

T.C. BAHCESEHIR UNIVERSITY
INSTITUTE OF SOCIAL SCIENCES
CLINICAL PSYCHOLOGY MASTER'S PROGRAM

Title of The Thesis: The Mediating Role of Coping Mechanisms in the Relationship Between Locus of Control and Posttraumatic Growth in Emerging Adulthood Period

Name and Surname of The Student: İclal Aydın

Thesis Defense Day:

This thesis has been approved by the Institute of Social Sciences which has fulfilled the necessary conditions as Master thesis.

Assoc. Dr. Burak KÜNTAY
Institute Director

I certify that this thesis has fulfilled the necessary requirements as Master thesis.

Program Coordinator

This thesis was read by us, quality and content as a Master's thesis has been seen and accepted as sufficient.

	Title/Name	Signature
Thesis Advisor's		
Member's		
Member's		

“I hereby declare that all information in this document 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.”

Name, Surname: İclal AYDIN

Signature:

ABSTRACT

THE MEDIATING ROLE OF COPING MECHANISMS IN THE RELATIONSHIP BETWEEN LOCUS OF CONTROL AND POSTTRAUMATIC GROWTH IN EMERGING ADULTHOOD PERIOD

Aydın, İclal

M.A., Clinical Psychology

Supervisor: Dr. Çiğdem Koş

April 2021, 104 pages

This study aimed to investigate the mediator role of coping mechanisms in the relationship between locus of control and posttraumatic growth. Two separate mediation models were constructed with internal and external locus of control, and coping was further differentiated as problem focused and emotion focused coping, respectively. Results obtained from 124 participants aged between 18 and 30 ($M = 24.33$, $SD = 2.63$) having at least one traumatic experience confirmed the mediator role of coping for both models. Both problem focused and emotion focused coping were significant predictors of growth with a slight difference. In the second step, 78 other participants who were defined as their significant other were included to rate the main participants' growth status, and their reports were significantly higher than the self-reported scores.

Keywords: Posttraumatic growth, coping, locus of control.

ÖZ

BELİREN YETİŞKİNLİK DÖNEMİNDE KONTROL ODAĞI İLE TRAVMA SONRASI BÜYÜME ARASINDAKİ İLİŞKİDE BAŞ ETME YÖNTEMLERİNİN ARACI ROLÜ

Aydın, İclal

Yüksek Lisans, Klinik Psikoloji

Tez Yöneticisi: Dr. Öğretim Üyesi Çiğdem Koşe

Nisan 2021, 104 sayfa

Bu çalışmanın amacı kontrol odağı ile travma sonrası büyüme arasındaki ilişkide, başa çıkma mekanizmalarının aracı rolünü incelemektir. İçsel ve dışsal kontrol odağı ile iki ayrı aracılık modeli oluşturulmuş, başa çıkma mekanizmaları ise sırasıyla problem odaklı ve duygu odaklı başa çıkma olarak ayrılmıştır. Yaşları 18 ile 30 ($Ort = 24.33$, $SS = 2.63$) arasında olup, en az bir travmatik deneyime sahip olan 124 katılımcı ile yapılan analizlerin sonuçları her iki model için de başa çıkma mekanizmalarının aracı rolünü doğrulamıştır. Yalnızca küçük bir farkla, hem problem odaklı hem duygu odaklı başa çıkma mekanizmaları büyümenin anlamlı yordayıcıları olarak tespit edilmiştir. İkinci kısımda ana katılımcıların travma sonrası büyüme skorlarını değerlendirmek üzere kendilerinin yakınları olarak belirlediği 78 ayrı katılımcı çalışmaya dahil edilmiştir ve yakınların belirttiği büyüme puanlarının kendi rapor ettiklerine kıyasen anlamlı bir farkla daha yüksek olduğu bulunmuştur.

Anahtar Kelimeler: Travma sonrası büyüme, başa çıkma, kontrol odağı.

To my professors whose eyes shine while lecturing...



ACKNOWLEDGMENTS

In the first place I would like to thank my thesis advisor Dr. Çiğdem Koşer for her supports and encouragements to make me find the points that excited me, deepen them and later for trying to present a valuable work. Her sincere questions and critics contributed to my process profoundly. And I also would like to thank my thesis committee for accepting to be part of the evaluation process with their precious contributions.

I am also very grateful to many of my professors I have encountered so far, what I learned from them has awaken something valuable for me and magnified my curiosity. The light in their eyes actually has brighten my way.

Before meeting them, my father was the first teacher to me; I owe him special thanks for lifelong support and love. My mom, sister and brother have always believed in my works and encouraged me.

And I could not imagine myself as eager to work on these issues without my friends who are family to me. Even if the countries where they live in are now Germany and Netherlands, their unconditional trust and love are always with me. I am very delighted to know that we are so close no matter how far.

Finally I would like to express my greatest appreciations to my beloved husband for his unconditional love, unlimited support, and precious friendship. We written our theses in the same table and trying to build our life together. We have a long journey and Misty Mountains will always remind me these days.

TABLE OF CONTENTS

PLAGRIASM.....	iii
ABSTRACT.....	iv
ÖZ	v
DEDICATION	vi
ACKNOWLEDGMENTS	vii
TABLE OF CONTENTS.....	viii
LIST OF TABLES	x
LIST OF FIGURES	xi
1. INTRODUCTION	1
1.1. An Overview of Trauma	1
1.2. Posttraumatic Stress	4
1.2.1. Related Factors.....	6
1.3. Posttraumatic Growth.....	7
1.3.1. Related Factors.....	10
1.3.2. Controversies on PTG	13
1.4. Locus of Control	15
1.4.1. Locus of Control and PTG	16
1.5. Coping.....	17
1.5.1. Coping and Locus of Control.....	20
1.5.2. Coping and PTG.....	22
1.6. Hypotheses and Aim of the Study.....	24
2. METHOD.....	28
2.1. Participants.....	28

2.2. Instruments.....	32
2.2.1. Demographic Information Form	32
2.2.2. Traumatic Stress Symptoms Checklist (TSSC)	33
2.2.3. Posttraumatic Growth Inventory (PTGI)	33
2.2.4. Locus of Control Scale (LCS).....	34
2.2.5. Turkish Ways of Coping Inventory (TWCI).....	35
2.3. Procedure.....	35
3. RESULTS	37
3.1. Data Screening Prior to Analysis	37
3.2. Descriptive Statistics for the Study Variables.....	39
3.3. Correlations of the Demographics and Study Variables.....	39
3.4. Hypothesis Testing.....	42
4. DISCUSSION	53
4.1. Evaluation of the Findings	54
4.1.1. Evaluation of the Correlations of Demographics and Study Variables	54
4.1.2. Evaluation of the Mediating Role of Coping Mechanisms.....	56
4.1.3. Evaluation of the Predictor Role of Coping Mechanisms.....	59
4.1.4. Evaluation of the Validity of PTG	62
4.2. Implications of the Study	64
4.3. Limitations and Suggestions for the Future Research.....	66
REFERENCES.....	70
APPENDICES	83

LIST OF TABLES

Table 2.1. Demographic Characteristics of the Sample.....	30
Table 2.2. Relationship with the Main Participant.....	32
Table 3.1. Descriptive Statistics for the Study Variables.....	39
Table 3.2. Correlations of the Demographics and Study Variables	41
Table 3.3. Regression Analysis for Predicting PTG on Problem Focused Coping.....	47
Table 3.4. Regression Analysis for Predicting PTG on Emotion Focused Coping.....	48
Table 3.5. Intraclass Correlation Coefficients of the Main Participants and Their Significant Others on All Factors of PTG.....	49
Table 3.6. Mean, Standard Deviations and Paired Sample t-Tests of the Main Participants and Their Significant Others on PTG Scores.....	50
Table 3.7. Mean, Standard Deviations and Paired Sample t-Tests of the Main Participants and Their Significant Others on PTG Scores for Spouses.....	51

LIST OF FIGURES

Figure 3.1. Unstandardized Coefficients for the Mediated Role of Problem Focused Coping in the Relationship Between Internal Locus of Control and Posttraumatic Growth.....	44
Figure 3.2. Unstandardized Coefficients for the Mediated Role of Emotion Focused Coping in the Relationship Between External Locus of Control and Posttraumatic Growth.....	45

CHAPTER 1

INTRODUCTION

1.1. An Overview of Trauma

The term trauma originally comes from a Greek word meaning “wound” and definition of the term has been changed throughout the years (McCann & Pearlman, 1990). Ancient meaning of trauma has expanded with the awareness of its psychological roots and major concern of the trauma has gradually shifted from physical aspects to psychological elements. Evaluating the trauma based on psychological context has been formed during a historical process over the last hundred years and, in psychological context it has been investigated mainly on hysteria, shell shock syndrome and domestic and sexual violence, respectively (Herman, 1992).

This relationship between trauma and mental state was firstly investigated by a French physician, Jean Martin Charcot, who worked on hysteria in the late 19th century (Ringel, 2012). Rather than explaining hysteria physiologically, as it would be more common in those days, he started to understand that the origin of hysterical symptoms was actually psychological. His student Pierre Janet continued these studies

as investigating the relationship between traumatic experiences and personality development. Even though he later privileged intrapsychic theory, in his early studies Freud also pointed out that the effect of psychological trauma seriously influencing the state of mind (Mitchell & Black, 1995). As it is seen in these developments, hysteria has shown itself as the first important type of psychological trauma and thereby conducted to expand the definition.

Then with outbreak of the World War I, soldiers have returned to their homes with shell shock syndrome, which has similar symptoms with hysteria, and psychiatrists turned their attention to developing first aid for traumatic symptoms of these soldiers (Herman, 1992). Besides soldiers, a considerable amount of people also started to face off the traumatic events during the war period; and it has been understood that any man could be affected by overwhelming life events and traumatic symptoms are started to be evaluated as more normal reactions (Ringel, 2012). Then with the outbreak of World War II and the Vietnam War, number of traumatized soldiers increased, and variety of intervention methods are needed to be developed; hence, research on the topic has expanded with practical reasons which affect the huge amount of people.

Along with the traumatic reactions of survivors, traumas of women's lives started to be seen in public with the feminist movements in the 1970s (Ringel, 2012). Together with the social change movements, world domestic violence and sexual abuse issues draw attention in the trauma research area. With the awareness of women's negative experiences, it became clear that the psychological effects of war on men are similar to the violence on women (Herman, 1992).

With the expanded use of the term, in the Diagnostic and Statistical Manual of Mental Disorders (DSM)-III, trauma is defined by American Psychiatric Association (APA) as "an experienced event that is outside the range of usual human experience,

and that would be markedly distressing to almost anyone” (1980). In the fourth edition of DSM, scope of the definition is narrowed, and trauma is evaluated as “experiencing, witnessing, or confronting with actual or threatened death or serious injury”, or a threat to the physical integrity of oneself or others; and experiencing intense fear, helplessness or horror across these events (APA, 2000). With slight differences, the last version of the DSM defines trauma as a stressful event that involves actual or threatened death, a serious injury, or sexual violation (APA, 2013). However, these viewpoints of trauma which restrict the threats to physical integrity and excluding the heavy effects of psychological integrity have been criticized a lot by many researchers and practitioners (Briere & Scott, 2015).

All these progress and growing literature shows that the definition of trauma have always been a complicated and debatable issue. On the contrary to the DSM requirements of an immediate threat or physical injury, it would be better to evaluate the term trauma with a broader aspect. At the end of the road, it is offered that a traumatic event carries three basic characteristics; firstly it happens as sudden, unexpected or nonnormative, secondly it exceeds the individual’s perceived ability to meet its demands, and lastly it disrupts the individual’s psychological needs and related schemas and creates a disruption in the frame of reference (McCann & Pearlman, 1990). Thereby, rather than restricting it to solid physical events or very rare conditions, it is better to evaluate it with concerning its overwhelming effects on every single individual and its nature of the unexpected occurrence. In a broader viewpoint, traumatic events can be regarded as seismic challenges for the existing schemas and disruptions on the existing goals, beliefs and coping styles (Arıkan & Karancı, 2012).

After highlighting these broader definitions, it can be concluded that besides natural disasters, death of a loved one, terrorist attacks, abuse, or violence; divorce, childbirth, job loss or other daily life stressors can be evaluated in the framework of trauma if they exceed the individual’s sources and fundamental assumptions are severely challenged. As Herman (1992) has conceptualized; “traumatic events are

extraordinary, not because they occur rarely, but rather because they overwhelm the ordinary human adaptations to life”.

In a comprehensible study it was stated that depending on the qualification criteria of the events, from 55 to 90 percentage of the US population experience one or more potentially traumatic events (Norris et al., 2003). Another study examining the general population surveys on twenty-four different countries found that across all countries 70.4 percent of adults experience at least one single traumatic event during their lifetime (Benjet et al., 2016). In that range, Bulgaria represents the lowest number with 28.6 percent and Ukraine has the highest rate with 84.6 percent. Importantly, many people experiencing the traumatic events have exposed them more than once. An epidemiological survey revealed that the average experienced traumatic event is 3.3 in the US population (Sledjeski et al., 2008). For Turkey, occurrence of the Marmara Earthquake led to an increasing interest in psychological trauma research and lifetime prevalence rate of experiencing at least one traumatic event is reported as 84.2 percent among adult samples from three different provinces (Aker et al., 2007; Karanci et al., 2009). While considering these substantial amounts of prevalence rates, it becomes clear that it would be worthy to study on the possible effects of traumatic events.

1.2. Posttraumatic Stress

In general, response to traumatic events change by personal factors, environmental factors, and event characteristics (Harvey, 2000). Even though it varies by those factors, traumatic events are generally accepted as profoundly disturbing and usually associated with distressing emotions. Severity of disturbing symptoms of traumatic events tends to decline shortly after the event, but sometimes they may persist longer and it may lead to impairment in the functionality of individuals on many areas (Fullerton et al., 2003). In highly challenging situations, the negative outcomes could persist even if the traumatic source is removed.

These negative effects show themselves on psychological, physical, and psychiatric grounds (Tedeschi & Calhoun, 2004). As an example; sadness, yearning, mourning, guilt, anger, and irritability can be count as common affective responses to major life crises. After the traumatic experiences, people physically can feel extreme chronic arousal of body and it requires consistent energy which sounds very tiring. And exposure to traumatic life crises can even increase the risk of developing psychiatric problems as depression, anxiety, posttraumatic stress disorder (PTSD) (Tedeschi & Calhoun, 2004).

Among the psychopathologies, PTSD is seen as one of the most common types in the consequences of trauma and it is firstly defined in DSM-III as a new diagnostic category. Through this definition, psychological trauma and its observed symptoms on Holocaust survivors, Vietnam veterans, and victims of accidents in civilian context started to be included in the DSM (Herman, 1992). And the diagnostic criteria for PTSD have modified throughout the years to the latest versions of DSM. In DSM-V, PTSD is evaluated under the headline of trauma and stress-related disorders, and it requires specific criteria consistent with the trauma definition, which is indicated above. Briefly, PTSD diagnosis requires “exposure to actual or threatened death, serious injury, or sexual violence”. Such exposure could occur as directly expressing, witnessing, learning that they occurred to a close family member or extreme exposure to details for people above 6 years. And according to the diagnostic manual, it should create one or more of these specific symptoms as; distressing memories, distressing dreams, dissociative reactions, psychological distress, and physiological reactions. It also brings persistent avoidance of the stimuli associated with a traumatic event and it leads to negative alterations in cognitions and mood. Another type of alteration has occurred in arousal and activity of individuals. Here, it is important that duration of the referred disturbances should continue more than one month, and they need to lead to clinically significant distress or impairment in functioning which can not be attributed to the physiological effect of a substance or other medical conditions (APA, 2013). In the situations of dissociative symptoms and delayed expression, it necessarily contains specifying condition. And diagnostic manual organized different criteria for children 6 years and younger.

1.2.1. Related Factors

As it is already stated, according to Harvey's (2000) findings, response to traumatic events varies by personal factors, environmental factors, and event characteristics. Personality, individual vulnerability, genetic predispositions, coping mechanisms at the personal level; social support, secure environment at the environmental level and event duration and severity as event-related factors play important roles in shaping the trauma's effects on individuals. There are both risk and protective factors that were found related with posttraumatic stress (PTS) symptoms which can be seen in just below and it would be useful to address them to comprehend the issue better. However, while considering them it is important to keep in mind that relationships of those factors are not far from some inconsistencies throughout the trauma literature (Parkinson, 2000).

On the personal level, gender differences are found as pervasive in terms of developing PTSD. Whereas men are exposed to different kinds of traumas more often than women; with the notable exception of sexual violence, women are twice as likely as men to develop the disorder (Norris, 2003). The impact of trauma could be greater for women and they are also found more likely to develop more chronic forms (Breslau et al., 1998). Among the personality characteristics, neuroticism and introversion were found associated with higher levels of PTSD (Chung et al., 2006; Evers et al., 2001; Moran & Shakespeare-Finch, 2003).

Among event-related factors, severity and duration of the trauma are found positively associated with the higher levels of PTSD following a traumatic experience (Read et al., 2011). Type and nature of the trauma can also affect the prevalence rates, like in several studies rather than unintentional forms like natural disasters; violence, both in sexual and nonsexual forms, was found as the highest conditional risk for PTSD (Kessler et al., 1995; Norris, 1992, 2003; Resnick et al., 1993).

Insecure environment and community factors put individuals in more a vulnerable position and it may also increase the risk of PTSD. Impoverished economic conditions were accounted for higher prevalence of PTSD (Norris, 2003). In general, lower levels of socioeconomic conditions increase the risk factors. Also, experiencing more than one trauma increase the risk of developing PTSD (Bernsten et al., 2012).

When the scope comes to the lifetime prevalence of PTSD, National Comorbidity Survey gives an estimation of 7.8 percentage in the general population of the US (Kessler et al., 1995). For other countries, World Health Organization (WHO) reports show that lifetime PTSD prevalence range from 0.3 percentage in China to 6.1 percentage in New Zealand (Kessler & Ustun, 2008). And for Turkey, this amount is indicated as 9.9 percentage among adult samples from three different provinces (Karancı et al., 2009).

Difference between the prevalence rates of traumatic events and PTSD diagnosis draws attention and puts a question mark on minds. At this point for some researchers, diagnostic limitations in DSM lead to evaluate the PTS in the absence of PTSD diagnosis. Practitioners continue to work on the treatment for the negative effects of trauma even if it does not fit into the diagnostic necessities. Because whether or not individuals meet the diagnostic criteria of PTSD, they can still suffer from some of the indicated posttraumatic symptoms. Thereby it is found important to evaluate the effects of trauma both in the absence and presence of particular psychopathology.

1.3. Posttraumatic Growth

As it is seen, the focus is on the inevitable disturbing effects of traumatic events and their relation to negative milestones on people's whole life. Even though these negative changes can be seen as one of the common consequences of trauma, the emerging literature shows us that people suffering from negative life events could also experience positive changes (Vollhardt, 2009). In other words, traumatic events do not

merely result in traumatic stress; rather they can also lead to positive changes and growth when individuals successfully cope with present consequences (Tedeschi & Calhoun, 1996). Where fundamental assumptions are severely challenged by trauma, the shaken ground becomes more fertile for constructing positive psychological transformation. People's ways of understanding the world and their own place in it are challenged with these crises and they need to reconstruct these viewpoints (Janoff-Bulman, 1992). Then, the term posttraumatic growth (PTG) shows itself as positive psychological changes as a result of the struggle with highly stressful life events (Calhoun & Tedeschi, 1999).

As Tedeschi and Calhoun's (1996) definition refers, PTG requires significant challenges. By this way the growth becomes possible after intense undesirable events which lead to breakdown in individuals' core assumptions. In other words, in order to growth occur, the event must be traumatic enough to challenge the person. Because it is believed that individuals rely on fundamental assumptions about the safety and predictability of the world and they assumed their own presence as invulnerable (Janoff-Bulman, 1992). In this safe base, everyday life challenges and little crises can be easily adapted, and they do not require change in these assumptions. However, PTG comes after experiencing a shake in invulnerability assumption; the significant loss can form the turning point which opens the doors of positive changes and growth (Karancı & Erkam, 2007). Thereby significant challenges shake the safe base and make growth possible. And experiencing highly challenging life events is necessary at the beginning of the posttraumatic growth process.

Here, it is important to be aware that good outcomes are not the first things coming with traumatic experiences. Rather; PTG firstly requires to face suffering and personal distress, accepting the vulnerability of being human, and then struggle to reconstruct the meaning. It means that PTG can not be the direct result of trauma; it requires a substantial amount of struggle, and rather than being the opposite version of the suffering, this growth often coexists with personal distress (Bernsten, & Rubin, 2007; Tedeschi & Calhoun, 2004).

After all, another essential point in the term is that PTG does not merely refer to recovery from trauma but also involves further transformation compared to pre-trauma capacities with a deeply profound process (Arenliu et al., 2019; Janoff-Bulman, 2004). People do not simply return to baseline; rather as Tedeschi and Calhoun (2004) stated that “the individual has not only survived, but has experienced changes that are viewed as important, and that go beyond what was the previous status-quo”. Furthermore, Tennen and Affleck (1998) offered to consider the term PTG as a “process”, because it requires a serious reconstruction period which takes time and effort. Thereby, while trying to understand the nature of the growth, it is better to evaluate it as a dynamic and long process that requires continuous effort to be maintained.

In a nutshell, at the beginning PTG requires significant challenges which fight against the assumptions about invulnerability and they should exceed an individual’s ordinary coping mechanisms. But this experience is not sufficient to develop growth; rather it involves a great deal of struggle. After an earthquake in fundamental assumptions and a deep process of struggling; PTG brings a level that is ahead of the previous state, and at the end the individual gained from suffering.

In fact, the idea of gaining from distress and suffering has been recognized from ancient times which can be found in religious, philosophical and literary resources but it started to attract psychology literature recently. Especially with increased interest in positive psychology in the early 2000s, the term has gained more attention in the last decades (Coyne & Tennen, 2010). Although transformation after traumatic experiences is most commonly named as posttraumatic growth; it is manifested in a variety of forms including stress-related growth, adversarial growth, benefit finding, positive psychological change and even positive illusions (Linley & Joseph, 2004; Park et al., 1996; Tedeschi & Calhoun, 1996; Tomich & Helgeson, 2004; Taylor & Armor, 1996; Yalom & Lieberman, 1991).

Psychological growth from trauma arises in various parts of human life. These changes mainly occur in different areas as self-perception, interpersonal relations and philosophy of life (Tedeschi & Calhoun, 1995). After evaluating themselves as the survivor of trauma instead of a victim of trauma; changes in self-perception show themselves as increased self-reliance (Tedeschi et al., 1998). At the same time, people started to be aware of their vulnerability and appreciate this stance. This combination of increased self-reliance and acceptance of vulnerability makes individuals more open to use available social support. Hence, these changes in self-perception could contribute to the strengthened interpersonal relationship. The increased amount of emotional expressiveness and self-disclosure facilitate more intimate relationships which in turn contain more empathy, concern and effort for others. And with the changes in the personal and interpersonal levels; individuals are getting more open to search and find meaning, then appreciating the life more. The world could become more comprehensible, meaningful, and manageable place. These all show that positive transformation in the perception of self, relationship with others, and view about life are built on each other.

Finally, with the collaborative work of these different areas, PTG does not rise as a single dimension of growth. Rather, it can be manifested in one or more of these five domains: relating to others, new possibilities, personal strength, spiritual growth, and appreciation of life (Calhoun & Tedeschi, 1999; Prati & Pietrantonio, 2009).

1.3.1. Related Factors

Studies simultaneously examine the factors that are related to both PTS and PTG within the same context, and the previously referred inconsistency remains on PTG research findings. Despite this inconsistency, the probability of experiencing growth can mainly vary by trauma-related factors, personal and situational factors.

Trauma-related factors such as type of trauma, stressfulness of trauma, and time elapsed since the traumatic event are investigated in the growth process. Many researchers have found that PTG can occur after a variety of traumatic events such as witnessing trauma (Arikan & Karanci, 2012), natural disaster (Karanci & Acartürk, 2005), war (Arenliu et al., 2019), cancer (Bozo et al., 2009), death of a loved one (Davis et al., 2007), or relationship dissolution (Owenz & Fowers, 2019). There is no difference found among the PTG scores of different traumatic event groups (Park et al., 1996). Hence, rather than the type of traumatic experience itself, its perceived stress and struggle in the aftermath of the trauma is seen as essential to construct the growth (Cordova et al., 2001; Tedeschi & Calhoun, 2004). And high level of the severity of trauma was found positively related to growth (Park, 1998; Tedeschi & Calhoun, 1996). Although the heavy stance is on the perceived stress of trauma, there are also other research findings that have shown the different effects among several types of trauma. Whereas intentional/assaultive events such as sexual assault was found as obstacles for PTG (Kılıç et al., 2016; Shakespeare-Finch & Armstrong, 2010), events involving life-threatening illness or death themes were evaluated as facilitators on this process (Davis & McKearney, 2003). The effect of time has shown itself as another factor to affect the PTG scores. Several studies found that growth takes time to develop (Cordova et al., 2001; Polatinsky & Esprey, 2000). While evaluating the effect of time, Linley and Joseph offered to use longitudinal studies to be more informative and accurate (2004).

In terms of personal factors, some demographic variables have been pointed as related with PTG in several research findings. Being married, having higher level of employment status could be predictors of PTG (Updegraff & Taylor, 2000). Also, compared to males, females have shown a more positive relation with PTG (Park et al., 1996). Since young people are defined as being more flexible, more adaptable and more open to changes, variety of studies consistently indicated that they are more prone to experience PTG (Powell et al., 2003; Tedeschi & Calhoun, 2004). However, comparing with the veterans and other adult populations, there has been relatively little research on PTG with individuals who experienced traumatic events during their adolescence and emerging adulthood period (Schmidt et al., 2019). In the emerging

adulthood period, how individuals react to traumatic events and their way of developing PTG are likely to differ from the adult population. Considering their tendency and inadequate number of studies with this period, this study targets individuals reflecting emerging adulthood. Among personality characteristics, while openness and extraversion were found positively related with PTG, neuroticism showed negative relationship with it (Linley & Joseph, 2004; Shakespeare-Finch et al., 2005). However, there are also other research findings that have found neuroticism as unrelated with PTG levels (Helgeson et al., 2006).

As Tedeschi and Calhoun (2004) stated that positive coping strategies increase the probability of experiencing PTG. Adapting positive and constructive coping strategies such as seeking help or problem focused coping is actually more than one single promoter, it is rather a crucial part of the process. Predictably, avoidance and denial as negative coping strategies in the long term have negatively affected the probability of growth. Similar to the positive coping strategies, contrary to intrusive rumination; deliberative rumination, which refers to engaging more effortful and intentional cognitive processing, was found as another facilitator of PTG (Calhoun et al., 2000; Cann et al., 2011).

Having close relationships and a high level of perceived social support were pointed as one of the most important contributors of PTG (Karanci & Erkam, 2007). But others have not found a significant relationship in terms of social support (Sheikh, 2004). In Stump and Smith's study, more frequent usage of substances or medication was found another situational factor which had related with lower growth rates (Stump & Smith, 2008).

As these research results showed; despite the partial consensus on the PTG-related factors, a considerable amount of studies keeps giving contradictory results. Here, controversies on PTG and other conceptual and methodological critics about the term are going to be addressed.

1.3.2. Controversies on PTG

With the increased interest and rising of different theoretical models to explain PTG, conflicting ideas about the concept have aroused and the term has been accompanied by many controversies. Tedeschi and Calhoun's (2004) model explaining PTG proposes that it is a real phenomenon which requires reconstruction of preexisting schemas and developing a new structure on many dimensions. However, some methodological limitations and the possibility of confusion about the results brings questions about the validity of the term (Jayawickreme & Blackie, 2014).

Critics have questioned whether the growth reflects an actual change or just a positive reappraisal (Owenz & Fowers, 2019). Since positive reappraisal can reduce negative emotions and improve resiliency, it may reflect the items on the PTG scale even if it does not comprise real changes. Through the assimilation of traumatic experiences into a positive way to defend themselves from the distressful emotions and potentially devastating effects, individuals can maintain their self-esteem and their identity (Sumalla et al., 2009). Besides maintaining and enhancing their self-esteem, individuals need to search for meaning in adverse experiences and they could want to keep control over the event.

Relatedly, Taylor (1983) explained the PTG in terms of these issues and highlighted its illusory characteristic in his Cognitive Adaptation Theory. Accordingly, rather than evaluating PTG as a consequence, he evaluated it as a "process" of coping strategies to reduce distress. In addition to this model that explains the traumatic growth in the framework of cognitive adaptation, another model, Janus Face Model of Self-Perceived Growth, refers to two components of growth as both constructive and illusory parts (Maercker & Zoellner, 2004). While the constructive component of growth refers to the functional cognitive restructuring process, the illusory component is more related to denial, avoidance, wishful thinking, and distortion of meaning. As time progresses, the illusory component is expected to be declined and the constructive side of the growth, which requires active struggle, would

bring successful adjustment to individuals. Thereby by diminishing illusory part, its adaptive value constructs the essence of the PTG but according to the model, at the beginning they could coexist.

Methodological critics basically focus on retrospective measures and self-reported expressions. The subjective nature of PTG can create biased results and this potential bias has been criticized a lot in the literature (Sheikh & Marotta, 2005). To increase objectivity, it is suggested to include the reports of significant others into the existing self-reports accounting for PTG. When it is applied by multiple researchers, significant positive relationships were found between the levels of growth reported by the survivor and their significant other among various traumatic events (Moore et al., 2010; Shakespeare-Finch & Tracey Enders, 2008; Weiss, 2002). It means that positive changes felt by the trauma survivors can be observed by their significant other with whom they have a close relationship. Even if reports of significant others could deviate from objectivity due to the close relationship with the survivor and they may share similar reappraisal of trauma; consistent findings of studies basically contributed to the convergent validity of PTG (Moore et al, 2010). Another main methodological critic is about the measurement of the PTG; but with the validation of the instruments, such as Posttraumatic Growth Inventory (PTGI), scientific stance of the concept is strengthened and allayed the controversy over its use (Tedeschi & Calhoun, 1996). However potentially leading effect of positive statements in PTGI is still a debatable issue.

In this study, to reduce certain methodological limitations, reports of significant others are also planned to be included to see whether the term is observable and have convergent validity. Furthermore, to reduce the potential bias about the positive nature of PTG, it is designed to ask questions about traumatic stress on the process of measurement. As it is seen, many theoretical conflicts and methodological critics have aroused with growing interest in PTG. Despite the variety of recent works that have been conducted to explain PTG, its place in the psychology literature and our understanding about its mechanism is not without its limitations. Lack of integration

in the field requires further investigation about the working mechanisms of PTG. And one essential point in these mechanisms is control that is going to be investigated here under the locus of control.

1.4. Locus of Control

The concept of locus of control is defined as the extent to the belief of control that individuals have on their environment (Rotter, 1996). In other words, it refers to belief about the ability to change a situation through action. Beyond the real conditions, it is more related with individuals' interpretations about their responsibility for events (Chiang et al., 2019). Locus of control is the result of strengthening of an expectation that certain reinforcer will follow a certain behavior. Within the process, these reinforcers are generalized and they create a general pattern of expectations (Rotter, 1996). Based on these generalized expectancies that events in one's life are under or outside of his/her control; two general orientations of locus of control have identified as internal and external.

Internal locus of control is defined as the belief that an individual can control what happens in life and influence the outcomes. In this way, they accept that their own decisions, behaviors, personality, or judgments influence the life events, and thereby they can control their own future. Since they attribute the outcomes to their own behaviors, people high in internal locus of control are more likely to assign praise or blame to themselves (Carlson et al., 2009). They tend to be interested in their own well-being and they are more health-focused. It was stated that they are also better prepared to handle unexpected life events (Lefcourt, 1980).

On the other hand, external locus of control refers to the belief that they can not control what happens in life thereby can not influence the outcomes. Individuals high in external locus of control attribute responsibility to external factors and they tend to believe that the outcomes are determined by uncontrollable things. Rather than

believing the control in oneself; the effect of fate, luck, and powerful others are highlighted in their perception and the world becomes a more unpredictable place for them (Rotter, 1996). Correspondingly, they either blame or praise external factors as responsible agents.

1.4.1. Locus of Control and PTG

The concept of control is one of the prominent factors to investigate the cognitive components of behavior (Rotter, 1990). Thus, perceived control is worthy to pay attention to understand the mechanism of PTG, it would affect the way trauma is perceived. In relevant literature, perceived controllability of the events was found positively correlated with stress-related growth (Park et al., 1996; Tennen et al., 1992). Consistent with the relation between perceived controllability and PTG, external locus of control has been predominantly evaluated as a maladaptive way upon handling trauma because of the viewpoint that they would be less likely to seek alternative ways to alleviate their emotional pain (Zhang et al., 2014). In this manner, externals have been evaluated as more related with PTS and the focus of PTG research had turned to internal locus of control (Tedeschi & Calhoun, 1995). Therefore, several studies were conducted to explain this relationship in terms of internal locus of control.

According to a study by Maercker and Herrie (2003) which was conducted with Dresden bombing survivors, while external locus of control was found related to PTS symptoms, internal locus of control was stated as primarily associated with higher levels of PTG scores. Another cross-sectional study which was involving individuals with spinal cord injury has promoted the same finding as indicating a strong association between internal locus of control with higher growth score and external locus of control with higher PTS scores (Zarin et al., 2017). Like the prevailing viewpoint, internal locus of control was found as an important predictor of PTG for a sample of US undergraduate students in another study (Melissa et al., 2019).

One possible explanation to this tendency has come from Zoellner and Maercker (2006) as, this positive relation between internal locus of control and PTG could indicate the illusory side of PTG. They have defended in their Janus Face Model that PTG have both illusory and functional side. Since there is little control in the nature of traumatic events, the stressed effect of perceived control in internal locus of control mechanisms on these kind of events may be the evidence of potential illusory side. And unexpected life events would leave internals in a more difficult situation because of their over reliance on control. Another explanation comes from Burger (1989), he has remarked that psychological conflicts may arise if a person insists on controlling a situation which is actually out of control. At the same time, it has reminded that it would be much better to evaluate locus of control as a habitual cognitive processing styles which can not be defined as stable traits; rather they are adaptive and dynamic processes (Zoellner & Maercker, 2006).

Even though several studies have focused on explaining PTG by using internal locus of control mechanisms, there are also other few studies that found no significant correlation between them (Cummings & Swickert, 2010). That is to say, there are conflicting results about the relationship between locus of control types and PTG. Furthermore, remarkable critics of several researchers about the heavy support on internal locus of control as a predictor of PTG showed that present explanations remain incapable of having an all-inclusive understanding of the growth process. According to relevant literature, it seems that locus of control would affect the way people perceive the traumatic events in some way, however further studies are required to explain their association with PTG and underlying mechanisms in more detail.

1.5. Coping

Closer look at these mechanisms revealed that locus of control has been found as an important factor influencing the coping strategies that we use to manage everyday problems or tensions (Tanck & Robbins, 1979). Because they are related

concepts, investigating the role of coping mechanisms would shed light on the relationship between locus of control and PTG.

Coping is defined as a dynamic process in which cognitive and behavioral efforts made to master, tolerate, or reduce the stress. It is accepted as a response to external and internal demands, and conflicts among them (Folkman & Lazarus, 1980). Folkman and Lazarus (1980) stated that in the process of responding to stress, appraisal of the situation itself and strategies to cope with this situation both have played important roles to shape the coping response. When individuals come across with stressful situations, firstly they start to evaluate the situation in terms of harm, loss, threat, or challenge as a part of the primary appraisal. In addition to situational factors, in secondary appraisal they also evaluate their own resources to cope with this stressful situation. At the end, based on these evaluations, the level of experiencing distress and the ways of coping are determined in the framework of a reciprocal, dynamic, and ongoing relationship between individual and environment.

Whereas further theories have different categorizations of coping, according to the most known stress and coping theory, Lazarus and Folkman (1984) suggested that there are two kinds of coping styles as problem focused and emotion focused coping. In problem focused coping, it is aimed to change the situation or remove the influence. Therefore, it can be defined as a goal-oriented coping strategy. Firstly it requires defining the problem, then evaluating and implementing solutions. For reducing the negative effect of a stressor or making the situation under control, problem solving strategies such as decision making, planning, taking action, or information gathering are applied. It actually includes all active efforts in the process of dealing with distress via altering or modifying the relation with the current situation. It is suggested that in general, problem focused coping is more likely to contribute to the positive outcomes because individuals could feel their active involvement and sense of control.

On the other hand, emotion focused coping is much more related to the regulation of negative emotions and decreasing the stress level. Related with the impact of the stressful event, in the first place; feelings of sadness, fear, or anger are aimed to control. Strategies like wishful thinking, distancing, tension reduction, using humor, self-isolation, avoidance, minimizing, accepting responsibility, positive comparison, or deriving positive value from negative events are used to reduce the distress (Folkman, 2010). Rather than having a broad and comprehensive evaluating, it may include focusing on some aspects of the stressful situation, and in these occasions, it is generally evaluated as a maladaptive way of coping (Green et al., 2010). In brief, while the main aim in problem focused coping strategies is to change the source of stress, in emotion focused coping it is generally expected to regulate stressful emotions.

Preference of different coping strategies has been found related with individual differences at the first stage. Consistent with the previous section, locus of control is one of the prominent factors in this line. Since they believe that there is a strong contingency between their behavior and outcome, internals were found as more likely to use problem-focused coping strategies than externals (Maltby et al., 2007; Ng et al., 2006). This preference also depends on situational factors (Lazarus, 1999). Although these two types of coping can cooccur, individuals tend to use problem focused coping if they appraise the situation as changeable. And for the situations which are appraised as unchangeable, it was indicated that they use more emotion focused coping (Folkman & Lazarus, 1985).

In addition to differences between the coping mechanisms, there are also another important points that should be considered. While problem focused strategies facilitate adaptation in stressful situations, it has been found by Folkman and Lazarus (1980) that individuals can use both problem focused and emotion focused strategies to cope with stressful life events, and preferences can change from time to time. They investigated the relationship between cognitive appraisal and coping over one year period, and they found that more problem focused coping was reported for situations

in which individuals perceived some control and more emotion focused coping was reported in situations where there is less sense of control. In general, while in areas of life amenable to individual control, direct coping strategies would more likely to be effective; for the situations that are perceived as uncontrollable, the same direct coping strategies may not be the appropriate.

And it was also indicated that rather than evaluating these coping strategies as distinct categories, it is better to evaluate these two scales of coping as significantly intercorrelated with each other. According to a following research based on these findings, both forms of coping were identified as adaptive ways to manage the stressful situations (Parkes, 1984). He also pointed out that it is not possible to make a distinction like effective form of coping and maladaptive-wishful thinking within problem focused coping and emotion focused coping categories. Suppression items which are represented in emotion focused coping can also be a potentially effective and adaptive form of coping based on different situations.

Furthermore, while in particular situations one form of coping can be dominant over another one; different types of strategies can be used simultaneously or sequentially in response to different aspects of situations. Perceived importance of particular situations and the way it is appraised can change over time, and related with the changes in the perception, coping strategies would also be expected to change (Parkes, 1984).

1.5.1. Coping and Locus of Control

It was stated previously that according to Tanck and Robbins' study (1979), locus of control was found as an important factor influencing the coping mechanisms to manage everyday problems and tensions. Consistent with indicated relation between locus of control and coping, for internals belief in the power of their own control may be related with their effort to solve problems with the problem-focused coping

mechanisms. Because internals believe that there is a strong contingency between their behavior and outcomes (Parkes, 1984). Since they are more prone to take action and also they have more proactive tendencies, internals was found as more likely to use problem-focused coping strategies than externals (Maltby et al., 2007). According to a meta-analysis that comprises 222 relevant articles, internal locus of control was found positively associated with problem focused coping and favorable work outcomes (Ng et al., 2006). In another study which was conducted with Turkish university students, their internal locus of control scores showed positive correlation with problem focused coping style, and they both exhibited lower trait anxiety scores (Arslan et al., 2009). The referred trait anxiety, which represents the long-term severe anxiety felt with or without an objective reason, could reflect the PTS as a related term for the current study (Scovel, 1991).

Similar relationship between internal locus of control and problem focused coping style has been found in externals and their tendency to use emotion focused coping style in many studies. According to a study which was conducted with male firefighters, external locus of control was found associated with more emotion focused coping (Brown et al., 2002). In another study, Chinese adolescents' use of emotion focused coping mechanisms was found related with their tendency to have external locus of control (Liu et al., 2000). Another study that was designed to predict elderly adults' death anxiety, external locus of control and emotion focused coping were found significantly associated with each other (Razini et al., 2017).

According to goodness-of-fit model, the effectiveness of a coping strategy depends on the appropriateness of coping responses for each different situation and appraisals upon them (Vitaliano et al., 1990). Here, role of controllability of the event shows itself as a crucial element in the defining process of the effectiveness of a coping strategy. Generally, while problem focused control mechanisms are associated with controllable situations, emotion focused coping could be defined as an effective form in uncountable situations (Lazarus & Folkman, 1984). In other words, based on these findings it is expected that control orientations of individuals would influence the

perception of events, as people high in internal locus of control would be more likely to appraise situations more controllable and externals would more likely to evaluate themselves as powerless to influence events.

This close relationship between locus of control and coping may explain an important aspect of the growth process: Predictive role of locus of control on PTG can be explained by using different kinds of coping mechanisms.

When all these studies in the relevant literature are gathered, it is seen that internal locus of control and problem focused coping mechanisms have been consistently found as strongly related with each other on the growth process, and also have tied to higher PTG scores. This consistency is also obtained for the relationship between external locus of control and emotion focused coping mechanisms. However, in this area where the focal point is on the problem focused coping as a fashionable way, emotion focused coping's relation with PTG has contradictory results. As a result, the current model does not properly represent the way that all the events have been processed; so that this pattern that favors internal locus of control and problem focused coping is far from being representative. To be able to explain the process in a more comprehensible manner in terms of adapting different types of coping, it would be worthy to a closer look at the relation between coping mechanisms and posttraumatic growth.

1.5.2. Coping and PTG

Regarding the relation between coping and PTG & PTS, literature findings predominantly associate problem focused coping with lower levels of PTSD symptomology and consistently stress the facilitative role of problem focused coping on the PTG (Ahern et al., 2004; Dirik & Karancı, 2008; Gül & Karancı, 2017; Güneş, 2001; Urcuyo et al., 2005). However, this consistent pattern can not be received for emotion focused coping. While there are some studies which indicated that emotion

focused or avoidant coping is associated with higher levels of PTS (Ahern et al., 2004; Schuettler & Boals, 2011), in a study that was conducted with a Turkish sample it was found that only fatalistic coping can be counted as a predictor of PTS among the various types of coping styles (Gül & Karancı, 2017). Another study found no significant relation between emotion focused coping and PTS, whereas it specified a negative relation between problem focused coping and PTS (Huijts et al., 2012). Similarly, although no significant relationship was found between emotion focused coping and PTG in some studies (Frazier et al., 2001), there are also other studies that defended significant positive relationship between them. They matter for reviewing the adaptive parts of emotion focused coping mechanisms.

In their review, Linley and Joseph (2004) stated that both problem focused and emotion focused coping strategies can be positively associated with PTG. In another study that was conducted with Turkish myocardial patients, while problem focused coping showed higher correlation; both forms of coping was found strongly correlated with growth (Şenol-Durak & Ayvaşık, 2010). Another important study with a sample of Turkish university students also found both coping mechanisms significantly associated with growth and they also found a significant interaction between emotion focused coping and controllability of the event (Göral et al., 2006). It means that when the stressful event is evaluated as uncontrollable, using emotion focused coping mechanisms results in having higher growth scores. Researchers also highlighted the possible effects of cultural and religious effects on the preference and adaptiveness of coping mechanisms in the Turkish context. In the same study, it was pointed out that some the items of the posttraumatic growth inventories and the characteristics of problem focused coping style are overlapping which can be one reason for their positive association on several contexts.

In brief; as it is stated above, problem solving coping style has been found consistently associated with lower levels of PTS, and literature findings referred these strategies as a predominant way to develop growth. However, relation between PTG

and emotion focused coping style is far from having consistent results and apparently; it requires further research on this area.

This situation brings to the surface two important points. The issue of sense of control is hardly found in traumatic experiences, by nature. Thereby, problem focused coping mechanism which requires some sort of controllability can not be adequate or the single eligible way for the growth. Here especially in situations where there is less control, like traumatic experiences, inviting the emotion focused coping mechanisms into the arena and investigating the different styles would be beneficial.

Also, when taking into consideration the nature of coping mechanisms; it would be clear that both types of coping have dynamic working processes and they also have different adaptive forms in different situations. The adaptive form of coping can change based on the individual and situational factors and whereas they are conceptually distinct, both forms are accepted as adaptive mechanisms (Folkman & Lazarus, 1985).

1.6. Hypotheses and Aim of the Study

Considering the overall theories and literature findings which are stated above, the origin and generating process of the hypotheses and aim of this study can be summarized as the following:

While the term trauma was seen as a very rare and devastating condition which is far from being part of everyday life, its broaden definition and high prevalence rates show us that this area is worthy to study for understanding human by considering its effects. And in recent decades, in addition to the negative effects of traumatic events, a new concept arises as posttraumatic growth which refers to positive psychological changes as a result of struggling with these events. The term PTG is not ignoring the

inevitable negative effects of the trauma, rather it commits to growth with this very shaken ground. PTG opens a new window into trauma research and enriches the area by highlighting both sides of the same coin. Studies on PTG would contribute to the works of practitioners and widen the deterministic viewpoint, and also it would enlighten individuals on understanding themselves.

When this emergent literature of PTG is investigated, it is highly probable to come across with a huge controversy in nearly every junction of the area; even in the validity of the term. In order to minimize potential bias and increase the objectivity in this study, it is planned to include the reports of significant others and a PTS instrument. The controversial results may also be related to the inadequate number of studies about this nearly new term, and at the same time, a substantial amount of individual differences may also increase this controversy.

When PTG related factors are taken into consideration, locus of control is drawn attention as a sense of control in a context where there is something out of control happens. According to the findings of relevant literature, while internal locus of control is associated with higher levels of PTG, external locus of control is seen as more related to PTS symptomology, but the results come up with controversies.

And closer look at the relation of locus of control and PTG revealed that this could be more like an indirect relationship where the effect of coping mechanisms plays an important role. In other words, coping mechanisms might be a mediator factor between the locus of control and PTG. Consistently, literature findings showed that there is a positive relation both between internal locus of control-problem focused coping and external locus of control-emotion focused coping.

When the effects of these factors are investigated in the PTG context, it is seen that problem focused coping mechanisms are associated with higher PTG scores, consistently. But literature findings related emotion focused coping have not conclusive results. While generally problem focused coping is favored in studies, there are also other studies that point out the positive association between emotion focused coping and PTG, especially which were conducted in Turkish cultural background.

This controversy can be explained by the variety of factors, and relatedly notable critics have risen in the PTG research field. First of all, highlighting the internal locus of control might be related to the potential illusory side of PTG. Because despite there is little control in traumatic events, this kind of evaluation puts forward the sense of control. The second criticism is also about this controllability issue: effectiveness of the coping mechanisms could depend on the controllability of the event. Whereas in controllable situations problem focused coping could be more effective, emotion focused coping shows itself as an alternative effective way in uncontrollable conditions which reminds the traumatic context. Thirdly, coping mechanisms are defined as dynamic concepts which require an adaptive process. So that, it is expected to change according to the certain factors and, instead of favoring one form of coping, both forms could be accepted as functional and adaptive mechanisms for different individual, situational or cultural contexts.

Based on these theories and literature findings, two mediation models are developed and, together with them the effect of both coping mechanisms on PTG is planned to be investigated which would be very useful for relieving the situation of the deterministic relationships. With these mediation models and further regression models, it is aimed to reveal individual differences by using different coping mechanisms. They also would reduce the controversy of the term, later on. Besides, by comparing the scores of pairs it is aimed to contribute to the reality-illusion criticisms and convergent validity of the PTG, and increase the objectivity.

Hypotheses can be arrayed as follows:

H1: Problem focused coping would be a mediator between internal locus of control and posttraumatic growth.

H2: Emotion focused coping would be a mediator between external locus of control and posttraumatic growth.

H3: Both forms of coping (problem focused and emotion focused) would be positively associated with PTG.

H4: Participants using problem focused coping mechanisms would have higher PTG scores.

H5: PTG would be an observable and valid term.

CHAPTER 2

METHOD

This chapter firstly provides information about the characteristics of the participants, then general and psychometric properties of the instruments used in data collection process, and procedure of the data collection and analysis.

2.1. Participants

This study included two steps with different samples. Firstly, participants aged between 18-30 who indicated a traumatic experience completed the surveys. Then, they were asked to invite one of their significant others, whom they had known for at least 5 years, to share their observations about the main participant.

In the first step of the study, in total 143 main participants completed the surveys. The targeted population had two inclusion criteria as being between the ages of 18-30 and indicating at least one traumatic experience during their lifetime. Based on these criteria, 5 of them were excluded from the study due to age restriction and 13 other participants were excluded because they did not indicate any traumatic

experience. And identifying 1 multivariate outlier, at the end analyses were conducted with 124 main participants. Participants were aged between 18 and 30 with a means of 24.33 ($SD = 2.63$). Of the final sample, 86 (69.4%) were women, 37 (29.8%) were men, and 1 (0.8%) participant chose the other section. In terms of current educational status, 1 (0.8%) participant was high school student, 43 (34.7%) were university students, 29 (23.4%) were master students, 3 (2.4%) were doctoral students, and 46 (37.1%) participants indicated that they are not student now. While 46 (37.1%) participants stated that they are working, 78 (62.9%) were not working currently. Of the 124 participants, 73 (58.9%) participants declared that they are living with their family, 6 (4.8%) of them were living alone, 44 (35.5%) were living with friends at home, and 1 (0.8%) participant was living at dorm. 75 (60.5%) participants attended this study from İstanbul, 28 (22.6%) participants were from other cities of Turkey, and 18 (14.5%) participants were attending from abroad. When they were asked about the romantic relationship, 55 (44.4%) of them stated that they have a romantic relationship, and 69 (55.6%) participants answered no to this question. 24 (19.4%) of the participants who indicated a romantic relationship defined their relationship as flirt, 8 (6.5%) participants were engaged, 15 (12.1%) were married, and 17 (13.7%) chose the other option. In terms of income level, 57 (46%) were at 0-2000 TL range, 32 (25.8%) were at 2000-4000 TL, 18 (14.5%) were at 4000-6000 TL, 11 (8.9%) were at 6000-1000 TL range per month. There were 14 (11.3%) participants who taking psychiatric treatment now, and 110 (88.7%) participants did not indicate any current treatment. For the question of whether they have a history of psychiatric treatment, 38 (30.6%) participants answered yes and 86 (69.4%) participants stated that they have no psychiatric treatment history.

Within trauma-related questions, they were asked to describe briefly their traumatic experiences, in open-ended format. Regarding the time of occurrence, traumatic experiences of 3 (2.4%) participants were in less than 1 month, 3 (2.4%) were in 1-3 months, 4 (3.2%) were in 3-6 months, 42 (33.9%) were in 6 months-3 years, 40 (32.3%) were in 3-5 years, and 32 (25.8%) were in more than 5 years. They were also asked to indicate the effect of this traumatic experience on themselves, 2 (1.6%) participants have slightly affected, 24 (19.4%) have moderately affected, 68

(54.8%) have very much affected and 30 (24.2%) participants defined their situation as highly affected from this experience. Detailed information about the demographic characteristics of the study sample are presented in Table 2.1.

Table 2.1

Demographic Characteristics of The Sample

	<i>N</i>	<i>%</i>
Gender		
Female	86	69.4
Male	37	29.8
Other	1	0.8
Current Education		
High school student	1	0.8
University student	43	34.7
Master student	29	23.4
Doctoral student	3	2.4
Not student	46	37.1
Work		
Yes	46	37.1
No	78	62.9
Accommodation		
With family	73	58.9
Alone	6	4.8
With friends at home	44	35.5
At dorm	1	0.8
City		
Turkey		
İstanbul	75	60.5
Other	28	22.6
Abroad	18	14.5
Romantic Relationship		
Yes	55	44.4
No	69	55.6
Type of Romantic Relationship ^a		
Flirt	24	19.4
Engaged	8	6.5
Married	15	12.1
Other	17	13.7

Table 2.1 (cont.d)

Demographic Characteristics of the Sample

	<i>n</i>	%
Income Level		
0-2000 TL	57	46
2000-4000 TL	32	25.8
6000-10000TL	11	8.9
10000-20000 TL	0	0
20000 TL +	0	0
Present Psychiatric Treatment		
Yes	14	11.3
No	110	88.7
History of Psychiatric Treatment		
Yes	38	30.6
No	86	69.4
Time of Trauma		
Less than 1 month	3	2.4
1-3 months	3	2.4
3-6 months	4	3.2
6 month-3 years	42	33.9
3-5 years	40	32.3
5 years +	32	25.8
Effect of Trauma		
Not at all	0	0
Slightly affected	2	1.6
Moderately affected	24	19.4
Very Much affected	68	54.8
Highly affected	30	24.2

Note. Participants were on average 24.33 years old ($SD = 2.63$).

^a Reflects the number and percentage of participants answering “yes” to previous question.

In the second step of this study, significant others of the main participants were invited to fill out the PTGI, considering the main participant’s situation. This sample of significant others had one inclusion criteria as having met with the main participants at least 5 years. In the first place, 72 participants completed the study. Later, based on this criterion, 2 of them were excluded from the study. And since they had no valuable code name that corresponds to the main participant, another 2 participants were

eliminated. Finally, 68 significant others' reports were evaluated for the study hypothesis. Their relationship with the main participant can be seen in Table 2.2.

Table 2.2

Relationship with the Main Participant

	<i>n</i>	%
Family Member	11	16.2
Spouse	7	10.3
Friend	50	73.5

2.2. Instruments

After presenting the informed consent, firstly participants were asked to fill a demographic information form (see Appendix B). Then, it was followed by Traumatic Stress Symptoms Checklist (See Appendix C), Posttraumatic Growth Inventory (see Appendix D), Locus of Control Scale (see Appendix E), and Turkish Ways of Coping Inventory (see Appendix F), respectively.

2.2.1. Demographic Information Form

The Demographic Information Form was developed for this study to gather information about the basic demographic characteristics of the participants and a couple of questions about their traumatic experiences.

Demographic questions included age, gender, education and relationship status, income level, residence, etc. Besides, the situation of whether receiving psychiatric treatment was also added to eliminate the potential effect of this process. Then it was followed by questions about the description of their traumatic experiences, their time of occurrence, and its effect on the participant.

2.2.2. Traumatic Stress Symptoms Checklist (TSSC)

Traumatic Stress Symptoms Checklist was developed as a part of Screening Instrument for Traumatic Stress in Earthquake Survivors (Başoğlu et al., 2001) and revised by Başoğlu and Şalcıoğlu (2011). The scale consists of 23 items, including 17 PTSD-related and 6 depression-related symptoms, covering the last week symptoms. While the scale was designed for measuring the stress symptoms of the earthquake survivors, it is allowed and also suggested to be used in other trauma samples. Participants rated the items on 4-point Likert type scales ranged from 0 (not at all) to 3 (very much). Total score of 25 or more means that this person likely to have PTSD diagnosis. And considering the presence of both PTSD and depression symptoms together in this scale, the score of 38 or more means that the person may have depression comorbid to PTSD.

TSSC as a culturally relevant instrument has a high internal consistency level ($\alpha = .94$). Alpha coefficients of the separate diagnoses were .92 for PTSD and .84 for depression. The scale has also satisfactory item validity; as a self-reported scale, the difference between survivors' and assessors' ratings were minimal and nonsignificant.

2.2.3. Posttraumatic Growth Inventory (PTGI)

The original scale was developed by Tedeschi and Calhoun (1996) to assess the extent of perceived positive changes aftermath of traumatic experiences. It consists of 21 items which are rated on 6-point Likert type scale, ranging between 0 (I did not experience this change as a result of the event) and 5 (I experienced this change to a very great degree as a result of the event). This scale measures the extent to which the positive changes individuals experience is related to specific traumatic events, and higher scores indicate higher levels of PTG. These positive changes, named growth, are measured on 5 different factors as (1) new possibilities, (2) spiritual change, (3) relating to others, (4) personal strength, and (5) appreciation of life. Factor analysis of the scale offered that this 5-factor model could explain 62 percent of the total variance. Cronbach's alpha reliability of the whole scale is .90 and the alpha coefficient score of

the subscales were ranged from .67 to .85. And with the value of .71 test-retest reliability coefficient, this scale demonstrated its reliability.

PTGI was translated into Turkish firstly by Kılıç (2005), then revised by Dirik and Karancı (2008). Different from the first Turkish version, in revised version response format was adopted to the original 6-point Likert type on 21 items. The original 5-factor model was tested for this revised version and Cronbach's alpha reliability of these subscales were ranged from .76 to .83, and it also has quite high construct validity level for the whole scale ($\alpha = .93$) (Karancı et al., 2011).

2.2.4. Locus of Control Scale (LCS)

Locus of Control Scale was developed by Dağ (2002) to provide a new locus of control scale for Turkish samples by collecting various items from earlier studies and some other originally written items were also added in the process. It was designed to be a more comprehensive and simple version of Rotter's Internal-External Locus of Control Schedule. The scale consists of 47 items rated on a 5-point Likert type scale that is ranged between 1 (strongly disagree) and 5 (strongly agree). Higher scores indicate external locus of control and lower scores indicate internal locus of control. The scale consisted of 5 subscales namely (1) personal control, (2) belief in chance, (3) meaningless of the effortfulness, (4) belief in fate, and (5) belief in an unjust world. This 5-factor solution model explains 40.1 percent of the total variance.

Cronbach's alpha reliability of the scale was reported as .92, which is ranged between .61 and .89 among the subfactors. And test-retest reliability coefficient was found as .88. These scores indicate a highly reliable scale for measuring locus of control in the Turkish context.

2.2.5. Turkish Ways of Coping Inventory (TWCI)

Ways of Coping Inventory (WCI) was originally developed by Folkman and Lazarus (1980) and later revised by the same researchers (1985) to assess individuals' cognitive and behavioral strategies that they use under stressful situations. The revised version of Ways of Coping Inventory has 68 items rated on 4-point response scale ranged from 0 (not used) to 3 (a great deal). Factor analysis revealed 8 subscales as (1) distancing, (2) self-control, (3) accepting responsibility, (4) escape/avoidance, (5) confrontive coping, (6) seeking social support, (7) planful problem solving, and (8) positive reappraisal (Folkman et al., 1986). Following detailing these subscales, the authors offered that the 8 factors can be summarized under 2 main dimensions as problem focused coping and emotion focused coping, while noting social support as a mixed category. Cronbach's alpha reliability on these 8 factors were ranged from .61 to .79.

WCI was translated into Turkish by Siva (1988) with including 8 more items to the original scale to address Turkish people's tendency to use superstitious beliefs and fatalism as a part of their coping styles. This first Turkish translation was utilized with various Turkish samples (Karancı et al., 1999; Şahin & Durak, 1995; Uçman, 1990). In a new and comprehensible form of the scale, which was used in this study, 3 subscales were offered namely (1) emotion focused coping, (2) problem focused coping, and (3) seeking social support: indirect coping style; which can together explain 81 percent of the total variance (Gençöz et al., 2006). Participants are asked to rate the items on 5-point scale from 1 (does not apply or not used) to 5 (used a great deal). Mean scores are calculated for every subscale and higher scores indicate the more using of the coping style on the related factor. Internal consistency scores ranged from .84 to .90 among these 3 factors.

2.3. Procedure

At the beginning of the process, ethical permission to conduct this study was taken from Bahçeşehir University Scientific Research and Publication Ethics

Committee. Then an online survey was developed on the Google Forms platform which approximately takes 25 minutes to fill out. The call for attendance was managed on several online platforms, targeting those who are between 18-30.

With the online link provided by the researcher, participants were introduced to the informed consent form (see Appendix A) which explains required details about the procedure and their rights. They were informed about the content, length, and aim of the study. Importantly, it was presented that this study is conducted on a voluntary basis with full confidentiality and they have right to withdraw from the study whenever they want. Participants who read and approved the informed consent proceeded with other instruments as TSSC, PTGI, LCS, and TWCI respectively. In the last section, debriefing form (see Appendix G) was provided for the participants and they were asked to forward another Google Forms link to a significant other of their choice.

This significant other was invited to the study just to fill out the PTGI concerning the main participant. Similarly, they were introduced with the informed consent form (see Appendix H) which was designed to explain the study and their rights. After their approval, they answered the PTGI questions and they needed to specify a code name for matching the scores with the main participant who forwarded this link to them. Then this part, which is expected to take 5 minutes to complete, ended with the debriefing form (see Appendix I). In the end, they both were kindly invited to write about their ideas, questions, potential associations or contribution, if they want.

CHAPTER 3

RESULTS

This chapter firstly provides information about the data screening process. Secondly, descriptive statistics and intercorrelations among study variables are presented. After that, within the process of hypotheses testing, results of mediation analyses are addressed. In two separate mediation models, dependent variable is PTG for both, the independent variables are internal locus of control and external locus of control, and mediators are problem focused coping and emotion focused coping, respectively. With the mediation findings, relationship between the coping mechanisms and PTG are indicated in detail, comparatively with each other. In the end, correlation between the PTG scores of main participants and their significant others is reported. All of the statistical analyses of this study were conducted with IBM Statistical for the Social Sciences (SPSS) for Windows, version 23.

3.1. Data Screening Prior to Analysis

Prior to data analyses, data screening process was completed to examine the accuracy of the data entry and presence of missing values. Then, all variables were tested whether they meet with the assumptions of univariate and multivariate

normality, linearity, homoscedasticity, and multicollinearity. No violation was detected for the accuracy of data. And missing value analysis revealed that the test of Missing Completely at Random (MCAR) was not significant, $\chi^2 = 42.37$, $df = 33$, $p = .13$, meaning that missing data in this study were completely at random. Series mean transformation was used to replace these missing values.

Then assumptions of the analysis were checked. While analyzing the univariate normality, there was no outlier detected; all study variables were found normally distributed. For the next step, to detect multivariate outliers, Mahalanobis distance was used by taking alpha value of .001 and degrees of freedom as 4. According to Chi-square table, values greater than 18.47 were eliminated. In this way, 1 multivariate outlier was detected and eliminated; in total 124 participants have remained to further analyses.

For the first mediation model, it is expected that problem focused coping would be a mediator in the relationship between internal locus of control and PTG. Within the model the results of linearity assumption revealed that, there were significant correlations between the internal locus of control and PTG ($r = .23$, $p < .05$), and problem focused coping and PTG ($r = .29$, $p < .001$), and also internal locus of control and problem focused coping ($r = .36$, $p < .001$). According to second mediation model, it is expected that emotion focused coping would be a mediator between external locus of control and PTG. A significant correlation was found both between the emotion focused coping and PTG ($r = .30$, $p < .001$), and external locus of control and emotion focused coping ($r = .61$, $p < .001$). However, external locus of control does not significantly correlate with PTG ($r = .477$, $p = .48$), which violates a requirement of mediation analysis. Thus, whereas the first model met with the linearity assumption, it was revealed that the second model violates it by showing a non-significant correlation between the IV and DV. Lastly, the assumption of homoscedasticity was met and also there was no multicollinearity and singularity effect detected.

3.2. Descriptive Statistics for the Study Variables

In this section, descriptive statistics about the main study variables are investigated. The mean score of PTG was 2.68 ($SD = 1.07$), (for detailed information about the subfactors, see Table 3.1). In terms of locus of control; internal locus of control ($M = 3.06$, $SD = .50$) had higher scores than external locus of control ($M = 2.52$, $SD = .48$), on average. Similarly, problem focused coping scores ($M = 3.27$, $SD = .46$) were higher than emotion focused coping ($M = 2.71$, $SD = .56$). And the mean score of traumatic stress was .89 ($SD = .46$).

Table 3.1

Descriptive Statistics for The Study Variables

Variable	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
PTG	2.68	1.07	.24	5
1st factor	2.74	1.41	0	5
2nd factor	2.82	1.32	0	5
3th factor	2.22	1.27	0	5
4th factor	3.13	1.20	0	5
5th factor	2.62	1.46	0	5
LOC				
Internal LOC	3.06	.50	1.41	4.14
External LOC	2.52	.48	1.64	4.04
Coping				
PF coping	3.27	.46	1.90	4.21
EF coping	2.71	.56	1.41	4.32
Traumatic Stress	.89	.46	.00	2.39

Note. PTG Factor 1: New Possibilities, PTG Factor 2: Spiritual Change, PTG Factor 3: Relating to Others, PTG Factor 4: Personal Strength, PTG Factor 5: Appreciation of Life. LOC: Locus of Control. PF Coping: Problem Focused Coping, EF Coping: Emotion Focused Coping.

3.3. Correlations of the Demographics and Study Variables

Among the demographic variables, there was a significant positive correlation between age and PTG ($r = .18$, $p < .05$) suggesting that PTG scores of participants increased with age (for detailed information, see Table 3.2). Age also showed another significant positive correlation with emotion focused coping ($r = .18$, $p < .05$)

indicating that in the range of 18-30, older people had higher scores on emotion focused coping style.

Gender was found significantly correlated with emotion focused coping ($r = -.20, p < .05$) which means in this study that women showed higher emotion focused coping scores.

Romantic relationship showed significant negative correlations with both PTG ($r = -.23, p < .05$) and problem focused coping ($r = -.27, p < .01$). That is, participants who have a romantic relationship showed higher levels of PTG and use less problem focused coping strategies. It also had a positive correlation with traumatic stress ($r = .26, p < .01$), meaning that participants who had no romantic relation showed higher levels of traumatic stress.

Participants' income level showed a significant positive correlation with problem focused coping ($r = .20, p < .05$) which indicates that as monthly income increased, people used more problem focused coping strategies.

The status of current psychiatric treatment showed a significant positive correlation with emotion focused coping ($r = .21, p < .05$), that is participants are currently under psychiatric treatment reported less amount of emotion focused coping. It had also significant negative correlation with traumatic stress ($r = -.23, p < .01$), that is participants are under psychiatric treatment had more traumatic stress scores.

Table 3.2

Correlations of the Demographics and Study Variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Age	-															
2. Gender	-.04	-														
3. Student	.52**	-.17	-													
4. Accommodation	.04	.06	-.12	-												
5. Romantic Relation	-.16	-.24**	-.04	-.02	-											
6. Income Level	.23*	.07	.21*	-.05	-.15	-										
7. Psychiatric Treatment	-.01	.07	-.10	.00	-.01	-.05	-									
8. History of the Treatment	-.05	.17	-.02	-.06	-.03	-.15	.26**	-								
9. Time of Trauma	.01	-.18*	.01	.22*	-.08	.06	.13	-.09	-							
10. Effect of Trauma	-.02	-.14	.12	.04	.14	-.07	-.14	-.18*	.07	-						
11. PTG	.18*	-.14	.09	.07	-.23*	.04	.15	-.08	.02	.09	-					
12. External LOC	.05	.02	-.05	-.07	-.07	-.02	.05	.02	-.28**	-.02	.06	-				
13. Internal LOC	-.04	-.05	-.08	.03	-.15	-.04	.01	.13	-.09	.01	.23*	.03	-			
14. PF Coping	.08	-.04	.17	.10	-.27**	.20*	.05	-.02	.14	-.05	.29**	-.14	.36**	-		
15. EF Coping	.19*	-.20*	.09	.02	.02	.07	.21*	.00	-.09	-.09	.30**	.61**	.01	.03	-	
16. Traumatic Stress	-.10	-.08	.04	-.25**	.26**	-.11	-.23**	.04	-.20*	.28**	-.17	.09	.00	-.05	-.06	-

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

Note. PTG: Posttraumatic Growth, External LOC: External Locus of Control, Internal LOC: Internal Locus of Control, PF Coping: Problem Focused Coping, EF Coping: Emotion Focused Coping.

Time of trauma and external locus of control showed a significant negative correlation ($r = -.28, p < .01$), which means that with increasing time after the traumatic experience, external locus of control scores decreased. In other words when the traumatic experience was still new and fresh, the tendency to have external locus of control increased. The occurrence time of trauma had also significant negative correlation with traumatic stress ($r = -.20, p < .05$); as the time passed, traumatic stress symptoms decreased.

The effect of trauma showed a significant positive correlation with traumatic stress ($r = .28, p < .01$). That is, not surprisingly, participants who were affected by their traumatic experiences more showed higher amount of traumatic stress symptoms.

3.4. Hypothesis Testing

First two hypotheses of this study were formulated to see the mediated effect of coping mechanisms in the relationship between locus of control and PTG, which investigated on two separate mediation models. Then other two hypotheses of the study were formed to see the predictor roles of coping mechanisms on PTG, as compared with each other. For all four hypotheses, to eliminate the effects of possible confounding variables, related demographics were controlled on multiple regression analyses. In the end, PTG scores of main participants and their significant others were compared to see the validity of the concept of growth.

According to Baron and Kenny (1986) steps, there are 4 necessary conditions for conducting a mediation analysis. (1) The independent variable has to be a significant predictor of the dependent variable, which is called as total effect. (2) This independent variable also has to be a significant predictor of the mediator. (3) After controlling the effect of independent variable, the mediator can still significantly predict the dependent variable. (4) When the mediator is included in the equation, the strength of independent variable's effect on dependent variable should be greatly

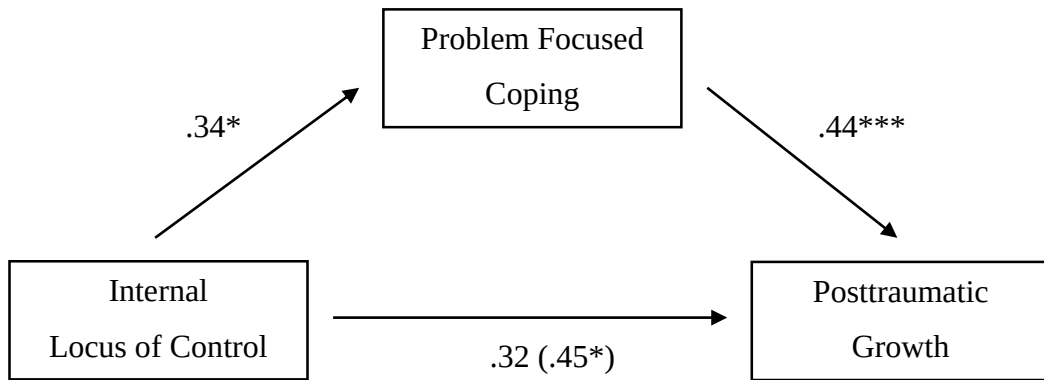
decreased. For two mediation hypotheses of this study, two separate mediation analyses were conducted. Then Sobel test was applied to test the significance of the indirect effect.

While conducting necessary regression analyses, possible confounding demographics which were previously found significantly related with the related variables were controlled throughout the steps. Age and romantic relationship status were controlled because of their significant relation with PTG, in addition to romantic relationship status and income level; age, gender, and psychiatric treatment status were also controlled for their significant relation with problem focused coping and emotion focused coping, respectively. All results reported below about the mediation models were procured by controlling the possible confounding effects.

It was stated in the first hypothesis that problem coping would be a mediator in the relationship between internal locus of control and PTG. In the first step of the mediation analysis, the total effect of internal locus of control on PTG was found significant ($b = .45, p < .05$), that is while internal locus of control scores increase, PTG scores also increase, with a R^2 of .05. In the second step, it was found that internal locus of control was also a significant predictor of problem focused coping, ($b = .34, p < .001$). That is higher internal locus of control scores mean more problem focused coping strategies, with a R^2 of .13 (for detailed information about the model, see Figure 3.1).

In the third step, when internal locus of control was controlled for the mediation analysis; problem focused coping could significantly predict PTG ($b = .44, p < .05$). That is more problem focused coping means higher PTG scores even after controlling the effect of internal locus of control, with a R^2 of .10. In the last step, it was seen that after controlling the effect of problem focused coping; the strength of the relationship between internal locus of control and PTG was decreased, and their previous

significant relation turned into non-significant one ($b = .32, p = .11$), which indicated a complete mediation. Hence, the first hypothesis was confirmed.



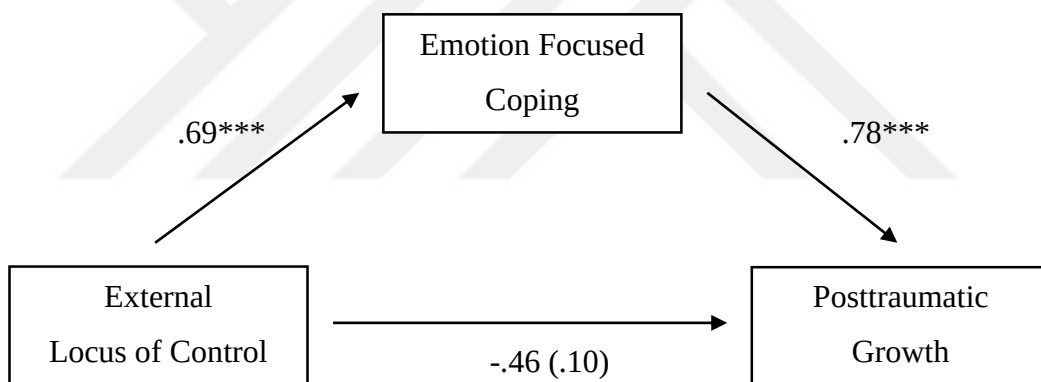
* $p < .05$. *** $p < .001$.

Figure 3.1. Unstandardized Coefficients for the Mediated Role of Problem Focused Coping in the Relationship Between Internal Locus of Control and Posttraumatic Growth

In the second hypothesis, it was expected that emotion focused coping would be a mediator in the relation between external locus of control and PTG. In the first step, no significant total effect of external locus of control on PTG was found ($b = .10, p = .63$). That is, the first necessary step of the Baron and Kenny (1986) could not be confirmed. However according to further studies, compared to indirect effect; total effect and direct effect have much less power, hence this first step might not be an obstacle for proceeding with a mediation analysis within the definition of inconsistent mediation (Kenny et al., 1998; Kenny & Judd, 2014). Consequently, external locus of control was found as non-significant predictor of PTG. In the second step, it was found that external locus of control significantly predicted emotion focused coping ($b = .69, p < .001$). It means that high levels of external locus of control significantly predicted more adaptation of emotion focused coping, with a R^2 of .37 (see Figure 3.2).

In the third step, when external locus of control was controlled for the mediation, emotion focused coping could significantly predict PTG ($b = .78, p < .001$). That is more emotion focused coping strategies means higher PTG scores even after controlling external locus of control, with a R^2 of .11. In the last step, after controlling the effect of emotion focused coping, another non-significant relationship between external locus of control and PTG showed itself similar to the first step ($b = -.46, p = .06$).

Considering their relatively low power, the Sobel test was conducted in the absence of total and direct effect, to test the indirect effect. And mediating role of emotion focused coping and the second hypothesis were confirmed with a significant Sobel test score ($z = 3.48, p < .001$).



*** $p < .001$.

Figure 3.2. Unstandardized Coefficients for the Mediated Role of Emotion Focused Coping in the Relationship Between External Locus of Control and Posttraumatic Growth

In the third hypothesis, both forms of coping were expected to be predictors of PTG. In testing this hypothesis, two different hierarchical regression analyses were conducted for both forms of coping to see the effects of coping strategies on PTG while taking into account the possible effects of demographic variables. Because of their

significant correlation with PTG, in the first step, age and status of romantic relationship were entered into analysis to prevent the possible confounding effect. Then, problem focused coping and emotion focused coping were added in the second step of the analyses.

Results of the first step for both of the models indicated that approximately 6% variance on PTG could be explained by age and status of romantic relation, significantly, $F(1, 122) = 4.82, p < .05$, with a R^2 of .07. Looking at the unique contributions of the demographic variables revealed that the status of romantic relationship significantly contributed to the prediction of PTG ($\beta = -.20, p < .05$), that is having a romantic relationship predicted higher levels of PTG comparing with the situation of having no romantic relationship. However, while their combined effects were significant; age did not present a single significant contribution to PTG by itself ($\beta = .15, p = .09$), (see Table 3.3 and 3.4)

For the first model, problem focused coping was entered in the second step of the analysis. This overall regression model predicted approximately 11% variance on PTG, significantly, $F(3, 120) = 5.82, p < .01$, with a R^2 of .13. It means that problem focused coping accounted for additional 5% of the variance (see Table 3.3). In this second step, significant effects of related demographics were disappeared and only problem focused coping was significant predictor of PTG ($\beta = .24, p < .01$); adaptation of more problem focused coping mechanisms significantly could predict the higher levels of PTG.

Table 3.3

Regression Analysis for Predicting PTG on Problem Focused Coping

Variables	<i>B</i>	<i>Std. Error</i>	β	<i>t</i>	<i>p</i>
Step 1					
Age	.06	.04	.15	1.72	.09
Romantic Relationship	-.44	.20	-.20	-2.28	.02*
Step 2					
Age	.06	.04	.14	1.67	.10
Romantic Relationship	-.30	.19	-.14	-1.55	.12
Problem Focused Coping	.57	.21	.24	2.71	.01**

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

After confirming that problem focused coping significantly predicted PTG, the same procedures were followed for emotion focused coping. In the first step, PTG was firstly regressed on age and romantic relationship status as possible confounding variables and same results were received. After that, in the second step, emotion focused coping was entered into analysis. And this overall regression model predicted approximately 13% variance on PTG significantly, $F(3, 120) = 7.05$, $p < .01$, with a R^2 of .15, which showed that emotion focused coping accounted for an additional 7% of variance. As indicated in Table 3.4, when their unique contributions were investigated, it was revealed that while age did not show a significant prediction; but both romantic relationship status ($\beta = -.22$, $p < .05$) and emotion focused coping ($\beta = .28$, $p < .01$) significantly predicted PTG. In terms of coping strategies, it means that adaptation of more emotion focused coping indicated higher levels of PTG scores. Thus; with the results of these two regression models, the third hypothesis was confirmed as; both forms of coping could significantly predict PTG. Both problem focused and emotion focused coping were associated with high levels of growth.

Table 3.4

Regression Analysis for Predicting PTG on Emotion Focused Coping

Variables	<i>B</i>	<i>Std. Error</i>	<i>B</i>	<i>t</i>	<i>p</i>
Step 1					
Age	.06	.04	.15	1.72	.09
Romantic Relationship	-.44	.20	-.20	-2.28	.02*
Step 2					
Age	.04	.04	.10	1.13	.26
Romantic Relationship	-.46	.18	-.22	-2.52	.01*
Emotion Focused Coping	.57	.21	.28	3.28	.00**

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

These regression results also accounted for the fourth hypothesis which indicated that participants using problem focused coping mechanisms would have higher PTG scores. As it was stated above, both forms of coping were identified as significant predictors of PTG. However contrary to expectations, they showed just a very slight difference. After controlling the effects of related demographics (age and romantic relationship status); while problem focused coping accounted for additional 5% of variance, emotion focused coping accounted for additional 7% of variance. When they were entered into same analysis, again both problem focused coping ($\beta = .23$, $p < .01$) and emotion focused coping ($\beta = .28$, $p < .01$) significantly predicted PTG. In the end, emotion focused coping predicted PTG better than problem focused coping. Although there was a slight difference, participants using emotion focused coping had higher PTG scores. Hence, the fourth hypothesis was not confirmed.

The last hypothesis of this study was about the convergent validity of the PTG. It was expected to see that PTG is an observable and reliable term by comparing the self-report scores and reports of significant others. To test this hypothesis, firstly two-way mixed intraclass correlation analysis was conducted. A moderate degree of significant reliability was found between the PTG scores of the pairs, for all factors

and total score where the average measure intraclass correlation coefficient (ICC) was .58, $p < .001$.

As it was detailed in Table 3.5, total PTG scores of the main participants were positively and significantly correlated with the total PTG score that was obtained from reports of the significant others, $ICC = .63$, $p < .01$, which indicated a moderate reliability. Subfactors of the PTGI had similar ICC scores; with the highest value for the fourth factor as personal strength, $ICC = .66$, $p < .01$, and the lowest value for the third factor as relating to others, $ICC = .50$, $p < .01$.

Table 3.5

Intraclass Correlation Coefficients of the Main Participants and Their Significant Others on All Factors of PTG

Self Report Scores	Significant Others' Scores					
	1	2	3	4	5	6
1. PTG Total	.63**					
2. PTG Factor 1		.52**				
3. PTG Factor 2			.61**			
4. PTG Factor 3				.50**		
5. PTG Factor 4					.66**	
6. PTG Factor 5						.61**

** $p < .01$.

Note. PTG Factor 1: New Possibilities, PTG Factor 2: Spiritual Change, PTG Factor 3: Relating to Others, PTG Factor 4: Personal Strength, PTG Factor 5: Appreciation of Life

Then, paired sample t-test was conducted to see the differences between the PTG scores of main participants and significant others. According to the results, there were significant group differences between the pairs. Total PTG scores of significant others' reports ($M = 3.28$, $SD = 0.84$) were significantly higher than main participants'

own self reports ($M = 2.86$, $SD = 1.07$), $t(64) = 4.03$, $p < .01$. This tendency to have higher scores on the reports of significant others was received for all factors of the PTG (for detailed information, see Table 3.6). Although a significant moderate reliability was obtained for the scores of pairs in the beginning; t-test analysis revealed significant differences.

Table 3.6

Mean, Standard Deviations and Paired Sample t-Tests of the Main Participants and Their Significant Others on PTG Scores

	Main Participant		Significant Other		Paired t
	M	SD	M	SD	
PTG Total	2.86	1.07	3.28	0.84	4.03**
PTG Factor 1	2.91	1.33	3.44	0.94	3.68**
PTG Factor 2	2.90	1.29	3.26	1.05	2.86*
PTG Factor 3	2.47	1.20	2.84	0.89	2.86*
PTG Factor 4	3.20	1.11	3.63	0.98	4.02**
PTG Factor 5	2.75	1.45	3.41	1.19	4.58**

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

Note. PTG Factor 1: New Possibilities, PTG Factor 2: Spiritual Change, PTG Factor 3: Relating to Others, PTG Factor 4: Personal Strength, PTG Factor 5: Appreciation of Life

When the expected relation can not be gathered, further analyses were conducted to see the group differences in detail on three different relationship groups as family member, spouse, and friend by splitting the file. According to paired sample t-test results, among three different groups, PTG scores of the spouses were not significantly different from each other; unlike the total sample scores (see Table 3.7). Of the subfactors, only new possibilities, factor 1, was significantly different between the pairs. Only for this factor, PTG scores of significant others' report ($M = 3.63$, $SD = 0.58$) was higher than the main participants' self-report ($M = 3.46$, $SD = 0.65$), $p < .05$. Thus, expected reliability and validity were confirmed for the pairs of spouses.

Table 3.7

Mean, Standard Deviations and Paired Sample t-Tests of the Main Participants and Their Significant Others on PTG Scores for Spouses

	Main Participant		Significant Other		Paired <i>t</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
PTG Total	3.55	0.48	3.56	0.56	0.08
PTG Factor 1	3.46	0.65	3.63	0.58	2.52*
PTG Factor 2	3.89	0.50	3.57	0.90	-1.14
PTG Factor 3	3.43	0.53	3.34	0.68	-0.75
PTG Factor 4	3.39	0.63	3.71	0.55	1.80
PTG Factor 5	3.67	0.64	3.57	0.96	-0.44

* $p < .05$.

Note. PTG Factor 1: New Possibilities, PTG Factor 2: Spiritual Change, PTG Factor 3: Relating to Others, PTG Factor 4: Personal Strength, PTG Factor 5: Appreciation of Life

For the family pairs; total PTG scores was significantly higher for significant others' report ($M = 3.87$, $SD = .73$) than main participants ($M = 3.13$, $SD = 1.07$), $p < .05$, like the total sample. However, 3 subfactors of the PTGI scores as spiritual change, personal strength, and appreciation of life have not presented a significant difference within the pairs. For friend pairs, total PTG scores was also significantly higher for significant others' report ($M = 3.17$, $SD = .73$) than main participants ($M = 2.72$, $SD = .98$), $p < .05$. Except the factor 3, relating to others, all other subfactors had significantly different mean scores within the pairs like the total sample. That is, although their growth could be observed by their relatives, they had failed to contribute to convergent validity of the term because of the significant difference.

Considering the results of interrater reliability analysis and paired sample *t*-tests; it was revealed that although total PTG scores and subfactors have shown a significant moderate correlation between the pairs, there was also significant difference among the test scores of pairs of the study sample. Generally, significant

others' reports were higher than the self-reported scores. Hence, PTG showed itself as an observable and real term on significant others' reports. But with the significant difference between the pairs, it failed to present satisfactory levels of convergent validity. It can be stated that the fifth hypothesis of the study was only partially confirmed. When it was investigated on the three different pair groups; similar differences were obtained for family member and friend pairs. However, paired sample t-tests results showed that no significant difference was found between the PTG reports of spouse pairs. Consequently, expected relation between the PTG scores of the main participants and their significant other was only totally confirmed for spouse pairs.



CHAPTER 4

DISCUSSION

The present study aimed to contribute to the PTG literature by investigating the mediating role of coping mechanisms in the relationship between locus of control and growth, which had no long history but many controversies. While creating two different mediation models and counting the emotion focused coping mechanism in the scene, it is planned to highlight the individual and cultural differences by referring to Lazarus and Folkman's (1980) theory and the potential illusory side of PTG. Also, by including the TSSC and significant others into the study; the purpose was to increase the objectivity and analyze the validity of the term.

Through this chapter, firstly study findings are interpreted. Then, implications of these findings are presented with its limitations and suggestions for future research.

4.1. Evaluation of the Findings

4.1.1. Evaluation of the Correlations of Demographics and Study Variables

The general demographic information of the main participants was analyzed to see their relationship with the study variables. Mainly, there were two demographics significantly related to PTG: age and romantic relationship status.

Age showed a significant positive correlation with the PTG scores; suggesting that while the age of the participants increases, their PTG scores also increase. It seems that this relationship pattern contradicted with some of the literature findings; as the pioneer researchers, Tedeschi and Calhoun (2004) stated that younger people have tended to show higher growth with their characteristics of flexibility, adaptability, and being more open to change. And several studies supported this relationship between age and PTG (Arenliu et al, 2019; Powell et al., 2003). However, it is important here to take into account the age range of the current study; since it has only included the participants who are between eighteen and thirty, they could all reflect the emerging adulthood period characteristics. Thus, it could be better to state that in this study, increasing age meant higher levels of growth within the range of the emerging adulthood period. And in fact, this finding not entirely against the theoretical suggestions.

In addition to age, romantic relationship status also showed a significant negative correlation with PTG, which indicated that participants with a romantic relationship showed higher PTG scores. Having a romantic relationship had also consistent results in literature findings; as a kind of romantic relationship, being married was found as one of the significant factors associated with PTG (Updegraff & Taylor, 2000). And having a close relationship was one of the prominent factors significantly related to PTG among breast cancer survivors (Karanci & Erkam, 2007). This relationship could be explained by the positive effect of social support coming from a close relationship.

Unlike many studies, gender did not show a significant correlation with PTG, that is males and females had similar growth scores. Females showed higher PTG scores compared to men in several studies (Kesimci et al., 2005; Park et al., 1996; Şenol-Durak & Ayvaşık, 2010). This difference between the current study and previous findings could be related to underreporting the possible benefits or symptoms of males (Kleim & Ehlers, 2009; Tedeschi & Calhoun, 1996).

In addition to referred personal factors, some of the trauma-related factors were also investigated and there was no significant correlation found between PTG scores and both occurrence time and the effect of traumatic event. However, the effect of trauma was one of the prominent factors predicting PTG; in variety of studies, perceived stress of the trauma significantly associated with higher levels of growth (Cordova et al., 2001; Park, 1998; Tedeschi & Calhoun, 2004). Time elapsed since the traumatic event was also another factor that was positively related to higher PTG scores in many studies (Cordova et al., 2001; Polatinsky & Esprey, 2000). While in general its effect on individuals and elapsed time could be related to more struggle and effort to cope with trauma, it did not happen in this way in the current study. The non-significant relationship with these trauma-related factors in could be related to the fact that rather than the intensity of the traumatic event and its effects on individuals; struggle with the consequences was more essential to achieve growth (Calhoun et al., 2000). In other words, although having remarkably affected by the traumatic event is necessary to create a growth context, it is not enough to create it. And to talk about more accurate results about the effect of time on PTG, longitudinal studies are recommended (Linley and Joseph, 2004). Hence, according to many study findings; time could contribute to the PTG scores, but it could be better seen in the reports of the same individual within different time periods.

Although they have not shown a significant correlation with PTG, the effect of trauma and its elapsed time had significantly correlated with PTS. Not surprisingly; with more time since the traumatic event, the level of traumatic stress was decreased and participants who had been affected more by the trauma showed higher levels of

traumatic stress symptoms. Unlike the necessary active involvement in the process of growth, these factors presented more directive results for PTS, by nature; the destructive part of the story happens in a more passive and predictable manner.

4.1.2. Evaluation of the Mediating Role of Coping Mechanisms

In the current study, the indirect effect of locus of control on PTG through coping mechanisms was investigated on two different mediation models. In the first model, problem focused coping was a mediator on the relationship between internal locus of control and PTG, and emotion focused coping was another mediator in the second model which was between external locus of control and PTG. For both models, the mediator roles of coping mechanisms were confirmed with a full mediation and inconsistent mediation, respectively.

According to the first mediation analysis, a significant total effect of internal locus of control on PTG was detected and it had also a significant relationship with problem focused coping. After controlling the effect of problem focused coping within this model, internal locus of control no longer directly affected PTG, which indicated a full mediation. Thus, problem focused coping was a mediator affecting this relationship indirectly. These results showed that internal locus of control had a significant relationship with PTG through the adaptation of problem focused coping. In a more detailed way, individuals who had internal locus of control preferred more problem focused coping, and this style contributed to their growth scores. Therefore, rather than a direct relationship which is indicated in a variety of studies; it could be stated that internals experienced higher levels of growth when they have used problem focused coping. Contrary to theoretical suggestions and a variety of studies that evaluated internal locus of control as a predictor and direct source of growth, it has presented itself in this study with an ‘indirect’ way. While trying to make matters manageable and under control, they probably would not be prepared to unexpected life events, which is not overlapping with Lefcourt’s (1980) suggestion. Present evaluations about internal locus of control as a predictor of PTG had not satisfactory

explanations; and here it is signified that the reason of this close relationship between internal locus of control and PTG is more about adaptation of problem focused coping mechanisms.

Within the steps of the first mediation analysis, having internal locus of control significantly predicted the adaptation of problem focused coping. That is, individuals who could be defined as internals reported more problem focused coping. And literature findings concerning different types of coping mechanisms presented satisfactory results in terms of confirming this relationship between internal locus of control and problem focused coping. Expectably, since internals believe in the power of their own control, they prefer more problem focused coping where they can use their proactive tendencies (Maltby et al., 2007). Another explanation about this relationship comes from the point that; internals also rely on the contingency between their behaviors and outcomes, hence they prefer to deal with their own behaviors and take action on them (Parkes, 1984). This relationship also could be traced in comprehensible meta-analysis in and outside of the PTG context (Ng et al., 2006).

Furthermore, the first mediation model also showed that problem focused coping was a significant predictor of PTG even after controlling the effect of internal locus of control, which was controlled because of its significant relation with PTG. According to this result, individuals who used more problem focused coping mechanisms exhibited high levels of growth scores. This active involvement in the process of reconstructing the existing schemas and adaptation of the behaviors might contribute to the process of developing new views of life and enhancing self-efficacy which later increases the likelihood of PTG (Göral et al., 2006). And not surprisingly, several other studies had compatible results with this finding (Ahern et al., 2004; Dirik & Karancı, 2008; Gül & Karancı, 2017; Güneş, 2001; Urcuyo et al., 2005). Some items of the Ways of Coping Inventory which are related with problem focused coping had overlapping statements with PTGI, this could be another reason for this significant close relationship.

In the second mediation model, unlike the first model, no significant total effect was detected between the external locus of control and PTG. In other words, there was no significant relationship between being external and having low or high growth scores. PTG literature has focused on explaining growth on internal locus of control, and in the area where perceived control is highlighted, external locus of control had contradictory research findings. While there are few studies indicating a positive relation or no direct relation (Cummings & Swickert, 2010), predominant viewpoint presented several studies defending the negative relation between being external and PTG (Maercker & Herrie, 2003; Zarin et al., 2017; Zhang et al., 2014). But among the traumatic events where there is little control, these findings evoke contradictory explanations. According to these contradictions and theoretical framework, being external had a relation with PTG but it would be evaluated as an indirect relationship where other mechanisms might have an effect.

Despite the absence of significant total effect in the first step, further steps of mediation analysis were conducted because comparing to indirect effect; the direct relationship between the independent and dependent variable has much less power (Hayes, 2009; Kenny et al., 1998; Kenny & Judd, 2014). That is; although the knowledge of significant total effect is important, mediation can still exist. And according to results, external locus of control significantly predicted the adaptation of emotion focused coping, and later emotion focused coping significantly predicted PTG scores which indicated an inconsistent mediation. Therefore, while there is no significant relationship between external locus of control and PTG, the role of emotion focused coping could change the scene. More external locus of control indicated more adaptation of emotion focused coping, and relatedly this coping style contributed to the higher growth scores, significantly. This mediation model could also shed light on the contradictory literature findings, especially in terms of external locus of control. Rather than being a disadvantage for developing PTG directly, it could serve to the journey indirectly when emotion focused coping is adapted in a convenient context.

Within the steps of the second model, individuals who had higher scores on external locus of control also had higher scores on emotion focused coping mechanism, significantly. Because externals focused on the uncontrollability of the events, they have tended to prefer emotion focused coping, where they have tried to regulate their distress by focusing on the positive aspects of the situation or looking for emotional support from the social environment (Lazarus & Folkman, 1984). And this preference for emotion focused coping could be a more adaptive response to uncontrollable events (Göral et al., 2006). This significant relation with external locus of control and emotion focused coping was confirmed by several studies in and outside of the PTG literature.

Another important implication of the second mediation model was about the significant direct effect of emotion focused coping and PTG. The model showed that emotion focused coping was a significant predictor of PTG, in a supportive way. That is, individuals using emotion focused coping mechanisms had high growth scores, which can be a remarkable finding of this study. Although many other studies have favored problem focused coping as a significant predictor of PTG, emotion focused coping could be also significantly related to growth as an adaptive coping mechanism. One possible explanation comes from the nature of traumatic events; since traumatic events are defined as unexpected and uncontrollable, adaptation of emotion focused coping in this context could indicate higher levels of growth in contrast to control-based approaches (Lazarus & Folkman, 1984). In addition to that, possible effects of the cultural and religious characteristics Turkish context might show themselves on this relationship (Göral et al., 2006) that will be addressed in more detail below.

4.1.3. Evaluation of the Predictor Role of Coping Mechanisms

It was also hypothesized that both forms of coping would be predictors of PTG, with expecting higher growth scores for problem focused coping. These relations were investigated with two different hierarchical regressions and predictor role of both coping mechanisms was confirmed. But contrary to expectations, these coping

mechanisms exhibited just a very slight difference in terms of PTG scores; in detail, emotion focused coping could predict growth better.

Since age and romantic relationship status had significant relation with PTG, they were included in the first step of these two regression analyses to prevent possible confounding effects of demographics. When they two were entered into the equation together, while age lost its significant effect, romantic relationship status could still significantly predict the PTG and they together could explain approximately 6% variance of PTG. According to results, participants who reported that they have a romantic relationship exhibited higher levels of growth comparing to other participants who did not report a romantic relationship. This finding compatible with many other studies (Karanci & Erkam, 2007; Updegraff & Taylor, 2000). In one of the basic theories explaining the growth, Schaefer and Moss (1998) offered a comprehensive viewpoint that includes personal, environmental, and event-related factors as essential contributors of PTG. Any kind of social relationship, which reflects the romantic relationship in this study, and its perceived quality facilitates the growth development process.

Problem focused coping was entered into the second step of regression and it accounted for 5% additional variance of growth. When the effects of age and romantic relationship status were controlled, problem focused coping significantly predicted the growth scores. Participants who used problem focused coping significantly had high growth levels. As indicated earlier, actively involving in the reconstruction process and adopting new behaviors might facilitate to development of a new view of life that would be more adaptable (Göral et al., 2006). Problem focused coping had already been consistently found as an important predictor of PTG in many other studies, they had even similar items with each other.

In the second regression analysis, emotion focused coping was entered into the second step and this time it accounted for 7% additional variance of PTG. Under the

condition of the effects of related demographics were controlled, emotion focused coping was a significant predictor of growth. Participants who used emotion focused coping significantly had high growth levels. Consistent literature findings which showed the predictor role of problem focused coping was not available for emotion focused coping. There were variety of studies concerning both contributor and inhibitor role of emotion focused coping on PTG, even though most of them discredit its role on the process.

Although there was a little difference between the two kinds of coping, emotion focused coping could predict PTG better. That is, contrary to the expectations of this study and several other studies; emotion focused coping showed itself as an adaptive mechanism facilitating the process of constructing PTG. This finding could be explained by the uncontrollability factor and Turkish cultural characteristics. First of all, in situations when there is less control; preference for emotion focused coping would be a more adaptive way of coping (Lazarus & Folkman, 1984). And since traumatic experiences are full of uncontrollable things, emotion focused coping could create a context that is very suitable for developing growth, as focusing on positive aspects and seeking support from the environment. Therefore, rather than favoring problem focused coping as the only way to cope with traumatic events, it would be better to evaluate these mechanisms as dynamic concepts, with a remark that emotion focused coping is adaptive and useful way, especially for uncontrollable situations. In addition to that, when the characteristics of Turkish culture and religious factors were considered, emotion focused coping could also take the role as an adaptive coping different from the consistent pattern of the PTG literature (Göral et al., 2006). That is, with the belief that stressful events will have positive consequences in the future and they all happened within the knowledge of God; individuals would try to evaluate their situation in a more positive sense which is associated with growth.

4.1.4. Evaluation of the Validity of PTG

Based on the methodological critics of PTG, significant others of the main participants were included in this study to compare the self-report growth scores and observers' rates. In this way, it was hypothesized to see a strong correlation between them. Within the analyses, even if the intraclass correlation scores between the pairs exhibited a significant moderate correlation, paired sample t-test findings revealed that there were significant differences between the pairs, except the spouse pairs. Thus, even it was confirmed that PTG is an observable and real concept, these findings could not provide satisfactory levels of convergent validity; which indicated a partial confirmation for the hypothesis.

Most of the instruments designed to measure PTG have considered self-reports which requires retrospective recalls. One of the main critics about the term arises here: the subjective nature of the measurement process could create biased results (Sheikh & Marotta, 2005). To see this potential bias and evaluate the scores, researchers offered to include significant others' reports into the studies. And according to the results of several studies, significant positive relations were found between the reports of the trauma survivor and their significant others (Moore et al., 2010; Shakespeare-Finch & Tracey Enders, 2008; Weiss, 2002). Despite small deviations; consistent findings of the similar levels of growth between the pairs have served the convergent validity of PTG. At the same time, as an answer to reality or illusion debate, this significant relation between the pairs has showed that PTG is a real and observable term.

In this study, at first, significant positive correlations were found between the pairs for both total PTG scores and subfactors, with a moderate reliability. This moderate level of relationship in an unsatisfactory level requires further analysis. And following that, to see the difference between the pairs more detailed; paired sample t-test was conducted which later revealed significant group differences. According to results, self-reported growth scores were significantly lower than their significant

others' reports about themselves, on all PTG factors and overall score. One possible explanation for this difference can be related to the design of measurement: including TSSC as an instrument measuring the traumatic stress symptoms could be an important factor influencing the evaluation process for the main participants. To increase the objectivity of the results and diminish the potential positive bias of the growth instrument, TSSC was given first to the participants; thereby they came across with the negative statements related to their traumatic experience at the first stage. After completing this instrument, they were asked to fill out the PTGI questions. Based on the cognitive dissonance theory, it could be inferred that participants may have difficulty to reconcile their positive experiences together with the traumatic stress symptoms statements (Festinger, 1957). But their significant others only encountered with the PTGI, it may increase their positive bias; thereby they presented higher scores for their pairs. In addition to that, the measurement tool, PTGI, could be another factor that influenced the results. The current method of measurement referring a certain association with a specific event might underestimate the growth to a small but significant degree (Smith & Cook, 2004). PTGI requires evaluating the growth level associated with a specific stressor, it asks participants to compare their situation specifically linked with that event. Hence, it may lead participants to be more cautious about their evaluations.

When a significant difference was identified between the pairs, further analyses were conducted to see the group differences in more detail. Results of three different paired sample t-tests revealed that unlike the friend and family pairs, spouse pairs did not show a significant difference between the pairs' PTG scores, except for the first factor: new possibilities. In other words, self-reported PTG scores of the main participants had similar scores with their spouse, these pairs were not significantly different from each other. The difference among three types of relationship groups would be related to the closeness, quality or intimacy of the relationship. Since traumatic events and experiences afterward them are very sensitive and personal, it requires a close relationship to see the growth process. Therefore, rather than friendship and family members relationships, it may be easier to be found in spouse relationships as in the current study.

4.2. Implications of the Study

This study has both theoretical and practical implications. Facing traumatic events does not merely lead to only disturbing consequences, it can also open a door for reconstruction and later develop growth. Since these sudden disruptions are part of everyday life in this unexpected world and growth is possible afterward of these events, any contribution to know PTG better is valuable in evaluating the term more comprehensively. This study not only enhances the PTG literature which is full of controversies as a relatively new research area, but also creates awareness about the individual and cultural variations on the road to growth.

Firstly, contrary to literature findings which have highlighted active coping mechanisms as the only way in the growth process; findings of this study showed that there are several paths to PTG. Adaptation of both problem focused and emotion focused coping mechanisms exhibited significant relationship with higher levels of growth. In the trauma context that is far from being predictable and controllable, emotion focused coping even showed itself as a better predictor of growth. That is, in uncontrollable situations like traumatic experiences, adaptation of emotion focused coping even would be more functional way. A comment of one participant of this study also showed the controllability issue: She stated that, even if her general pattern is not stable, when some points started to seem uncontrollable to her, at this very moment, acceptance showed itself as a relieving thing. Furthermore, the Turkish cultural and religious belief system that offers to interpret the situations favorably could also contribute to the preference of emotion focused coping as an adaptive way. Hence this study tried to show that PTG is a rich concept that is very sensitive to situational factors and cultural differences.

It was also revealed that adaptation of different coping mechanisms was significantly related to the locus of control. And coping was detected as the mediator in the relationship between locus of control and PTG. Locus of control had an indirect relation with growth, it would be better to evaluate the process with the adaptation of

coping mechanisms. Rather than a direct relationship, individuals adapt suitable coping mechanisms to the extent of their types of locus of control. It also shed light on one of the essential features of PTG: it requires a great deal of struggle in a distressful situation, and adaptation of a coping mechanism can be a very good example of the struggle. Therefore, considering the mediator role of coping, it could be stated that in addition to situational and cultural factors; individual differences also play important roles in the model, as mainly affecting the adaptation of different coping mechanisms. Identifying these variables as significantly related to PTG and revealing their relationships among themselves; this study also contributed to the literature by highlighting the dynamic and unique processes.

Based on these theoretical findings, at clinical level, this study can offer to use or construct interventions that are in harmony with individual and situational factors, and their cultural background. Through these sensitive approaches, unique evaluations could be facilitators to promote PTG, or it may even raise awareness about growth aftermath of disturbing events is possible. In this way, clinicians should be very careful about knowing their clients closely and adapting the tools accordingly. But here it is very important to be aware of that rather than being a conscious goal, PTG arises generally as a surprise for individuals (Tedeschi & Calhoun, 2004). After a traumatic experience, they already face with many unexpected changes and in this very shaken ground, firstly they just try to survive. Therefore, offering PTG in a gold tray could not be a wise step in such a distressful position. Instead, with allowing to live and express freely their distress, and later working on basic reestablishments for living would make growth more possible for them. The way to do this for clinicians requires knowing their clients very well, being a guide for finding their own unique ways to cope and supporting them; not standard manuals. Along with therapeutic context, these findings can be a guideway for training programs within positive psychology with embracing several different characteristics.

Another important objective of this study was about the observability and reality of PTG. Although there was a significant difference between the pairs, it was

revealed that PTG could be seen by others. They even predicted higher levels of growth about their relatives; observers' rates were significantly higher than self-reported growth scores. Hence, this study showed that growth is really experienced by individuals and this transformation is also real and observable by their relatives, at least this is their own reality. The term deserves to be present to be worked in the trauma-related works.

Moreover, in addition to the variety of studies in PTG literature that were conducted with older individuals, this study gave an explanation for the emerging adulthood period. At this active period where transformations are common and individuals are more open to change, evaluating PTG has valuable implications. While they are ready to construct new viewpoints and search for meaning in life, underlying mechanisms on growth may be an alternative for their journey.

4.3. Limitations and Suggestions for the Future Research

This study has several limitations that must be considered. First of all, particular characteristics of the sample have limited the findings. For instance, sample size of the study is far from being adequate for generalizing the findings to the larger groups. In the current study, there was a relatively small sample size, but it had numerous study variables. Also, some subgroups of significant others of the study had imbalanced numbers of participants. Another imbalance was seen in gender distribution, the number of males was approximately half of the women. To make more valuable inferences, more diversified and larger samples are required.

Together with the sample characteristics, there is another point related to the age range of the study. Ages between 18-30 approximately reflect the emerging adulthood period which is known as being in a dynamic process including more transformative experiences. In this stage of life, worldviews are likely to vary, individuals frequently experience cognitive and emotional fluctuations, and college

years also encourage these transformations. Taking into consideration the definition of PTG, even if this limited age range served certain objectives, it is seen that they have overlapping characteristics which makes the emerging adulthood period potentially confounding factor (Gottlieb et al., 2007; Schmidt et al., 2019). Adding new scales to distinguish traumatic growth and other kinds of growth that naturally occur would enhance the results of the further studies.

Through the analyses of the study, romantic relationship status showed itself as having a significant relationship with the main study variable, PTG. Also, while comparing the growth scores of significant others and main participants, contrary to other pairs, spouse pairs exhibited more similar answers with each other. Considering the significant effect of romantic relations and characteristics marriage relationship, it would be better to include its effect as a separate variable. In addition to relational effects, identified strong and significant relation between emotion focused coping and PTG in the current study called up the possible cultural or religious effects. This finding which is different from a variety of studies in the literature but has similar findings about the contributor role of emotion focused coping in especially Turkish studies (Göral et al., 2006; Şenol-Durak & Ayvaşık, 2010), may reflects the unique characteristics of different cultures. Since relational and cultural effects showed themselves as having significant roles, further studies may benefit from counting indirect coping mechanisms or perceived social support in their designs.

Moreover, when a relatively small number of predictability rates of the study variables are considered, including other possible variables into the design would prove a bigger image which later contributes to the explanation of the PTG. Because, according to the predictability rates and strength of the relationships between the variables; there must be other variables or mediators which contribute to the relations of the study variables. Through the diversified variables, nonsignificant relation between the external locus of control and PTG also would be clarified. Furthermore, coping was differentiated as two main categories in this study as problem focused and emotion focused coping. Confirming the supportive role of these coping styles was an

important step as a starting point to highlight individual and cultural differences. But recent studies started to divide these categories into several subfactors. Therefore, adding these subfactors in study designs and evaluating coping in a more diverse type could contribute to controversies and present more detailed results which later shed light on the mosaic in the field.

Basically, PTG represents a transformation afterward of traumatic experiences which actually requires a comparison to name as growth. Therefore, rather than using cross-sectional designs as in this study, longitudinal studies would give better results. In addition to that, when characteristics of coping mechanisms are considered, another dynamic process is drawing attention as requiring follow-up studies. Since it is defined as a dynamic response to demands and conflicts, the coping repertoire of individuals is more likely to increase especially with traumatic experiences as facing new challenges (Aldwin & Sutton, 1998). And clearly, it would be traced with longitudinal studies much better.

Among the study instruments, coping inventory, TWCI, had seventy-four items which can be accepted as a long instrument to complete. Despite its cultural sensitivity and adaptive features, it may be inappropriate to gather more reliable responses. A couple of participants added their comment related to the length of the study, they complained about questions which repeat the same thing. It may have affected the reliability of the findings, therefore including shorter versions of the coping inventory is recommended when all these are taken into consideration. Furthermore, considering the significant difference in PTG scores of pairs, other instruments that are developed to measure growth could be tried.

Beyond the methodological limitations, trauma itself is a sensitive subject that requires delicate work. Disclosure about their traumatic experiences could cause distress on participants which may later result in covered or socially desirable answers. This study even asked participants to include another person whom they chose, to

answer the questions about themselves. Using online surveys without a real contact in such a sensitive subject could increase the tension, thus adapting face-to-face interviews would help participants to share their experiences in a safer and more intimate context.



REFERENCES

- Ahern, J., Galea, S., Fernandez, W. G., Koci, B., Waldman, R., & Vlahov, D. (2004). Gender, Social Support, and Posttraumatic Stress in Postwar Kosovo. *Journal of Nervous and Mental Disease*, 192(11), 762-770.
- Aker, A. T., Önen, P. & Karakılıç, H. (2007). Psychological Trauma: Research and Practice in Turkey. *International Journal of Mental Health*, 36(3), 38-57.
- Aldin, C. M., & Sutton, K. J. (1998). *A developmental perspective on posttraumatic growth*. In R. G. Tedeschi, C. L. Park, & L. G. Calhoun (Eds.), *Posttraumatic growth: Positive changes in the aftermath of crisis* (p. 43-64). New Jersey: Lawrence Erlbaum Associates.
- Arenliu, A., Shala-Kastrati, F., Avdiu, V. B., & Landsman, M. (2019). Posttraumatic Growth Among Family Members With Missing Persons From War in Kosovo: Association With Social Support and Community Involvement. *Journal of Death and Dying*, 80(1), 35-48.
- Arıkan, G., & Karancı, N. (2012). Attachment and Coping as Facilitators of Posttraumatic Growth in Turkish University Students Experiencing Traumatic Events. *Journal of Trauma & Dissociation*, 13, 209-225.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: American Psychiatric Association.
- American Psychiatric Association (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: American Psychiatric Association.
- American Psychiatric Association. (1980). *Diagnostic and statistical manual of mental disorders* (3rd ed.). Washington, DC: American Psychiatric Association.
- Arslan, C., Dilmaç, B., & Hamarta, E. (2009). Coping with stress and trait anxiety in terms of locus of control: A study with Turkish university students. *Social Behavior and Personality*, 37(5), 791–800.

- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173–1182.
- Başoğlu, M., & Şalcıoğlu, E. (2011). *A Mental Healthcare Model for Mass Trauma Survivors: Control Focused Treatment of Earthquake, War, and Torture Trauma*. Cambridge: Cambridge University Press.
- Başoğlu, M., Şalcıoğlu, E., Livanou, M., Ozeren, M., Aker, T., Kilic, C. & Mestcioglu, O. (2001). A study of the validity of a Screening Instrument for Traumatic Stress in Earthquake Survivors in Turkey. *Journal of Traumatic Stress*, 14, 491-509.
- Bernsten, D., Johannessen, K. B., Thomsen, Y. D., Bertelsen, M., Hoyle, R. H., & Rubin, D. C. (2012). Peace and War: Trajectories of posttraumatic stress disorder symptoms before, during, and after military deployment in Afghanistan. *Psychological Science*, 23(12), 1557-1565.
- Bernsten, D., & Rubin, D. C. (2007). When a trauma becomes a key to identity: Enhanced integration of trauma memories predicts posttraumatic stress disorder symptoms. *Applied Cognitive Psychology*, 21, 417-431.
- Benjet, C., Bromet, E., Karam, E. G., Kessler, R. C., McLaughlin, K. A., Ruscio, A. M., ...Koenen, K. C. (2016). The epidemiology of traumatic event exposure worldwide: results from the World Mental Health Survey Consortium. *Psychol Med.*, 46(2), 327-343.
- Bozo, Ö., Gündoğdu, E., & Büyükaşık-Çolak, C. (2009). The moderating role of different sources of perceived social support on the dispositional optimism: Posttraumatic growth relationship in postoperative breast cancer patients. *Journal of Health Psychology*, 14(7), 1009-1020.
- Breslau, N., Kessler, R., Chilcoat, H., Schultz, L., Davis, G., & Andreski, P. (1998). Trauma and posttraumatic stress disorder in the community. The 1996 Detroit Area Survey of Trauma. *Archives of General Psychiatry*, 55, 627–632.
- Briere, J. N., & Scott, C. (2015). *Principles of trauma therapy: A guide to symptoms, evaluation, and treatment* (2nd ed., DSM-5 update). Thousand Oaks, CA, US: Sage Publications.

- Brown, J., Mulhern, G., & Joseph, S. (2002). Incident-Related Stressors, Locus of Control, Coping, and Psychological Distress Among Firefighters in Northern Ireland. *Journal of Traumatic Stress, 15*(2), 161-168.
- Burger, J. M. (1989). Negative reactions to increases in personal control. *Journal of Personality and Social Psychology, 56*, 246–256.
- Calhoun, L. G., Cann, A., Tedeschi, R., & McMillan, J. (2000). A correlational test of the relationship between posttraumatic growth, religion, and cognitive processing. *Journal of Traumatic Stress, 13*, 521-527.
- Calhoun, H. E., & Tedeschi, R. G. (1999). *Facilitating posttraumatic growth: A clinical guide*. Mahwah, NJ: Erlbaum.
- Cann, A., Calhoun, L. G., Tedeschi, R. G., Triplett, K. N., Vishnevsky, T., & Lindstrom, C. M. (2011). Assessing posttraumatic cognitive processes: The Event Related Rumination Inventory. *Anxiety, Stress, and Coping, 24*, 137-156.
- Carlson, N. R., Heth, D., Miller, H., Donahoe, J., & Martin, G. N. (2009). *Psychology: The Science of Behavior*. Pearson: Harlow, UK.
- Chiang, Y.-T., Fang, W.-T., Kaplan, U., & Ng, E. (2019). Locus of Control: The Mediation Effect between Emotional Stability and Pro-Environmental Behavior. *Sustainability, 3*, Article 820. <https://doi.org/10.3390/su11030820>
- Chung, M. C., Berger, Z., Jones, R., & Rudd, H. (2006). Posttraumatic stress disorder and general health problems following myocardial infarction (post-MI PTSD) among older patients: The role of personality. *International Journal of Geriatric Psychiatry, 21*, 1163–1174.
- Cordova, M. J., Cunningham, L. C., Carlson, C. R., & Andrykowski, M. A. (2001). Posttraumatic growth following breast cancer: A controlled comparison study. *Health Psychology, 20*, 176-185.
- Coyne, J. C., & Tennen, H. (2010). Positive Psychology inn cancer care: Bad science, exaggerated claims, and unproven medicine. *Annals of Behavioral Medicine, 39*, 16-26.

- Cummings, J., & Swickert, R. (2010). Relationship between locus of control and posttraumatic growth. *Individual Differences Research*, 8(3), 198–204.
- Dağ, İ. (2002). Kontrol Odağı Ölçeği (KOÖ): Ölçek Geliştirme, Güvenilirlik ve Geçerlik Çalışması. *Türk Psikoloji Dergisi*, 17(49), 77-90.
- Davis, C. G. W., Michael, J. A., & Vernberg, N. (2007). Profiles of posttraumatic growth following an unjust loss. *Death Studies*, 31, 693-712.
- Dirik, G., & Karancı, A. (2008). Variables related to posttraumatic growth in Turkish rheumatoid arthritis patients. *Journal of Clinical Psychology in Medical Settings*, 15, 193–203.
- Evers, A. W. M., Kraaimaat, F. W., Van-Lankveld, W., Jongen, P. J. H., Jacobs, J. W. G., & Bijlsma, J. W. J. (2001). Beyond unfavourable thinking: The illness cognition questionnaire or chronic diseases. *Journal of Consultation and Clinical Psychology*, 69, 1026-1036.
- Festinger, L. (1957). *A theory of cognitive dissonance*. Evanston, IL: Row, Peterson.
- Folkman, S. (2010). Stress, Coping and Hope. *Psycho-Oncology*, 19(9), 901-908.
- Folkman, S., Lazarus, R. S., Dunkel-Schetter, C., DeLongis, A., & Gruen, R. J. (1986). The dynamics of a stressful encounter: Cognitive appraisal, coping, and encounter outcomes. *Journal of Personality and Social Psychology*, 50, 992-1003.
- Folkman, S., & Lazarus, R. S. (1985). If it changes it must be a process: Study of emotion and coping during three stages of a college examination. *Journal of Personal and Social Psychology*, 48, 150–170.
- Folkman, S., & Lazarus, R. S. (1980). An analysis of coping in a middle-aged community sample. *Journal of Health and Social Behavior*, 21, 219-239.
- Frazier, P., Conlon, A., & Glaser, T. (2001). Positive and negative life changes following sexual assault. *Journal of Consulting and Clinical Psychology*, 69, 1048–1055.
- Fullerton, C. S., Ursano, R. J., Norwood, A. E., & Holloway, H. H. (2003). Trauma, terrorism, and disaster. In Ursano, R. J., Fullerton, C. S., & Norwood, A. E. (Eds), *Terrorism and disaster: Individual and community mental health interventions*. New York: Cambridge University Press.

- Gençöz, F., Gençöz, T., & Bozo, Ö. (2006). Hierarchical dimensions of coping styles: A study conducted with Turkish university students. *Social Behavior and Personality*, 34(5), 525-534.
- Gottlieb, B. H., Still, E., & Newby-Clark, I. R. (2007). Types and precipitants of growth and decline in emerging adulthood. *Journal of Adolescent Research*, 22, 132–155.
- Göral, F. S., Kesimci, A., & Gençöz, T. (2006). Roles of the controllability of the event and coping strategies on stress-related growth in a Turkish sample. *Stress and Health: Journal of the International Society for the Investigation of Stress*, 22(5), 297-303.
- Green, D. L., Choi, J. J., & Kane, M. N. (2010). Coping strategies for victim of crime: Effects of the use of emotion-focused, problem-focused, and avoidance-oriented coping. *Journal of Human Behavior in the Social Environment*, 20(6), 732-743.
- Gül, E., & Karancı, A. N. (2017). What determines posttraumatic stress and growth following various traumatic events? A study in a Turkish community sample. *Journal of Traumatic Stress*, 30(1), 54-62.
- Güneş, H. (2001). *Gender differences in distress levels, coping strategies, stress related growth and factors associated with psychological distress and perceived growth following the 1999 Marmara earthquake*. [Unpublished master's thesis]. Middle East Technical University.
- Harvey, M. R. (2000). *Understanding trauma: An ecological model* [Conference presentation]. Cedarcrest Hospital, Newington, Connecticut.
- Hayes, A. F. (2009). Beyond Baron and Kenny: Statistical mediation analysis in the new millennium. *Communication Monographs*, 76, 408-420.
- Helgeson, V. S., Reynolds, K. A., & Tomich, P. L. (2006). A meta-analytic review of benefit finding and growth. *Journal of Consulting and Clinical Psychology*, 74(5), 797-816.
- Herman, J. (1992). *Trauma and Recovery*. New York, NY: Basic Books.
- Huijts, I., Kleijn, W. C., van Emmerik, A. A., Noordhof, A., & Smith, A. J. (2012). Dealing with man-made trauma: The relationship between coping style, posttraumatic stress, and quality of life in resettled, traumatized refugees in the Netherlands. *Journal of Traumatic Stress*, 25(1), 71-78.

- Janoff-Bulman, R. (2004) Posttraumatic growth: Three explanatory models. *Psychological Inquiry*, 15(1), 30-34.
- Janoff-Bulman, R. (1992). *Shattered assumptions*. New York: Free Press.
- Jayawickreme, E., & Blackie, L. E. R. (2014). Post-traumatic Growth as Positive Personality Change: Evidence, Controversies and Future Directions. *European Journal of Personality*, 28, 312-331.
- Karancı, A. N., Aker, A. T., & Işıklı, S. (2011). *Travmatik Yaşantısı Olan Yetişkinlerde Travma Sonrası Stres Bozukluğu ve Travma Sonrası Gelişim: Boylamsal Bir Çalışma* (Proje No. 109K592) [TÜBİTAK projesi, Orta Doğu Teknik Üniversitesi].
- Karancı, A. N., Aker, A. T., Işıklı, S., Erkan, B. B., Gül, E., & Yavuz, H. (2009). *Türkiye’de Travmatik Yaşam Olayları ve Ruhsal Etkileri*. Ankara: Matus Basımevi.
- Karancı, A. N., & Erkam, A. (2007). Variables related to stress-related growth among Turkish breast cancer patients. *Stress and Health*, 23, 315-322.
- Karancı, A. N., & Acartürk, C. (2005). Post-Traumatic Growth among Marmara Earthquake Survivors Involved in Disaster Preparedness as Volunteers. *Traumatology*, 11(4), 307-323.
- Karancı, N. A., Alkan, N., Akşit, B., Sucuoğlu, H., & Balta, E. (1999). Gender differences in psychological distress, coping, social support and related variables following the 1995 Dinar (Turkey) earthquake. *North American Journal of Psychology*, 1, 189-204.
- Kenny, D. A., & Judd, C. M. (2014). Power anomalies in testing mediation. *Psychological Science*, 25, 334-339.
- Kessler, R.C., & Ustun, T. B. (Eds.). (2008). *The WHO World Mental Health Surveys: global perspectives on the epidemiology of mental disorders*. New York: Cambridge University Press.
- Kesimci, A., Goral, F. S., & Gencoz, T. (2005). Determinants of stress-related growth: Gender, stressfulness of the event, and coping strategies. *Current Psychology*, 24, 68-75.

- Kessler, R. C., Sonnega, A., Bromet, E. Hughes, M., & Nelson, C. B. (1995). Posttraumatic stress disorder in the National Comorbidity Survey. *Archives of General Psychiatry*, 52(12), 1048-1060.
- Kılıç, C., Magruder, K. M., & Koryurek, M. (2016). Does trauma type relate to posttraumatic growth after war? A pilot study of young Iraqi war survivors living in Turkey. *Transcultural Psychiatry*, 53, 110-123.
- Kılıç, C. (2005). *Posttraumatic growth and its predictors* [Conference presentation]. IV. International Psychological Trauma Meeting, İstanbul.
- Kleim, B., & Ehlers, A. (2009). Evidence for a curvilinear relationship between posttraumatic growth and posttrauma depression and PTSD in assault survivors. *Journal of Traumatic Stress*, 22, 45-52.
- Lazarus, R.S. (1999). *Stress and Emotion: A New Synthesis*. London: Free Association Books.
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York, NY: Springer.
- Lefcourt, H. (1980). Locus of control and coping with life's events. In E. Staub (Ed.), *Personality: Basic Issues and Current Research*. Englewood Cliffs, NJ: PrenticeHall.
- Linley, P. A., & Joseph, S. (2004). Positive change following trauma and adversity: A review. *Journal of Traumatic Stress*, 17, 11-21.
- Liu, X., Kurita, H., Uchiyama, M., Okawa, M., Liu, L., & Ma, D. (2000). Life events, locus of control, and behavior problems among Chinese adolescents. *Journal of Clinical Psychology*, 56, 1565-1577.
- Maercker, A., & Zoellner, T. (2004). The Janus Face of self-perceived growth: Toward a two-component model of posttraumatic growth. *Psychological Inquiry*, 15(1), 41–48.
- Maercker, A., & Herrie, J. (2003). Long-term effects of the Dresden bombing: Relationships to control beliefs, religious belief, and personal growth. *Journal of Traumatic Stress*, 16(6), 579–587.
- Maltby, J., Day, L., Macaskill, A. (2007). *Personality, Individual Differences and Intelligence*. Harlow: Pearson Prentice Hall.

- McCann, L., & Pearlman, L. A. (1990). *Psychological trauma and adult survivor theory: Therapy and transformation*. Routledge.
- Mitchell, S. A., & Black, M. J. (1995). *Freud and beyond: A history of modern psychoanalytic thought*. New York: BasicBooks.
- Moore, A. M., Gamblin, T. C., Geller, D. A., Youssef, M. N. Hoffman, K. E., Gemmell, L., Likumahuwa, S. M., Bovbjerg, D. H., Marsland, A., & Steel, J. L. (2010). A prospective study of posttraumatic growth as assessed by self-report and family caregiver in the context of advanced cancer. *Psycho-Oncology*, 20(5), 479-487.
- Moran, C. C., & Shakespeare-Finch, J. (2003). *A trait approach to post- trauma vulnerability and growth*. In D. Paton, J. M. Violanti, & L. M. Smith (Eds.). *Promoting capabilities to manage posttraumatic stress: Perspectives on resilience*, 27–42.
- Ng, T. W. H., Sorensen, K., & Eby, L. T. (2006). Locus of Control at Work: A MetaAnalysis. *Journal of Organizational Behavior*, 27, 1057-1087.
- Norris, F. H., Murphy, A. D., Baker, C. K., Perilla, J. L., Rodriguez, F. G., & Rodriguez, J. d. J. G. (2003). Epidemiology of Trauma and Posttraumatic Stress Disorder in Mexico. *Journal of Abnormal Psychology*, 112(4), 646-656.
- Norris, F. (1992). Epidemiology of trauma: Frequency and impact of different potentially traumatic events on different demographic groups. *Journal of Consulting and Clinical Psychology*, 60, 409–418.
- Owenz, M., & Fowers, B. J. (2019). Perceived post-traumatic growth may not reflect actual positive change: A short-term prospective study of relationship dissolution. *Journal of Social and Personal Relationships*, 36(10), 3098-3116.
- Park, C. L., Cohen, L., & Murch, R. (1998). Assessment and prediction of stress related growth. *Journal of Personality*, 64(1), 71-105.
- Park, C. L., Cohen, L. H., & Murch, R. L. (1996). Assessment and prediction of stress-related growth. *Journal of Personality*, 64, 71-105.
- Parkes, K. R. (1984). Locus of control, cognitive appraisal, and coping in stressful episodes. *Journal of Personality and Social Psychology*, 46(3), 655–668.

- Parkinson, F. (2000). Post-trauma stress: Reduce long-term effects and prediction of stress-related growth. *Journal of Personality*, 64, 71-105.
- Polatinsky, S., & Esprey, Y. (2000). An assessment of gender differences in the perception of benefit resulting from the loss of a child. *Journal of Traumatic Stress*, 13, 709–718.
- Powell, S., Rosner, R., Butollo, W., Tedeschi, R.G., & Calhoun, L.G., (2003). Posttraumatic growth after war: a study with former refugees and displaced people in Sarajevo. *Journal of Clinical Psychology*, 59(1), 71-83.
- Prati, G., & Pietrantonio, L. (2009). Optimism, social support, and coping strategies as factors contributing to posttraumatic growth: A meta-analysis. *Journal of Loss and Trauma*, 14, 364-388.
- Razini, H. H., Juybari, S. B., & Ramshini, M. (2017). Relationship Between Coping Strategies and Locus of Control With the Anxiety of Death in Old People. *Iranian Journal of Aging*, 12(2), 232-234.
- Read, J. P., Ouimette, P., White, J., Colder, C., & Farrow, S. (2011). Rates of *DSM-IV-TR* trauma exposure and posttraumatic stress disorder among newly matriculated college students. *Psychological Trauma: Theory, Research, Practice, and Policy*, 3(2), 148-156.
- Reichman, S.R., Miller, A.C., Gordon, R.M., & Hendricks-Munoz, K., (2000). Stress appraisal and coping in mothers of NICU infants. *Children's Health Care*, 29, 279-294.
- Resnick, H., Kilpatrick, D., Dansky, B., Saunders, B., & Best, C. (1993). Prevalence of civilian trauma and posttraumatic stress disorder in a representative national sample of women. *Journal of Consulting and Clinical Psychology*, 61, 984–991.
- Rotter, J. B. (1966). Generalized expectancies for the internal versus external control of reinforcement. *Psychological Monographs: General and Applied*, 18, 1-28.

- Rotter, J. B. (1990). Internal vs. external control of reinforcement: A case history of a variable. *American Psychologist*, 45, 489-493.
- Schaefer, J. A., & Moss, R. H. (1998). *The context for posttraumatic growth: Life crises, individual and social resources, and coping*. In Tedeschi, R. G., Park, C. L., & Calhoun, L. G. (Eds.), *Posttraumatic growth: Positive changes in the aftermath of crisis* (p. 99-125). Mahwah, NJ: Erlbaum.
- Schmidt, S. D., Blank, T. O., Bellizzi, K. M., & Park, C. L. (2019). Posttraumatic Growth Reported by Emerging Adults: a Multigroup Analysis of the Roles of Attachment, Support, and Coping. *Curr Psychol*, 38, 1225-1234.
- Scovel, T. (1991). *The effect of affect on foreign language learning: A review of the anxiety research*. In E. K. Horwitz & D. J. Young (Eds.), *Language anxiety: From theory and research to classroom implications* (p. 15-23). Englewood Cliffs, NJ: Prentice Hall.
- Sheikh, A. I. (2004). Posttraumatic growth in the context of heart disease. *Journal of Clinical Psychology in Medical Settings*, 11, 265-340.
- Sheikh, A. I., & Marotta, S. A. (2005). A cross-validation study of the Posttraumatic Growth Inventory. *Measurement and Evaluation in Counseling and Development*, 30, 66-77.
- Shakespeare-Finch, J., & Armstrong, D. (2010). Trauma type and posttrauma outcomes: Difference between survivors of motor vehicles accidents, sexual assault, and bereavement. *Journal of Loss and Trauma*, 15, 69-82.
- Shakespeare-Finch, J., Gow, K., Smith, S. (2005). Personality, Coping and Posttraumatic Growth in Emergency ambulance personnel. *Traumatology*, 11(4), 325-334.
- Siva, N. A. (1991). *Coping with stress, learned helplessness and depression in infertility* [Unpublished doctoral dissertation]. Hacettepe University.
- Sledjeski, E. M., Speisman, B., Dierker, L. C. (2008). Does number of lifetime traumas explain the relationship between PTSD and chronic medical conditions? Answers from the National Comorbidity Survey-Replication (NCS-R). *Journal of Behavioral Medicine*, 31, 341-349.

- Smith, S. G., & Cook, S. L. (2004). Are Reports of Posttraumatic Growth Positively Biased? *Journal of Traumatic Stress, 17*(4), 353-358.
- Stump, M. J., & Smith, J. E. (2008). The relationship between posttraumatic growth and substance use in homeless women with histories of traumatic experience. *The American Journal on Addictions, 17*, 478– 487.
- Sumalla, E. C., Ochoa, C., & Blanco, I. (2009). Posttraumatic growth in cancer: Reality or illusion? *Clinical Psychology Review, 29*(1), 24–33.
- Şahin, N. H., & Durak, A. (1995). Stresle başa çıkma tarzları ölçeği: Üniversite öğrencileri için uyarlanması [A brief coping styles inventory for university students]. *Türk Psikoloji Dergisi, 10*, 56-73.
- Şenol-Durak, E., & Ayvaşık, H. B. (2010). Factors associated with posttraumatic growth among myocardial infarction patients: Perceived social support, perception of the event and coping. *Journal of Clinical Psychology in Medical Settings, 17*(2), 150–158.
- Tanck, R. H., & Robbins, P. R. (1979). Assertiveness, locus of control, and coping behaviors used to diminish tension. *Journal of Personality Assessment, 43*, 396-400.
- Taylor, S. E., & Armor, D. A. (1996). Positive illusions and coping with trauma. *Journal of Personality, 64*, 873-898.
- Taylor, S. E. (1983). Adjustment to threatening events. A theory of cognitive adaptation. *American Psychologist, 38*(11), 1161–1173.
- Tedeschi, R. G., Calhoun, L. G. (2004). Posttraumatic Growth: Conceptual Foundations and Empirical Evidence. *Psychological Inquiry, 15*(1), 1-18.
- Tedeschi, R. G., Calhoun, L. G. (2003). *Routes to posttraumatic growth through cognitive processing*. In D. Paton, J. M. Volanti, L. M. Smith (Eds.), *Promoting capabilities to manage posttraumatic stress*. Springfield: H. Thomas.
- Tedeschi, R. G., Park, C. L., & Calhoun, L. G. (Eds.). (1998). *Posttraumatic Growth: Positive Changes in the Aftermath of Crisis*. Mahwah, NJ: Lawrence Erlbaum.
- Tedeschi, R. G., & Calhoun, L. (1996). The Posttraumatic Growth Inventory: Measuring the positive legacy of trauma. *Journal of Traumatic Stress, 9*, 455-471.

- Tedeschi, R. G., & Calhoun, L. (1995). *Trauma & transformation: Growing in the aftermath of suffering*. Sage Publications, Inc.
- Tennen, H., Affleck, G., Urrows, S., Higgins, P., & Mendola, R. (1992). Perceiving control, construing benefits, and daily processes in rheumatoid arthritis. *Canadian Journal of Behavioural Science*, 24(2), 186–203
- Tennen, H., & Affleck, G. (1998). *Personality and transformation in the face of adversity*. In R. G. Tedeschi, C. L. Park, & L. G. Calhoun (Eds.), *The LEA series in personality and clinical psychology. Posttraumatic growth: Positive changes in the aftermath of crisis* (p. 65–98). Lawrence Erlbaum Associates Publishers.
- Tomich, P. L., & Helgeson, V. S. (2004). Is finding something good in the bad always good? Benefit finding among women with breast cancer. *Health Psychology*, 23, 16-23.
- Ringel, S. (2012). *Overview*. In S. Ringel & J. Brandell (Eds.), *Trauma: Contemporary directions in theory, practice, and research*. Thousand Oaks, CA: SAGE Publications, Inc.
- Shakespeare-Finch, J., & Enders, T. (2008). Corroborating Evidence of Posttraumatic Growth. *Journal of Traumatic Stress*, 21(4), 421-424.
- Schuettler, D., & Boals, A. (2011). The path to posttraumatic growth versus posttraumatic stress disorder: Contributions of event centrality and coping. *Journal of Loss and Trauma*, 16(2), 180-194.
- Uçman, P. (1990). Ülkemizde çalışan kadınlarda stresle başa çıkma ve psikolojik rahatsızlıklar [Coping with stress and psychological disturbances among employed women in Turkey]. *Psikoloji Dergisi*, 7, 58-75.
- Updegraff, J. A., & Taylor, S. E. (2000). From vulnerability to growth: Positive and negative effects of stressful life events. In J. H. Harvey & E. D. Miller (Eds.), *Loss and trauma: General and close relationship perspectives*, 3-28.
- Urcuyo, K. R., Boyers, A. E., Carver, C. S., & Antoni, M. H. (2005). Finding benefit in breast cancer: Relations with personality, coping, and concurrent well-being. *Psychology and Health*, 20, 175–192.

- Vitaliano, P. P., DeWolfe, D. J., Maiuro, R. D., Russo, J., & Katon, W. (1990). Appraised changeability of a stressor as a modifier of the relationship between coping and depression: A test of the hypothesis of fit. *Journal of Personality and Social Psychology*, 59, 582-592.
- Vollhardt, J. R. (2009). Altruism born of suffering and prosocial behaviour following adverse life events: A review and conceptualization. *Social Justice Research*, 22(1), 53-97.
- Weiss, T. (2002). Posttraumatic growth in women with breast cancer and their husbands: An intersubjective validation study. *Journal of Psychosocial Oncology*, 20(2), 65-80.
- Yalom, I. D., & Lieberman, M. A. (1991). Bereavement and heightened existential awareness. *Psychiatry*, 54, 334-345.
- Zarin, S. S., Khanjani, M. S., Foroughan, M., Hosseini M. A., Bakhshi, E., & Kamali, M. (2017). Relationship Between Locus of Control With Posttraumatic Growth Among Individuals With Spinal Cord Injury. *Journal of Modern Rehabilitation*, 11(2), 109-118.
- Zhang, W., Liu, H., Jiang, X., Wu, D., & Tian, Y. (2014). A longitudinal study of posttraumatic stress disorder symptoms and its relationship with coping skill and locus of control in adolescents after an earthquake in China. *PLOS ONE*, 9, 1-7.
- Zoeller, T., & Maercker, A. (2006). Posttraumatic growth in clinical psychology – A critical review and introduction of a two component model. *Clinical Psychology Review*, 26(5), 626-653.

APPENDICIES

