# THE EFFECT OF POSTTRAUMATIC COGNITIONS ON THE POSTTRAUMATIC STRESS AND POSTTRAUMATIC GROWTH IN COVID-19 PANDEMIC: THE MEDIATING ROLE OF HOPE AND SELF-EFFICACY

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# ABSTRACT

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Master Program in Clinical Psychology

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The aim of this research is to examine the mediating roles of hope and self-efficacy on the relationship between posttraumatic cognitions, posttraumatic stress and posttraumatic growth, respectively, in the context of COVID-19 pandemic. For this purpose, 443 participants between the ages of 18-72 were included in the study. Personal Information Questionnaire, Posttraumatic Cognitions Inventory, PTSD Checklist for DSM-5, Posttraumatic Growth Inventory, Dispositional Hope Scale, and General Self-Efficacy Scale were conducted online via Google Forms. According to the results, posttraumatic cognitions showed a significant correlation with posttraumatic stress, but not with posttraumatic growth. There was also a positive relationship between posttraumatic stress and posttraumatic growth. It was observed that those who experienced the severe course of COVID-19 among the participants had more posttraumatic stress levels than those who experienced the mild course.

While the concept of hope did not have a mediating role between posttraumatic cognitions and posttraumatic stress, it had a significant mediating role between posttraumatic cognitions and posttraumatic growth. Self-efficacy on the other hand, had an important mediating effect between posttraumatic cognitions and posttraumatic stress and posttraumatic growth, respectively. According to the results, it is thought that focusing and re-evaluating posttraumatic cognitions in individuals experiencing a traumatic situation will affect the level of posttraumatic stress or growth that may occur in the next phase, and the techniques that will enhance the level of hope and self-efficacy of individuals might be useful in increasing the effectiveness of therapy.

Keywords: COVID-19, posttraumatic cognitions, posttraumatic stress, posttraumatic growth, hope, self-efficacy

# ÖZET


COVID-19 SALGINI DÖNEMİNDE TRAVMA SONRASI BİLİŞLERİN TRAVMA SONRASI STRES VE TRAVMA SONRASI GELİŞİM ÜZERİNE ETKİSİ: UMUT VE ÖZ-YETERLİLİK KAVRAMLARININ ARACI ROLÜ

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Bu araştırmanın temel amacı COVID-19 pandemisi sürecinde, travma sonrası bilişler ile sırasıyla travma sonrası stres ve travma sonrası büyüme arasındaki ilişkiyi umut ve öz-yeterlilik kavramlarının aracı rolü çerçevesinde incelemektir. Bu amaçla, 18-72 yaş aralığında 443 kişi çalışmaya dahil edilmiştir. Kişisel Bilgi Formu, Travma Sonrası Bilişler Envanteri, DSM - 5 için Travma Sonrası Stres Bozukluğu Kontrol Listesi, Travma Sonrası Büyüme Envanteri, Sürekli Umut Ölçeği ve Genel Öz-Yeterlilik Ölçeği katılımcılara Google Formlar aracılığıyla online olarak doldurtulmuştur. Araştırmanın temel hipotezlerinin test edilmesi için SPSS programı kullanılmıştır. Araştırma sonuçları, travma sonrası bilişler ile travma sonrası stres arasında pozitif yönlü bir ilişki gösterirken, travma sonrası bilişler ile travma sonrası büyüme arasında anlamlı bir fark görülmemiştir. Ayrıca travma sonrası stres ile travma sonrası büyüme arasında da pozitif bir anlamlılık bulunmaktadır. Katılımcılardan COVID-19 hastalığını ağır seyirde yaşayanların, hafif seyirde yaşayanlara oranla daha

çok travma sonrası stres deneyimledikleri görülmüştür. Aracılık analizlerine göre ise, umut kavramı travma sonrası bilişler ile travma sonrası stres arasında aracılık etkisine sahip değilken, travma sonrası bilişler ve travma sonrası büyüme arasında önemli bir aracılık etkisine sahiptir. Travma sonrası bilişler ile sırasıyla travma sonrası stres ve travma sonrası büyüme arasında öz-yeterliliğin önemli bir aracı etkisi vardır. Çalışmanın bulgularına göre; travmatik bir durum yaşayan bireylerde, travma sonrası bilişlerin ele alınması ve yeniden değerlendirilmesi, sonraki süreçte oluşabilecek travma sonrası stres veya büyüme düzeyini etkileyeceği, travmatik durumun üstesinden gelmede bireylerin umut ve öz-yeterlilik düzeyini artıracak tekniklerin kullanılmasının terapinin etkinliğini artıracağı düşünülmektedir.

Anahtar Kelimeler: COVID-19, travma sonrası bilişler, travma sonrası stres, travma sonrası büyüme, umut, öz-yeterlilik

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# LIST OF SYMBOLS AND ABBREVIATIONS

ACD: Acute Stress Disorder

APA: American Psychiatric Association

COVID-19: Coronavirus Disease 2019

DHS: Dispositional Hope Scale

DSM: Diagnostic and Statistical Manual of Mental Disorders

GAD: Generalized Anxiety Disorder

GSE: General Self-Efficacy Scale

PTC: Posttraumatic Cognitions

PCL-5: Posttraumatic Stress Disorder Checklist for DSM-5

PCI: Posttraumatic Cognitions Inventory

PTG: Posttraumatic Growth

PTGI: Posttraumatic Growth Inventory

PTSD: Posttraumatic Stress Disorder

PTSS: Posttraumatic Stress Syndrome

SARS: Severe Acute Respiratory Syndrome

SPSS: Statistical Package for Social Sciences

WW: World War

# CHAPTER 1: INTRODUCTION

Every person experiences various negativities throughout their life, but some negativities can be more shocking and threatening for the person and can be defined as traumatic. When people encounter traumatic incidents such as natural disasters, life-threatening illnesses, physical and/or sexual assault, they may face their own fragility and feel emotions such as fear, anger, or helplessness. Moreover, after the traumatic experience where they question their existing beliefs about themselves and the world, their thoughts change. It is seen that the concept of a traumatic experience has started to be defined with the Diagnostic and Statistical Manual of Mental Disorders-3 (DSM-3). It has been emphasized that traumatic experiences create stress and psychological symptoms (Turnbull, 1998). Posttraumatic stress disorder (PTSD) is a disease that involves a traumatic stressor, repetitive memories, avoidant symptoms, and hyperarousal (Johnson, 2009).

A traumatic experience can also lead to positive alterations like finding the meaning of life, setting precedencies, the perception of personal empowerment, and improving relationships. The positive alterations that happen in the individuals' life after the trauma are expressed as posttraumatic growth or posttraumatic change (Zoellner and Maercker, 2006; Linley and Joseph, 2004). It is seen that there is a relationship between stress reactions after traumatic incidents and posttraumatic growth. In addition, it is seen that a significant level of stress is essential for the formation of posttraumatic growth (Linley and Joseph, 2004).

Many variables affect posttraumatic stress symptoms and posttraumatic growth as a consequence of traumatic events that people are exposed to directly or indirectly. One of these is thought to be trauma-related cognition. With a traumatic experience, individuals may have dysfunctional thoughts about the evil of the world and their own inadequacy. Such dysfunctional thoughts and cognitions of the individual are related to the maintenance of posttraumatic stress (O'Donnell et al., 2007) because traumatic events affect the person's feelings and thoughts about himself, others, and the world. Specific cognitions of traumatized individuals are that focusing on beliefs about themselves (power, value, respect, vulnerability), the world (meaningfulness, bad intentions), and their other interactions (security, intimacy, belief) (Yetkiner, 2010).

It is thought that it is significant for victims to enhance their own values and hopes for the future after trauma, to improve their distorted thoughts about the traumatic experience and environment they are in, to develop more realistic and positive perspectives, and to realize positive experiences that make life more meaningful. Positive expectations that can control negative future expectations are called hope (Staats and Stassen, 1985). Hope includes people's belief in the world, their trust, and the thought that life is worth living, and in this respect, it is a primary human condition (Zournazi, 2002).

After a traumatic event, people also need to control themselves in order to stay in balance. The most important aspect of self-evaluation of individuals is to realize their ability to cope with vital improvement expectations such as self-efficacy perceptions (Benight and Bandura, 2004) which is the belief that people can perform the essential behaviors in a way that will create the results they want to occur in certain situations (Bandura, 1977). According to the results of a study, as participants' self-efficacy beliefs increase, their traumatic stress levels decrease, while their posttraumatic growth levels increase (Mystakidou et al., 2015).

The COVID-19 pandemic is considered traumatic because of its consequences. As a major life trauma, COVID-19 can have undesirable consequences like posttraumatic stress (Liu et al., 2020). When the relevant literature is investigated, it is thought that posttraumatic cognitions affect posttraumatic stress and growth. For this reason, the concepts of hope and self-efficacy, which are thought to mediate this effect, were also included in this study, in which the relationship between each other was investigated.

### *1.1. Trauma*

The following paragraphs will discuss firstly the definition of trauma, historical development of it and the effects of traumatic experiences. After that, it will be explained how COVID-19 pandemic started and the features that cause it to be described as traumatic will be explained in detail.

#### *1.1.1. Definition of the Trauma*

Traumatic experiences are shocking and destructive events that threaten the person's life as well as affect their physical and mental states (American Psychiatric

Association, 1994). Trauma is seen as a series of events that will require the individual to struggle with the resources one has (Tedeschi and Calhoun, 2004). In DSM-5, traumatic event is defined as being exposed events, such as death, severe injury, or sexual assault, through directly witnessing the events that happen to others, learning that traumatic events happen to a close friend or family member, and being exposed to repetitive or excessive levels with unpleasant details of the traumatic event (American Psychiatric Association, 2013). Traumatic events can be classified under three topics; human-made events, natural disasters/events, and accidents (Aker, 2000).

As seen in the DSM-5 definition, after the trauma experience, the family, relatives, employees, and volunteers involved in search and rescue activities, healthcare professionals who provide the first medical intervention, mental health workers who provide psychological support, and people who are watching the strong effects of events through media exposed to the traumatic experience indirectly. Since they are not directly exposed to life-threatening experiences, the situations these groups face are defined as indirect trauma or secondary traumatic stress (Yılmaz, 2007).

### *1.1.2. The Historical Development of the Trauma*

At its historical development, trauma appears to be linked to hysteria in the late nineteenth century. It was believed that hysteria usually originated from a woman's womb and consisted of various psychological symptoms that could not be understood by others (Herman, 2015). Trauma work resurfaced during the First World War (WW). Shell shock was a term used to characterize the psychological effects of heavy guns exposure, and it induced the emergence of syndromes such as *traumatic war neurosis, battle panic,* and *gross stress response* (Andreasen, 2010). Shell shock was accepted as a product of psychological triggers, rather than just physical ones, after syndromes were discovered in soldiers with direct and indirect heavy gun exposure. Posttraumatic effects were noted not only among troops and veterans, but also among civilian women during the 1970s women's liberation evolvement (Herman, 2015). The signs of rape trauma syndrome are similar to those seen in soldiers, indicating the need to standardize trauma-related syndrome descriptions. The review of veterans and civilian sexual assault survivors revealed the requirement of a trauma-related illness, including symptoms for survivors in general (Herman, 2015).

To standardize definitions, American Psychiatric Association (APA) developed four conceptualizations of traumatic disorders from 1952 to 2013 through revisions of the DSM. Gross stress response was described in the DSM-1 (American Psychiatric Association, 1952) as a short-term reaction to excessive stress for days to weeks. This diagnosis was dropped from the DSM-2 after WWII (American Psychiatric Association, 1968). The development of PTSD in DSM-3 was inspired by the study of Kardiner's traumatic war neuroses and Horowitz's stress responses syndrome (Herman, 2015). The main characteristic of the PTSD condition, formerly known as an anxiety condition, was Criterion A, an incident classified as rare and distressing (American Psychiatric Association, 1980). Re-experiencing, avoidance or numbing, and arousal signs were all associated with traumatic events. Criterion A of the DSM-3-R (American Psychiatric Association, 1987) was updated to offer more clarity about what constitutes a traumatic experience (e.g., get news about the trauma that occurred to a personal friend or relative) and the seriousness of the incident. Trauma exposure had to be combined with re-experiencing, avoidance or numbness, and heightened arousal effects for longer than one month, according to DSM-4 PTSD guidelines (American Psychiatric Association, 1994). In the DSM-5b, the PTSD diagnosis was transferred to the ‘Trauma and Stress-Related Disorders' part, which are explained to symptoms intervening with dealing as a result of trauma exposure, like Acute Stress Disorder (ASD) and PTSD (American Psychiatric Association, 2013).

### *1.1.3. The Effects of the Traumatic Experiences*

Bad things occur. According to epidemiological evidence, most people are exposed to at least one and numerous possible traumas throughout their lives (Breslau et al., 2000). National Institute of Mental Health (2008) clarified that 2.5 million patients are admitted to hospitals every year after suffering injuries in a traumatic accident (Johnson, 2009). However, not everyone responds in the same manner when faced with certain incidents. Some individuals are unable to function in traumatic situations. Others suffer for months after trauma before they slowly recover. Certain people have only minor impairments in their functioning, while others manage to cope admirably. It appears clear that there will be a wide range of reactions to possible future trauma (Bonanno, 2004).

In traumatic situations, people are left helpless by a force they cannot resist. The usual coping systems that provide reactions such as controlling, connecting, and making sense of the event are paralyzed (Türksoy, 2003). Sadness and depression are experienced by people who experience major life crises. It is common to experience anxiety or specific fears in situations that threaten a person's physical well-being. Because of the intensity, severity, and duration of the physical threat or pain, anxiety responses may continue for a long time, even if the current threat situation disappears. Also, longing for the deceased, grief, and willing things to be different are some reactions to the loss of one's relatives. In addition to these, guilt, anger, and general irritability are other emotional reactions (Tedeschi and Calhoun, 2004). Physiological problems may occur after traumatic experiences, as well as psychological problems such as suicide, alcohol and substance abuse or addiction, depression symptoms and posttraumatic stress disorder (Kılıç, 2003). When working with trauma survivors, clinicians face difficulty distinguishing posttraumatic stress disorder (PTSD) from other health issues. Often symptom presentation is easy to distinguish (for example, depression and/or anxiety), while on most occasions, symptom indication reveals several levels of comorbidity (Johnson, 2009).

Since 1980, much research has investigated the progression of psychological conditions other than PTSD after trauma exposure until recently; whereas, it is increasingly apparent that trauma exposure triggers the onset of a wide range of psychiatric disorders, some of which may or may not co-occur with PTSD (Yehuda, McFarlane and Shalev, 1998). In a recent research, Shalev et al. (1998) investigated a group of successive applications to an emergency room of a hospital after a traumatic incidence. The data were collected four months later from these participants and given total diagnostic evaluations. After four months of the trauma exposure, 141 of the 211 survivors available for follow-up (two-thirds of the sample) had no psychological illness. Seventeen percent of the rest of the participants corresponded diagnosis criteria of PTSD, 14 percent corresponded diagnosis criteria of major depression, and 15% corresponded diagnosis criteria of another anxiety condition like generalized anxiety disorder (GAD) or simple phobia. Around a quarter of the participants who corresponds medical criteria for one psychological condition corresponded to diagnostic criteria for another one. Moreover, of the 17 percent of participants with PTSD, just 7.5 percent did not correspond to conditions for another medical problem.

Of the 14 percent with severe depression, just 5% did not correspond to conditions for another medical problem, and of the 15 percent with other anxiety disorders, only 9% did not correspond to conditions for PTSD or depression. This research is vital because it establishes that PTSD is no more likely than severe depression or other mood disturbances due to trauma exposure. Moreover, the possibility of having both a mood and an anxiety disorder as a result of trauma experience is equal to the possibility of developing only one of these disorders (Shalev, Freedman and Brandes, 1998).

### *1.2.COVID-19 Pandemic*

COVID-19, a life-threatening type of pneumonia, is becoming a major public health concern around the world. It was discovered for the first time in December 2019 in Wuhan, China. COVID-19 was called on a pandemic by the World Health Organization in March 2020. It has been deemed a public health emergency of international importance (Tamiolaki and Kalaitzaki, 2020). The first COVID-19 case was detected in Turkey on 11 March 2020, and the first death on account of COVID-19 was experienced on 17 March 2020 (T.C. Sağlık Bakanlığı, 2020). The frequent transmission of COVID-19 caused a substantial number of deaths, most of which were caused by respiratory issues (Tamiolaki and Kalaitzaki, 2020). The fact that people have chronic diseases increases the risk for Covid-19 disease. The results of a study attract attention to the point that people with chronic diseases have more common and more severe diseases and having severe illnesses (Sandalci, Uyaroğlu and Güven, 2020). According to a study with 99 participants infected with COVID-19 in Wuhan, half of the participants had at least one chronic disease (Chen et al., 2020). The most frequent reactions and interventions implemented by governments worldwide included restrictions on local and foreign travel, in-house segregation, and quarantine. These steps were taken to slow the transmission of the epidemic and protect health services from the immense burden of dealing with the pandemic's devastating consequences (Tamiolaki and Kalaitzaki, 2020).

Although the medical effects of COVID-19 constitute a significant topic of study and therapeutic work, the COVID-19 pandemic has also had a negative influence on people in several respects. The COVID-19 pandemic has been linked mainly to losing loved ones, jobs, and community and social support systems (Cao et al., 2020). The uncertainty of the pandemic process and the lack of sufficient information about

the disease and treatment methods caused the closure of borders, suspension of flights, postponement of tourism movements, indefinite freezing of socio-cultural activities, and transition to computer-based education (Aykut and Aykut, 2020). As a result, the COVID-19 pandemic draws attention to public health and psychological problems (Cao et al., 2020). Also, fear, confusion, and stigmatization are popular themes like in every biological tragedy (Gallagher et al., 2021a).

Significantly, traumatic experiences must involve exposure to death or significant harm, either immediate or threatened. Biological hazards, like the COVID-19 pandemic, can be called a traumatic incident that can result in posttraumatic stress syndrome (PTSS) since the presence of the atypical coronavirus is a dangerous and life-threatening medical situation. This has been investigated in other pandemics, such as severe acute respiratory syndrome (SARS), where researchers discovered that 55.1 percent of patients, 25.8% of healthcare staff, and 31.2 percent of the general population have PTSD symptoms (Zhang et al., 2006). Significantly, health emergencies like COVID-19 and SARS can not only be stressful in the short term, but they can also aggravate long-term symptoms (Gallagher et al., 2021a). Some signs, such as hypervigilance, may be exacerbated by the environment during a global pandemic. Overall, the COVID-19 pandemic may have some effects on the statement of posttraumatic stress symptoms in various ways (Gallagher et al., 2021a).

When an entire population is confronted by an acute threat or an excessive level of tension that passes one's ability to overcome, it is called collective trauma (Hirschberger, 2018). The COVID-19 pandemic is regarded as collective trauma because of excessive fear that comes over by many people whose relatives will become heavily ill and decease, and are worried about their capability to reach services, keep their jobs, take care of others, and cope with continued physical isolation. Similarly, trauma is also inseparably linked to death and mourning. Individuals all over the world are suffering casualties because of the pandemic, such as the loss of people, money, possibilities, and power, as well as many others. While offering care services to individuals who are suffering emotional disturbances as a result of COVID-19, mental health professionals are often practicing loss and trauma, at the same time practicing trauma in their own lives (Holmes et al., 2021).

COVID-19, as a major life trauma, can have detrimental consequences on people, such as PTSS (Liu et al., 2020). As regards Bo et al. (2020), clinically healthy COVID-19 patients from Wuhan and the nearby cities experienced extreme PTSS as a result of unknown risk, physical distress, fear of virus spread to others, and negative news in the media (Bo et al., 2020). The uncertainty of the duration and outcome of the process, the fact that the treatment methods have not yet been fully found, the higher number of people infected in the world, the high death rates, the fear of death, radical life changes, job loss, and related poverty, increase in stigma and discrimination could also contribute to PTSS (Aykut and Aykut, 2020). According to Liu et al. (2020), many people of China's hardest-hit areas aggrieved from PTSS as a result of re-experiencing the traumatic incident, adverse changes in cognition or temperament, and hyperarousal. The most significant part of them were women who had trouble sleeping. More research into PTSS during the COVID-19 outbreak is required (Liu et al., 2020). COVID-19 pandemic was included in this study in order to contribute to the information about its psychological impact.

### *1.3. Posttraumatic Stress*

As mentioned in the previous section, the COVID-19 pandemic is considered traumatic due to its characteristics. There are studies demonstrated the development of PTSD in COVID-19 pandemic period. Therefore, in the next section, firstly, the definition of posttraumatic stress will be made and its diagnostic criterias will be mentioned. Afterwards, its prevalence, risk factors for the development of PTSD and studies conducted during the COVID-19 period will be explained.

#### *1.3.1. The Definition and the Diagnostic Criterias of PTSD*

While the impacts of traumatic distress have been recognized throughout history by mental health and medical practitioners, PTSD was first proposed as a recognitory classification in improving the third edition of the DSM-3 in 1980 (Johnson, 2009). PTSD is a complex and confusing disorder that makes accurate recognition impossible for clinicians (Johnson, 2009). Sometimes it is an inveterate condition that has been linked to a variety of other illnesses. Although it may seem that being subjected to a traumatic experience is wide, only a small percentage of those who are subject to trauma develop posttraumatic stress disorder. PTSD signs indicate

a disruption in the brain's usual ability to process and overcome cognitive and emotional reactions to stressful experiences (McFarlane and Yehuda, 1995). It contains a traumatic stressor, repetitive memories, avoidant symptoms, and hyperarousal. Earlier diagnosis guidelines distinguished ASD and PTSD from all other clinical disorders by requiring that one of the causes is external to the individual, namely *a traumatic stressor* (Johnson, 2009).

ASD is a mental problem defined in DSM-5 that can occur in the first month after a traumatic event. Re-experiencing the traumatic situation with flashbacks or recurring nightmares, avoidance, and arousal that may cause trouble sleeping or concentrating are the symptoms of ASD. This situation, which causes clinically significant stress, continues between three days and one month after the traumatic event. The symptoms cannot be explained by another medical condition or the effect of substance use (American Psychiatric Association, 2013). ASD was found to estimate the later development of PTSD (Shevlin, Hyland and Elklit, 2014). The diagnosis of ASD was used to maintain acutely traumatized individuals who might develop chronic PTSD following the traumatic situation (Bryant, 2005). A meta-analysis results revealed that half of the people diagnosed with ASD had chronic PTSD within six months of the traumatic event (Zhou et al., 2015).

The PTSD syndrome is officially described by the DSM-V in regards with five main criterias.

Table 1. Posttraumatic Stress Disorder Diagnostic Criterias

| Posttraumatic Stress Disorder Diagnostic Criterias (American Psychiatric Association, 2013); |
|---|
| A. Exposure to actual or threatened death, serious injury, or sexual violence in one (or more) of the following ways: |
| 1. Directly experiencing the traumatic events(s). |
| 2. Witnessing, in person, the event(s) as it occurred to others. |

Table 1. Posttraumatic Stress Disorder Diagnostic Criterias (Continued)

3. Learning that the traumatic event(s) occurred to a close family member or close friend. In cases of actual or threatened death of a family member or friend, the event(s) must have been violent or accidental.
4. Experiencing repeated or extreme exposure to aversive details of the traumatic event(s) (e.g., first responders collecting human remains: police officers repeatedly exposed to details of child abuse).

   **Note:** Criterion A4 does not apply to exposure through electronic media, television, movies, or pictures, unless this exposure is work related.

B. Presence of one (or more) of the following intrusion symptoms associated with the traumatic event(s), beginning after the traumatic event(s) occurred:

1. Recurrent, involuntary, and intrusive distressing memories of the traumatic event(s).

   Note: In children older than 6 years, repetitive play may occur in which themes or aspects of the traumatic event(s) are expressed.

2. Recurrent distressing dreams in which the content and/or effect of the dream are related to the traumatic event(s).

   Note: In children, there may be frightening dreams without recognizable content.

3. Dissociative reactions (e.g., flashbacks) in which the individual feels or acts as if the traumatic event(s) were recurring. (Such reactions may occur on a continuum, with the most extreme expression being a complete loss of awareness of present surroundings.)

   Note: In children, trauma-specific reenactment may occur in play.

4. Intense or prolonged psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).

Table 1. Posttraumatic Stress Disorder Diagnostic Criterias (Continued)

5. Intense or prolonged psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).
6. Marked physiological reactions to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).

C. Persistent avoidance of stimuli associated with the traumatic event(s), beginning after the traumatic event(s) occurred, as evidenced by one or both of the following:

1. Avoidance of or efforts to avoid distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).
2. Avoidance of or efforts to avoid external reminders (people, places, conversations, activities, objects, situations) that arouse distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).

D. Negative alterations in cognitions and mood associated with the traumatic event(s), beginning or worsening after the traumatic event(s) occurred, as evidenced by two (or more) of the following:

1. Inability to remember an important aspect of the traumatic event(s) (typically due to dissociative amnesia and not to other factors such as head injury, alcohol, or drugs).
2. Persistent and exaggerated negative beliefs or expectations about oneself, others, or the world (e.g., “I am bad,” “No one can be trusted,” ‘The world is completely dangerous,” “My whole nervous system is permanently ruined”).
3. Persistent, distorted cognitions about the cause or consequences of the traumatic event(s) that lead the individual to blame himself/herself or others.
4. Persistent negative emotional state (e.g., fear, horror, anger, guilt, or shame).
5. Markedly diminished interest or participation in significant activities.
6. Feelings of detachment or estrangement from others.
7. Persistent inability to experience positive emotions (e.g., inability to experience happiness, satisfaction, or loving feelings).

Table 1. Posttraumatic Stress Disorder Diagnostic Criterias (Continued)

E. Marked alterations in arousal and reactivity associated with the traumatic event(s), beginning or worsening after the traumatic event(s) occurred, as evidenced by two (or more) of the following:

1. Irritable behavior and angry outbursts (with little or no provocation) typically expressed as verbal or physical aggression toward people or objects.
2. Reckless or self-destructive behavior.
3. Hypervigilance.
4. Exaggerated startle response.
5. Problems with concentration.
6. Sleep disturbance (e.g., difficulty falling or staying asleep or restless sleep).

F. Duration of the disturbance (Criteria B, C, D, and E) is more than 1 month.

G. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.

H. The disturbance is not attributable to the physiological effects of a substance (e.g., medication, alcohol) or another medical condition.

### *1.3.2. The Prevalence of PTSD*

Studies on the prevalence of PTSD demonstrated different results. Several studies with the general population have been found that the lifetime prevalence of PTSD ranges between 1% and 14% (Kessler et al., 1995; Davidson et al., 1991; Helzer, Robins, and McEvoy, 1987; Perkonigg et al., 2000; Breslau et al., 1991). Breslau et al. (1991) reported that the prevalence rate of PTSD in lifetime is 24% among trauma victims (Breslau et al., 1991). In the literature review conducted by Green, it was determined that the rate of PTSD exposure to a traumatic event ranged between 25-30% in the population (Green, 1994).

A study by Kessler et al. (1995) showed that the most prevalent traumatic events experienced as being witnessed a death or injury, experiencing a natural disaster, having a life-threatening accident, and being threatened with a gun (Kessler et al., 1995). In a study, which traumatic experiences were divided into ten different categories as extortion, sexual assault, fire, traffic accident, witnessing a traumatic death, being on the battlefield, experiencing a physical attack, and other disasters, the highest prevalence of PTSD was found in individuals who were sexually assaulted with 14%. This was followed by those who were physically assaulted with 13% and those who had traffic accidents with 12% (Norris, 1992).

The highest lifetime PTSD rate was 57.1% which is developed after completed rape. 80% of victims of rape, life-threatening or physical assault develop PTSD (Resnick et al., 1993). Kilpatrick et al. (2013) performed research that used a single Criterion A incident (single) and a mixture of Criterion A incidents (composite) to assess PTSD prevalence rates depending on DSM-5 (American Psychiatric Association, 2013) parameters. The rates PTSD run along from 8.30 to 9.40% over a lifetime, 4.70 to 5.30% in the previous 12 months, and 3.80 to 4.20% in the previous six months (Kilpatrick et al., 2013).

Regarding epidemiological studies investigating PTSD in Turkey, several studies were conducted with many different samples. In a study conducted with 26 patients in which the incidence of ASD and PTSD occurring after motorcycle accidents and the factors related to these disorders were examined, the group who had a motorcycle accident had 20% ASD in the first month. It was also observed that the group who had a motorcycle accident developed PTSD at the rate of 30% in the third month and 17% in the sixth month, in contrast with no ASD and PTSD developed in the control group (Özaltın, Kaptanoğlu and Aksaray, 2004). 123 emergency, 139 intensive care workers, and 133 control cases were included in a study examining the frequency of PTSD, burnout, and coping ways in intensive care and emergency departments in Turkey. The rate of PTSD was found to be 23.6% for emergency workers, 15.8% for intensive care unit workers, and 6% for the control group (Baysak et al., 2019).

Nine months after the Van Earthquake in 2011, a study was conducted with 1498 participants to screen posttraumatic stress disorder in individuals living in the Van-Erciş. According to results, the rate of PTSD was found as 35.5% in earthquake

victims (Boztas et al., 2019). It was found that alcohol craving was associated with posttraumatic stress disorder and general psychopathology in inpatient alcohol addicts. In a study including 103 male participants, 32% (n=33) of the participants developed PTSD (Evren et al., 2009). In a study in which the medical board reports of the military personnel injured during the fight against terrorism were evaluated in terms of their psychiatric diagnoses of 92 cases, it was observed that any disease was diagnosed in 21.7% (n=20) of the cases, and PTSD was found in 6.5% (n=6) of them. No psychopathology was developed at 78.3% (n=72) of the participants (Keten et al., 2014). Studies show that PTSD occurs after traumatic events.

### *1.3.3. Risk Factors for the Development of PTSD*

Trauma is the outcome of a person's coping ability being defeated by a stressful experience that is suffocating and unavoidable, summarizing the participant's connection with the traumatic incident. PTSD was once thought to be a natural reaction to severe psychic trauma. There is a growing idea that exposure to trauma is not always sufficient for the progression of PTSD. Human fragility factors play an important role in explaining this disorder after exposure to various stressors (McFarlane and Yehuda, 1995).

Several factors can affect the person's capacity to cope with the traumatic occurrence, including their moral structure, previous trauma experience(s), current adverse events, level of treatment, perception of their abilities to cope with the incident, internal capabilities, genetic predisposition, and other stressors in their life at the same time with the incident (Johnson, 2009). Brewin et al. (2000) performed a meta-analysis to look at the causes that are most estimated of PTSD symptoms and/or diagnosis in trauma-exposed adults. In this research; fourteen risk elements were listed, such as gender, age at trauma, socioeconomic status (SES), academic level, prior medical history, documented childhood violence, family history of psychiatric illness, life stress after trauma, and social support after trauma (Brewin, Andrews and Valentine, 2000). In their meta-analysis study results, Trickey et al. (2012) found a significant difference between younger age and PTSD, especially in cases of unintentional trauma, compared to cases of intentional trauma. Furthermore, incompatible posttraumatic cognitions are considerably associated with PTS symptoms seriousness and play a major role in the progression of PTS symptoms

(Ehring, Ehlers and Glucksman, 2006). There are mixed data on demographic factors as PTSD risk elements, even so, individual research and meta-analyses have revealed the gender to be a significant PTSD indicator. Females were shown to have slightly more PTSD symptoms than males (Andrews, Brewin and Rose, 2003; Kilpatrick et al., 2013).

### *1.3.4. Research about PTSD on COVID-19 Pandemic*

Individuals' genetic structures, physical characteristics, socioeconomic levels, social resources, and communication skills are different, and their ability to cope with the difficulties is not the same (Bolu, Erdem and Öznur, 2014). While mental illnesses, like PTSD, are rare in individuals with high psychological resilience, high problem solving capacity, and strong temperament and personality traits (Sakarya and Güneş, 2013, p.26), people with low psychological resilience, social and personal resources, and communication skills are felt more deeply to the problems (Aykut and Aykut, 2020).

Within the scope of the characteristics, the COVID-19 pandemic is considered a traumatic incidence. Therefore, it is considered significant to determine the consequences of it. The COVID-19 pandemic, according to Forte et al. (2020), leads to a variety of PTSD effects and may be classified as a traumatic incident (Forte et al., 2020). A review about the COVID-19 pandemic revealed that people who have a higher risk during the pandemic period, like health care workers, are more likely to have signs of PTSD, severe depression, and GAD (Cabarkapa et al., 2020). On the other hand, PTSS, or psychological reactions that could be closely related to life-threatening events, have less attention to study at the peak point of COVID-19 infection and mortality (Zhang et al., 2020). Shechter et al. (2020) conducted a study with a sample of 657 health care workers, and results demonstrated that 57% of the participants signified PTSD symptoms, 48% for major depression symptoms, and 33% for GAD symptoms. A study applied with 2027 Chinese participants revealed that the average PTSD for DSM-5 score was 11.77 ± 10.33 (s.d.), with that the threshold of the scale is 33. The prevalence of PTSD was 4.7% among all participants (Zhang et al., 2020). Also, in a sample with 371 health workers, researchers indicated that the overall prevalence of PTSS was 3.8%, with a separate prevalence of single clusters of PTSS such as disruptive symptoms (44.5%), avoidance symptoms (12.7%), adverse

changes in cognition and mood symptoms (16.4%), and hyperarousal symptoms (16.4%) (Yin et al., 2020). Kira et al. (2021) conducted a study with 262 Turkish adults, which is aimed to analyze the effect of various COVID-19 stressors. COVID-19 stressors were grouped at three different points; fear of infection and death, economic stress and isolation, and disturbed routines. Results showed that all three groups had positively significant correlations with PTSD. As the results show, the higher the scores given to the COVID-19 stressors, the higher the PTSD level. Additional studies are required to measure the effects, like PTSD, of the pandemic in the Turkish population.

### *1.4. Posttraumatic Cognitions*

As mentioned earlier, posttraumatic cognitions (PTC) are one of the risk elements which are related with PTSD. In the next paragraphs, the importance and the definition of PTC will be explained. At next section, different theories that are effective in the formation of PTC will be discussed. Lastly, the researches about the PTC will be mentioned.

#### *1.4.1. The Importance and the Definitions of Posttraumatic Cognitions*

Traumatic incidence has been seen to have a negative effect on both physical and mental health (Wong, Clark and Marlotte, 2016). Due to posttraumatic symptoms are severe and influence one’s life quality dramatically, they contain extreme stress and unfavorable impacts (Pagotto et al., 2015). Many factors influence the level of individuals being affected by trauma. While studies are emphasizing the characteristics of the traumatic event, studies show the effect of people's interpretations of the event (Bovin and Marx, 2011). While some of the emotions arise as natural reactions to trauma, some emotions can develop as a result of the person's cognitive evaluations (Brewin and Holmes, 2003).

It is critical that we learn more about the risk and maintenance factors that contribute to PTS symptoms. Bryant (2003) indicates that although the researchers paid attention to identifying the estimative power of ASD causing chronic PTSD disapproved a positive acknowledgment, an evaluation of the biological and cognitive procedures related to acute post-trauma may ensure a more certain means of estimating

chronic PTSD (Bryant, 2003). The DSM-5 diagnostic criteria of PTSD also mention the existence of adverse changes in the cognition and emotions of the person (American Psychiatric Association, 2013). In the study of Cox, Resnick, and Kilpatrick (2014), it was shown that these symptoms mentioned in DSM-5 are more common in people diagnosed with PTSD compared to people who had a traumatic experience but were not diagnosed with PTSD. Because of that reason, the cognitive period has a major role in distinguishing between those who develop PTSD and those who do not after a traumatic situation (Tolin and Foa, 2002). Also, in the months after a trauma, individuals who resume experiencing a clinically apparent level of PTS symptoms can be differentiated from those who do not live by means of their overly negative assessment of traumatic and posttraumatic experiences (Foa and Kozak, 1986).

Individuals can make cognitive evaluations about why/who caused the trauma and how the trauma or PTS reactions will affect them in the future (Ehlers and Clark, 2000). Simmons and Granvold (2005) clarify causal factors of PTSD, with a center on greater risk for women developing PTSD. According to their ideas, the basis for a scientific understanding of PTSD development is laid under the cognitive function. Cognitive functions incorporate the content (what people thinks, believes, appraises, and makes a record to their memory), the process (interest, comment, cognitive coding detail, and readjustment), and structure (cognitive networks, relevant connections, and stored memory which the incident is absorbed) to convert the traumatic experience into the people's subjective meaning throughout traumatic incident (Simmons and Granvold, 2005).

Posttraumatic cognitions are nonadaptive assessments that warn someone's opinion of the self (e.g., *My behaviors after the terrifying incident indicate that I am going insane*.) and the world (e.g., *I am always on the lookout for risks*.) in the consequences of trauma (Meiser-Stedman et al., 2009). The existence of posttraumatic cognitions may produce a sense of current, present danger regarding PTSD. This feeling of being threatened may result in various inappropriate coping strategies (e.g., avoiding trauma memories) that hinder emotional and cognitive processing of the trauma, inhibiting the improvement and maintenance of PTS (Brewin et al., 1996;

Ehlers and Clark, 2000). As a result, the majority of evidence-based trauma interventions concentrate on altering posttraumatic cognitions (Schnyder et al., 2015).

### *1.4.2. The Formation of Posttraumatic Cognitions*

Several theoretical perspectives have proposed that cognitive factors are effective over recovery period and may play a role in the development of PTSD. Some models indicate that people develop and sustain schemas about themselves, others, and the world, and they maintain to be formed over time by people's experiences (McCann, Sakheim and Abrahamson, 1988). When people are exposed to stressful experiences, their schemas are challenged, and they equate the new knowledge to their original schemas, either incorporating it into their current schemas (assimilation) or updating and altering their schemas to represent the new information (i.e., accommodation). Traumatic information is continuously linked to current schemas, which allows cognitive processing to proceed through the information is involved to these schemas. However, in some situations, traumatic knowledge is too discordant with current schemas, so that they are impossible to be integrated, which could result in the emergence of maladaptive schemas about oneself and the environment. Maladaptive posttraumatic cognitions like *I am evil, no one can be trustable, and the universe is bad* are included in these schemas (McCann, Sakheim and Abrahamson, 1988).

Cognitive evaluations observed after a traumatic experience were explained by Janoff-Bulman (1989) with the *Basic Assumptions Model*. According to this model, although people know that there is evil in the world, they have assumptions that good will happen in their *own world*. Janoff-Bulman analyzed these assumptions in three categories; *the well-being of the world, the meaningfulness of the world, the self-worth assumption*. According to these assumptions, the world and the people living in the world are reliable, and even if bad things happen in the world, there is a reason for it. Also, if the people control their own behavior, they will not encounter these bad events. The people themselves are already well-intentioned and behave in that way. After the traumatic experience, these assumptions are shattered, and the people confront the fact that the world can be bad and their own vulnerability. They start to question the assumptions they had before the trauma. After these judgements, they develop new and more negative assumptions compared to before the trauma, and with the mourning of losing previous assumptions (Janoff-Bulman, 1989).

Ehlers and Clark (2000) describe a cognitive model that explains the development of PTS. According to that model, the meaning-making process begins with individuals attempt to integrate their existing cognitions with their experiences after a traumatic event (Ehlers and Clark, 2000). When interpretation of traumatic experiences, cognitive mechanisms would be adaptive (for instance a person can maintain to positive side of the experience, learns coping strategies to overcome it, and accepts that the experience would have bad consequences) or maladaptive (for instance a person rejects acknowledge the traumatic incident or accuses oneself for it) (Williams, Davis and Millsap, 2002). The unsuccessful integration of existing belief systems with the experiences gained after traumatic events leads to an increase in self-blame and negative cognitions towards the world, others, and oneself (Ehlers and Clark, 2000).

### *1.4.3. The Researches about the Posttraumatic Cognitions*

Evidence indicates that posttraumatic cognition plays a significant role in developing and maintaining PTS symptoms (Ehring Ehlers, and Glucksman, 2006). Other studies approved the significance of faith about the self (Ehlers, Maercker and Boos, 2000; Joseph et al., 1993). The belief that the traumatic event creates a negative and persistent change in the possibility of achieving self and life goals is associated with PTSD (Ehlers, Maercker and Boos, 2000). Passengers in shipping accidents who blamed themselves and their behavior for the sinking have more PTSD signs (Joseph et al., 1993). It has been found in several studies that people who develop PTSD after an attack or motorcycle accident, especially those whose symptoms continue, are more likely to have negative interpretations about the accident itself and the reason of the victim to have symptoms (Ehlers, Maercker and Boos, 2000). Dunmore et al. (2001) found that pessimistic explanations of symptoms indicated a delayed recovery from PTSD. Negative beliefs are not only the result of the trauma itself but may also be the result of a separate assessment phase that only starts after the threat has passed (Grey, Young and Holmes, 2002).

In a study applied with 113 participants to assess the effects of individual characteristics on PTSD, in accidental trauma, younger participants were found to have more dysfunctional posttraumatic cognitions (de Haan et al., 2019). A study conducted with 50 female victims of sexual assault showed a strong and positive relationship

between the negative self, world, and future evaluations of the person after trauma and PTSD (Fairbrother and Rachman, 2006). Also, Karl et al. (2009) conducted a study with participants who had a motorcycle accident. The relationship between posttraumatic negative cognitions and the diagnosis and severity of PTSD was examined, and it was stated that posttraumatic negative cognitions explained 54% of the variance in the PTSD variable (Karl et al., 2009). According to a longitudinal study of participants with accidental disability, negative cognitions about the world assessed in the first week after the accident and negative cognitions about the self-assessed 3 months after the accident were predictors for PTSD (O'Donnell et al., 2007). Unfavorable posttraumatic cognitions are an essential recovery goal (Resick et al. 2016). The study has proved that a decrease in self-blame and unfavorable beliefs about self-impression PTSD symptoms vary (Carroll et al., 2018). Furthermore, Scher, Suvak and Resick (2017) discovered that unfavorable trauma-related attitudes connected with shame, distrust, and self-worth estimated PTSD symptoms a decade after therapy (Scher, Suvak and Resick, 2017).

### *1.5. Posttraumatic Growth*

In literature, it has been observed that, with the effect of posttraumatic cognitions after traumatic situations, people experience not only posttraumatic stress, but also experience growth. Therefore, firstly, the definition of posttraumatic growth (PTG) will be mentioned, then its formation will be explained. The factors that affecting PTG will be discussed. In the last part, the researches about PTG and the COVID-19 pandemic will be included.

#### *1.5.1. The Definition of Posttraumatic Growth*

Throughout their lives, every individual has hopes and expectations. They want a good life away from trauma. For this reason, an interruption or split in the desired flow of life is unacceptable and is generally considered to be a cause of mental problems. In the related literature, it has recently been noted that traumatic events or experiences pose a problem and indicate that individuals' awareness and interest in real life could increase. Tedeschi and Calhoun (1995) tried to explain this situation with the example of a male patient with spinal cord injury who described this disease as *the best thing that happened to him*. The accident experienced in the life flow that the

patient imagined stopped the desired course and provided an opportunity for the patient for personal development. Although the event is devastating for those who face the death of a close person, sometimes people perceive themselves as better, more humane, and more capable people and feel that they have grown (Tedeschi and Calhoun, 1995).

Tedeschi and Calhoun moved away from the idea that traumatic events would cause psychological problems and stated that development after such events could also be seen (Tedeschi and Calhoun, 2004). With the development, many visible and invisible changes occur in individuals after the trauma experience. It is not known for certain that individuals will not experience a psychological problem after development or that they will not develop when they encounter a psychological problem (Tedeschi and Calhoun, 1996). It has been observed that traumatic experiences sometimes provide positive changes such as discovering the meaning of their lives, experiencing improvements in their relationships, realizing the priorities in their lives, and increasing the perception of individual empowerment (Shakespeare-Finch et al., 2003). Linley (2003) defines positive adaptation to traumatic experiences as the "wisdom" reconstruction of life damaged by traumatic experiences (Linley, 2003). The concept of PTG means that the person goes beyond the pretraumatic situation to a better psychological level in many areas of his life (Tedeschi and Calhoun, 1996). PTG concept is an interesting structure as it provides new perspectives in examining psychological trauma. With the enhancing danger of global terrorism and man-made disasters, it is promising that PTG is likely to occur after situations to be experienced (Westphal and Bonanno, 2007). Tedeschi and Calhoun stated that PTG occurs in three areas. These categories are change in the philosophy of life, change in interpersonal relationships, and change in self-perception (Tedeschi and Calhoun, 1996).

### *1.5.2. The Formation of Posttraumatic Growth*

Linley and Joseph (2004) mention some conditions that must exist in order to experience PTG. First of all, it is stated that the factors that constitute the growth are the risk of death of the traumatic situation experienced, the thoughts that the person cannot control the event, and the feeling of helplessness. Moreover, reinterpreting events positively, using acceptance as the ability to cope, doing rumination voluntarily, and having an optimistic nature are other important variables. Finally, there is a

relationship of unknown origin between stress reactions after traumatic events and PTG. It is stated that experiencing a certain level of distress is also necessary for growth (Linley and Joseph, 2004).

Some researchers have stated that different factors of PTS arise in different ways, and perhaps different models should be developed for each factor. Some factors of PTG may be often linked to coping success with PTSD as other factors like endurance (Nishi, Matsuoka and Kim, 2010). It is not clear whether PTG should be evaluated as a coping strategy for traumatic situations or as a result of a coping process. Debates continue as to whether growth should be viewed as an outcome or as a coping strategy. The tools used to measure PTG state that growth can be evaluated as an outcome, but more strongly associated with coping, such as making sense or accepting situations that cannot be changed (Znoj, 2005). For this reason, a better understanding of each factor and explaining its characteristics are important as it will help clinicians understand both their efforts to cope with the individual's problems and the result of coping with them successfully (Nishi, Matsuoka and Kim, 2010). When evaluating posttraumatic growth, it is more appropriate to think that it is both a result of the event experienced and a situation that occurs during the process. Linley and Joseph (2004) state that although some variables related to growth started to be seen right after the event, they lived as a process that lasted for months and even years (Linley and Joseph, 2004). Some studies show a positive relationship between PTSD and PTG (Tedeschi and Calhoun, 1996; Tedeschi and Calhoun, 2004). In addition, it is stated that high growth levels are experienced in situations where the distress experienced due to trauma is severe (e.g., events that threaten the life of the person) (Bensimon, 2012).

Increased PTG was linked to immediate failure or disjunction. Difficulties such as failure or disjunction can cause survivors to reconsider their belief systems leading to PTG when difficulties are solved. The deprivation of some physical sources, like personal ownership, can cause survivors to rely more on personal or social sources, leading to raised PTG in areas like personal power and interpersonal relationships. PTG may also arise in the face of obstacles as patients can recognize gains from their stressful encounters (Long et al., 2020). According to McMillen, Smith and Fisher (1997), the strength of natural hazard exposure was positively correlated with improvement if survivors noticed an advantage from the traumatic incident. However,

it was negatively correlated with improvement in the lack of perceived advantages. As a result, beneficial features of long-term negative situations are likely to lead to PTG (McMillen, Smith and Fisher, 1997).

### *1.5.3. The Models of Posttraumatic Growth*

In order to explain the functioning of posttraumatic growth, multiple early developmental theories and models have been developed (Janoff-Bulman, 1989). Joseph and Linley (2006) defined the early and more recent posttraumatic development models, which they gathered in two categories, as optional and involuntary. Models that see growth as optional are based on the event that has occurred. Models with this orientation underline the impact of the traumatic situation on the individual, which creates a need for cognitive restructuring after it occurs. In addition to these, there are also models that explain growth with involuntary developments. These models emphasize that growth does not occur intentionally as a result of traumatic situations.

'Functional-Descriptive Model' describes the progression of growth within the framework of the interaction of factors before and after the trauma experience (Joseph and Linley, 2006). The model, which emphasizes that there are different dimensions of growth, is explained by factors such as one's views and personality traits before the traumatic event, one's views about himself, other people and the world, and factors such as rumination and social support that emerge after the traumatic event. It is stated that each individual will grow in different sizes after traumatic situations. How the person's personal characteristics are, the type of event experienced and how well the support factor works are the variables that determine the level of growth.

A crisis situation contradicts the individual's belief system and causes the person's assumptions about life to be affected. This situation, which can be as shocking as an earthquake, results in the individual's schemas being affected. After the stressful event, the individual's thoughts about the world before and after the situation occur uneasiness. However, people may experience psychological problems and confusion occurs in their current schemas. The individual's cognitive effort, repeatedly trying to cope with a traumatic situation due to recurring thoughts, results in changes in life goals and schemas. According to the model, the situations in which the changes that

occur as a result of the resulting dissonance and their efforts to make sense of the traumatic situation, cognitive reprocessing and reshaping the assumptions about life are defined as posttraumatic growth. Researchers emphasize that growth may show simultaneity with the symptoms that occur after the traumatic event, since there is no direct cause-effect relationship. The important factor to be able to define the existence of growth is to cope with the reality that occurs after the traumatic situation (Tedeschi and Calhoun, 2004).

### *1.5.4. The Factors That Affect the Posttraumatic Growth*

After experiencing traumatic events, while some individuals experience problems with the effect of the event, it is crucial to know the factors that form the empowerment seen in others. In the studies from the literature, it has been observed that the variables affecting the posttraumatic growth in individuals are investigated together with the theoretical background of the concept, and studies have been conducted to create new conceptual models (Yastibaş and Araz, 2019). PTG is significantly linked to socioeconomic level, cognitive processing, racial/ethnic minority status, religious/spiritual outlook, social support, cognitive evaluation, openness to new experiences, hope, coping mechanisms, and affect variables (Linley and Joseph, 2004).

In studies examining the relationship with gender, a consistent relationship with growth has not been revealed. At research where there was a significant difference between the genders, it was observed that women experienced a higher rate of growth, while considering all the studies performed, no regular difference between the genders could be detected (Linley and Joseph, 2004). Considering the age of individuals, it has been stated that growth is experienced more in adulthood because this concept is a process that leads to changes in schemas. However, the rate of experiencing posttraumatic growth is higher for younger adults because they are more open about learning (Tedeschi and Calhoun, 2004). Evans, Ehlers and Glucksman (2013) found a significant relationship between age and posttraumatic growth. As the age of the participants' increases, they may become more likely to realize their abilities and try new activities (Evans, Ehlers and Glucksman, 2013).

### *1.5.5. The Researches about PTG and COVID-19 Pandemic*

Some studies conducted during the COVID-19 period also revealed findings that PTG was experienced. In a study done by Chen et al. (2021), results revealed that nurses who served in intensive care units and cared for COVID-19 patients had better PTG ratings. This finding was similar to previous research that suggested posttraumatic growth and PTS would coexist (Chen et al., 2021). Also, according to a study with a sample of 430 Chinese high school graduates, 13.3% of the participants were thought to be experiencing posttraumatic growth (Yu, Yu and Hu, 2021). Arnout and Al-Sufyani (2021) applied a study with Saudi participants. Results showed that the overall score of posttraumatic growth in consequence of the COVID-19 pandemic outbreak was poor among Saudis. However, the levels of strengthened individual relationships, enhanced emotional strength and endurance, greatest spiritual attachment, and a heightened sense of gratitude for life were large. According to Tedeschi and Calhoun (2004), there is an inequality in psychological responses among individuals, particularly in certain circumstances and trauma (Arnout and Al-Sufyani, 2021).

In sum, researches show that individuals, who had experienced trauma, show more negative cognitions related to trauma. This situation can lead to the formation of PTSD. On the other hand, traumatic events do not only cause harm to individuals. People could experience growth after traumatic events.

## *1.6. The Relationships Between Posttraumatic Cognitions, Posttraumatic Stress and Posttraumatic Growth*

Negative posttraumatic cognitions have been proposed as a central factor for the development and maintenance of PTSD. In the weeks after a traumatic experience, negative appraisals foresee the occurrence of clinically suggestive PTS in the next year (O'Donnell et al., 2007). They also longitudinally estimate important variance on PTS symptom seriousness over and above the aim and noticed severity of one's traumatic experience (Halligan et al., 2003) and other well-known PTSD risk factors (Ehring, Ehlers and Glucksman, 2008). PTC plays a significant role in the persistence of PTS symptoms and PTSD. As more proof of the role of PTC in the sense of PTS symptomatology, directly treating PTC has provided to be successful in alleviating

PTS symptoms (Kaczkurkin and Foa, 2015). In a study conducted with 121 women, researchers have assessed the effectiveness of cognitive processing therapy that lasts for 12 weeks and focused on reframing the participants' false belief systems and traumatic memory about the traumatic event. Results were proved that reducing posttraumatic cognitions provided a decrease in PTSD symptoms compared to the control group (Resick et al., 2002). In addition, 195 participants participated in a study investigating the relationship between cognitions about trauma, PTSD, and depression longitudinally among veterans who received cognitive processing therapy through a 7-week inpatient PTSD treatment program. The change in self-blame and negative beliefs about self, which are the subscales of posttraumatic cognitions, come before the change in PTSD (Schumm et al., 2015). Scher et al. (2017) investigated the association between posttraumatic cognitions and posttraumatic stress after cognitive behavioral therapy at three months, nine months, five years, and ten years follow-ups. According to results, impaired posttraumatic cognitions are correlated with symptoms up to 10 years following cognitive behavioral therapy for PTSD, and thus their elimination may be a strategy for long-term continuation of treatment improvements (Scher, Suvak and Resick, 2017).

In contrast with the availability of well-known interventions that tend to alleviate maladaptive cognitions, in a study with 750 veterans from the USA, a substantial percentage of trauma patients who carry out treatments that are aimed at reducing maladjusted posttraumatic cognitions may not experience clinically remarkable declines in PTS symptoms at higher severity (Rutt et al., 2018). The reason for this condition may be a failure to take into account psychological factors that affect the intensity of the connection between maladaptive posttraumatic cognitions and PTS symptoms (Benfer, Rogers and Bardeen, 2020). Also, in a study done by Cieslak et al. (2008), the findings usually sustain the hypothesis that negative cognitions are linked to symptoms of PTSD. However, the impacts of negative cognitions on posttraumatic stress are not always apparent, such as the self-blame subscale. Furthermore, previous studies have found no proof of the mediational mechanisms by which negative cognitions can affect posttraumatic stress. Further studies are needed to examine the mediational roles of cognitive processes (Cieslak, Benight and Caden Lehman, 2008).

At a recent meta-analysis finding, 77 articles about PTG and gaining benefit were investigated (Helgeson, Reynolds and Tomich, 2006). Results show that PTG or seeking meaning is linked with a high degree of PTSD symptoms. Also, PTG was linked to more distracting and avoidant thoughts, which are common PTS symptoms. This relationship is difficult to comment on since Helgeson et al. (2006) state that it may mean that perceived PTG is a coping mechanism used in response to elevated levels of stress, or it may reflect the individual's efficient trauma processing (Helgeson, Reynolds and Tomich, 2006). Cieslak et al. (2009) applied research with 90 participants with HIV who were exposed to Hurricane Katrina. The data were collected after approximately 14 months. Results indicated that participants, who were living with HIV and had high degree of PTSD symptoms after Hurricane Katrina, besides had intense faiths in their skills to overcome with the demands imposed by the storm, were more likely to experience positive shifts in their lifetimes, like a greater admiration of life, a gain in personal force, specification of new opportunities, and approval of advancement on personal relationships. Oginska-Bulik and Juczynski (2018) adaptated the ‘Core Belief Inventory’ in Polish with a sample of 415 participants and analyzed core-beliefs functions on the posttraumatic adaptation process, which affects the intensity of PTSD and PTG level. According to the results, the relationship between PTSD and PTG scores is poorly significant. There are significantly greater correlations between disturbances to core beliefs with PTSD rather than with PTG, and this is a statistically significant relationship in both cases.

Nalipay and Mordeno (2018) applied a study with 446 Filipino survivors of Typhoon Haiyan to analyze the effect of posttraumatic cognitions and emotions on PTSD and PTG. The study's findings reveal that survivors who are reliant on their skills to overcome recurrent adverse thoughts and feelings and strive for stable and realistic outcomes have less PTSD symptoms and a higher PTG. The decline in their unreasonable trauma cognitions is responsible for this interaction (i.e., PTC). These results endorse Wells and Matthews' (1994) ideas that being able to identify one's capacity to remove perseverations and set versatile and reachable hierarchies of aims may help an individual take care of the intrusive PTC that arise as a result of a traumatic experience, thus preventing the emergence of PTSD. Apart from reducing the severity of PTSD symptoms, low level of PTC due to the annihilation of repeated thinking and accessibility of survivors' goals might enable the improvement of positive

alterations (Wells and Matthews, 1994). The findings also suggest that trust in creating versatile and attainable target hierarchies is indicative of lower PTSD and higher PTG through reduced PTC. According to Park, Mills and Edmondson (2012), a person could perceive the negative incident as a breach of one's objectives since it contradicts what one desired to happen, which can be distressing. These explanations of traumatic incidents can lead to negative beliefs like one is incompetent or that the environment is unjust, which causes an increase in PTSD symptoms (Park, Mills and Edmondson, 2012).

PTG is a result of overcoming and competing against difficulties after a traumatic incident (Tedeschi and Calhoun, 2004), people who successfully coped with problems after trauma and thereby avoided high PTSD symptoms severity (or other detrimental stress-related outcomes) may state less development as a result of successful stressor stability. Arredondo and Caparrós (2020) applied a study with 161 Mexican university students to investigate the associations between posttraumatic cognitions, posttraumatic growth, and personality. The results clarified a significant correlation between PTC and PTG; however no significant correlation was found between PTSD and PTG. The researchers expected that there would be a relationship between subscales of PTC and areas of PTG; however the results indicated no substantial relationships. Previous researches indicate that the cognitive mechanisms of PTSD and PTG are distinct and that negative and positive trauma consequences will coexist as previous research results. If an individual has PTC, it does not rule out the possibility of PTG (Dekel et al., 2016).

Arikan et al. (2016) conducted a study with 393 participants to assess the relationship between PTSD, PTG, and attachment. In this study, outcomes indicated that PTS was strongly correlated with perceived PTG. At first view, the positive relationship between PTS and perceived is mysterious. Even so, the results of Helgeson, Reynolds and Tomich (2006)’s meta-analysis are relevant to this point, which specifies development to be associated with enhanced avoidance and intrusive notions (Helgeson, Reynolds and Tomich, 2006). Growth is a continuous phase rather than a final result in people trying to cope with trauma, so PTSD and PTG can coexist (Tedeschi and Calhoun, 2004). Also, Helgeson et al. (2006) assert that high PTGI ratings do not represent true development but might point out a coping mechanism in

response to high stress (Helgeson, Reynolds and Tomich, 2006). This is an area that should be explored further in the future.

### *1.7. Hope*

As stated earlier, people's experiences of posttraumatic stress or growth are influenced by the concept of hope. Therefore, in this section, firstly, the definition and the components of the hope will be mentioned. The next section will explain the relationship between hope and trauma. In the last section, the researches about hope and COVID-19 pandemic will be discussed.

#### *1.7.1. The Definition and The Components of the Hope*

Hope is one of the concepts that strengthens the well-being of people and enables them to continue their lives since the existence of humanity. Stotland (1969) stated that hope is a cognitive construct, which he defined as having zero expectations to achieve a goal. The perceived probability and the importance of the goal are also expressed in determining the degree of hope (Stotland, 1969). Staats and Stassen (1985) defined hope as positive expectations that overcome negative ones in terms of future expectations. Hope is a basic human condition that includes an individual's belief in the world, confidence, and the thought that life is worth living (Zournazi, 2002). Snyder et al. (2002a) explained hope with three components: goals, agency, and pathways.

Goals are the first component of hope theory and constitute the cognitive structure of the concept. Having value for people, being accessible, and having a degree of uncertainty are decisive for the goals (Snyder, 2002; Snyder, 2005). People's capacity to find ways suitable for the goals they want to reach is the pathways (Cheavens et al., 2006). This component determines people's perceptions of their ability to find ways towards their goals and make successful plans under normal or challenging conditions (Snyder et al., 1991; Snyder et al., 2002). With this component, new solutions are found to the obstacles in reaching the goal, and internal conversations such as '*I will find a way to solve it'* are used to reach the goals (Snyder, 2005; Snyder et al., 1998). Willing to reach the goal and feeling the power to reach it is agency (Snyder et al., 1991). This component constitutes the motivation part of the

concept of hope. It leads individuals to be willing to find alternative ways and choose the appropriate one from these ways (Snyder, 2002).

People's responses to life circumstances (e.g., a chronic disease diagnosis) are thought to be influenced by dispositional hope and may lead to either commitment or disengagement with defined goals. Individuals with low hope will give up attempting to achieve their goals, which may cause maladaptive psychological change (Rand and Cheavens, 2009). The course of goal reappraisal and the power of hope-related thinking have the possibility to raise hope in people who are going through difficult times (Hullmann et al., 2014). Hopeful survivors presumably use adjustable, active dealing strategies and are less likely to use maladaptive avoidance dealing strategies. Individuals may benefit from more goal-oriented thinking processes, which may help them accomplish their goals and improve their psychological and social functioning following a stressful experience (Lee and Gallagher, 2017).

### *1.7.2. The Relationship Between Hope and Trauma*

Hope, which is the basic concept that facilitates changes in the therapy process, is used in the patient's compliance with therapy, raising awareness, evaluating the therapy process, and evaluating the session and treatment results (Lopez et al., 2000). Since it includes particular goal-directed processes, hope can be a more powerful force than more common preventive factors like resilience and thus can show a greater correlation with good outcomes following a traumatic event. Arnau et al. (2007) found that hope is linked to decreased posttraumatic symptoms of depression and anxiety. The findings of one meta-analytic study indicate that hope can serve as a potential element against PTSD symptoms (Arnau et al., 2007). Hope has also been shown to estimate PTG in the aftermath of trauma exposure (Ai et al., 2007).

According to a study with adolescents following an earthquake, since developing a sense of hope for their posttraumatic lives, adolescents consciously searched out constructive and effective ways to cope with traumatic experiences and rebuilt their view as contributing to the awareness of PTG (Zhou et al., 2017). In a research, when checking for age, gender, and traumatic experience, Zhou and Wu (2018) discovered that adolescents with higher hope were able to achieve PTG through their cognitive reassessment of traumatic experiences, which confirms Snyder's (2002)

hope hypothesis. The high degree of hope can assist in developing trust in dealing with trauma for adolescence who have a disaster experience (Singh and Jha, 2013). This procedure is intended to be useful in rebuilding the content of the posttraumatic world as that recognizes PTG (Zhou and Wu, 2018). As a result, those who have a high level of hope will be more able to attain value in life and growth as a result of their experience of cancer. Another potential explanation is how people evaluate and deal with their difficult life conditions those that have a lower level of hope could be less probable to get value from stressors than those who have a higher level of hope (Affleck and Tennen, 1996).

### *1.7.3. The Researches About Hope and COVID-19 Pandemic*

Hope is one of the critical concept on the psychological outcomes of the COVID-19 pandemic. During the quarantine period, hope seems to be a helpful source for people because it helps them overcome their stress and might decrease the anxiety relevant to having less personal independence and control. By reevaluating all related stressors and their powers, these people will make a preferable psychological transition to their uncommon condition. On the basis of research evidence for hope's position in adjustment, it is significant to look into its role in dealing with quarantine and its relationship to emotional distress. According to the findings of one study done by Laslo-Roth, George-Levi and Margalit (2021), individuals in quarantine showed higher levels of psychological distress than those who were not in quarantine. The importance of hope as a mediating factor in foreseeing decreased psychological stress in compelling and demanding situations is highlighted in this research. The results emphasize the importance of hope at periods of high stress and instability, like a pandemic outbreak (Laslo-Roth, George-Levi and Margalit, 2021).

A study with 822 American adults revealed that anxiety, COVID-19 stress, well-being, and perceived emotional control showed a strong relationship with hope (Gallagher et al., 2021b). Also, the research provides to improve our understanding on how hope affects mental health and stress. Hope was indirectly related to reduced anxiety and COVID-19 stress and raised well-being by more adaptive perceived emotional regulation (Gallagher et al., 2021b). The study results with a Turkish population are compatible with previous research that found a negative relationship between hope, cognitive flexibility, and anxiety (Demirtas, 2021). It may be argued

that individuals who have high hope levels and cognitively resilient have motivations and alternative options for controlling the course of their behavior in stressful circumstances. Therefore they may be less stressed in difficult conditions (Demirtas, 2021).

Moreover, a research with healthcare professional sample indicated that in comparison to the general population, healthcare professionals have a high degree of mental health difficulties and loneliness and a low degree of hope and self-compassion (Kotera et al., 2021). Loneliness, hope, and self-compassion were both important estimators of mental health difficulties in healthcare personnel, with loneliness was the strongest estimator and self-compassion was the weakest; meanwhile, in the general population, hope was the strongest estimator (Kotera et al., 2021). Also, Karataş, Uzun and Tagay (2021) conducted a study with 1186 Turkish participants, and the results of the study indicated that adults' life satisfaction is greatly predicted by the sub-dimensions of hope (pathways thinking and agency thinking) (Karataş, Uzun and Tagay, 2021). With the respect of these researches, it is thought that hope could influence the conditions that will arise with the effect of COVID-19 pandemic.

### *1.8. Self-Efficacy*

Self-efficacy is another concept that affects the formation of posttraumatic stress and posttraumatic growth after traumatic events. In this section, firstly, the definition of self-efficacy will be mentioned. Afterwards, the relationship between self-efficacy and trauma will be explained.

#### *1.8.1. The Definition of Self-Efficacy*

Trauma adaptation is a collection of driving coping mechanisms to deal with both the initial traumatic experience and the difficulty of dealing with posttraumatic environmental requests (Park and Ai, 2006). Self-efficacy is an extensive theory of human motivation and behavior. Self-efficacy is defined as the belief that a person can successfully perform the necessary behaviors to produce the desired results in a certain context (Bandura, 1977). Efficacy expectations refer to people's beliefs based on their perception of their abilities and capacities in a particular context. According to Bandura (1977), behaviors will be influenced by people's beliefs about their capacities

and competencies in that field rather than their real ability levels in any field. In this context, the stronger the competence expectations people have, the more active they will be and the more effort they will put in. Bandura separates the belief in the capacity and competencies of a person to do successful work in a certain field and the belief that the behaviors one will do will give positive or negative results. Within the framework of this conceptualization, Bandura argues that expectations of personal competence determine how much effort people will make on a particular subject and how long they will continue their behavior despite obstructive and unpleasant experiences (Bandura, 1977).

Bandura (1997) thinks that self-efficacy, which is cognitive in nature, is open to future effects and change through knowledge. According to Bandura (1977), people try to judge their self-efficacy level based on many sources of information (performance achievements, indirect experience, etc.). The effect of knowledge on efficacy expectations depends on how it is evaluated cognitively. Some contextual conditions (social, situational, and temporal) that are effective in the formation of events participate in these cognitive evaluations. General self-efficacy implies a person's thoughts in competence in coping with stressful and difficult life events in general (Luszczynska, Scholz and Schwarzer, 2005). It is also defined as a person's general confidence in new situations that are difficult to cope with or are not used to in many areas (Scholz et al., 2002). A person's previous experiences of success and failure produce his general self-efficacy belief, and this feature is relatively persistent in situations (Chen, Gully and Eden, 2004). Assumptions about one's ability to practice particular coping behaviors are likely to affect the results of responses aimed to enhance coping. According to Bandura (1997), unknown environmental difficulties require people to assess their present coping abilities based on previous coping achievements (or failures). According to a research, the belief that general perceived self-efficacy is a one-dimensional and global concept. The proof of its globality is derived from the evaluation of GSE in 25 countries (Scholz et al., 2002).

People who have a great perception of efficacy have confidence in their ability to deal with various environmental requests. They are disposed to demonstrate task requests and challenges more as difficult as risks or subjectively uncontrollable incidents. Individuals with high perceived efficacy may cope with challenging

situations. A low level of self-efficacy is linked to depression, anxiety, and helplessness from the points of feeling. Since self-related cognitions are a key component in the motivational period, self-efficacy affects action planning. The levels of self-efficacy could increase or prevent motivation. People's actions are pre-shaped in their minds, and their degree of self-efficacy determines whether they expect positive or negative scenarios. When a step is taken, people with high self-efficacy put in more time and insist longer than people with low self-efficacy. When failures happen, they get better more easily and resume to commit to their objectives. People with high self-efficacy can also choose difficult environments, discover their surroundings, or develop new ones (Bandura, 1997). A study with 87 young sex workers is done by Mo et al. (2018) to assess the different threat levels and their association with mental health. The results showed no significant relationship was found between age and self-efficacy (Mo et al., 2018).

### *1.8.2. The Relationship Between Self-Efficacy and Trauma*

Along with trauma-specific theories, other more common approaches to human adaptation to traumatic environments, e.g., social cognitive theory, can clarify how cognitive factors impact PTSD development and improvement (Bandura, 1997). In a research including patients with primary breast cancer, a correlation between PTSD and self-efficacy is discovered. In that study, the negatively significant correlation implied that at the 6-month follow-up, lower intrusion and avoidance symptoms with the effects of suffering breast cancer had been seen in women with a high level of self-efficacy (Koopman et al., 2002). The ability to fit into stressful situations is decreased, which has an effect on the severity of PTSD and improvement. In brief, trauma decreases self-efficacy (Brown et al., 2015; Brown et al., 2016), increasing PTSD and psychological comorbidity. On the other hand, a study was done with 90 patients with HIV-positive and were survivors of a hurricane by Cieslak et al. (2009). The results demonstrated that participants with strong CSE beliefs showed fewer PTG after the hurricane than those with weak CSE beliefs among patients with low PTSD severity. In this study, the patients' performance status, intrusion, and PTG explained a 29.6% variance of self-efficacy (Cieslak et al., 2009).

The role of self-efficacy in posttraumatic improvement has been studied in the context of a wide range of life traumas (Benight and Bandura, 2004). The impact sizes

for coping self-efficacy as an estimator in longitudinal experiments on mass trauma are considerably larger than the impact sizes of other estimators utilized in posttraumatic improvement research (Ozer et al., 2008). In their model of posttraumatic adaptation, Benight and Bandura (2004) claim that, in addition to looking for the risk factors for a decrease in functioning following excessive stress, trauma studies should define source elements that promote survivors' well-being. It's possible that PTG is a product of posttraumatic adaptation and that growth progress is dependent on factors, like social support and self-efficacy that promote active and influential administration of posttraumatic difficulties.

Also, self-efficacy has a role as a mediator. According to social cognitive theorists, this indirect effect is inevitable because people react not only to the effect of trauma but also to the adaptational difficulties it causes (Benight and Bandura, 2004). At researches in literature has demonstrated this mediational effect (Benight and Bandura, 2004; Bosmans et al., 2013; Cieslak et al., 2008; Samuelson et al., 2017). Furthermore, in some studies on trauma, it has been observed that coping with self-efficacy mediates the relationship between some trauma-related factors and posttraumatic distress. In a longitudinally designed study, the data from 46 flood victims were collected at three and eight weeks after the flood. The results showed that CSE was found to mediate the global distress following one year and the effect of the acute stress response on PTSD symptoms after flood disaster (Benight and Harper, 2002). It was also seen in a longitudinal study of survivors of Hurricane Andrew in which 124 people have participated. In this study, coping self-efficacy mediated the impact of lost resources on subsequent distress (Benight et al., 1999). In a study with 150 participants, the results indicated that 47% of the variance of the trauma-related stress was explained by self-efficacy. Also, CSE mediated the impact of a cognitive component, hope, on posttraumatic stress, in a study with a sample of Hurricane Opal survivors (Benight et al., 1999).

## *1.9. The Aim of the Present Study*

### *1.9.1. Aim of the Study*

After traumatic experiences, such as extortion, sexual assault, fire, traffic accident, witnessing a traumatic death, experiencing a physical attack, natural disasters, pandemics (like SARS, COVID-19, etc.), individuals may display PTSD

symptoms. However, trauma has not only always negative effects. Theories and studies showed that some people could develop growth after a trauma, defined as PTG. It is important to identify the factors that might have a role in developing both PTS and PTG. PTC was found as an important risk factor. On the other hand, research has proven that hope and self-efficacy are effective in forming these two concepts.

The aim of this study is to investigate the effects of PTC on PTSD and PTG during the COVID-19 outbreak with a Turkish sample. In addition, while investigating these relationships, it is aimed to examine whether the concepts of hope and self-efficacy have a mediating role. As the COVID-19 outbreak is a relatively new pandemic, there are few studies about the prevalence and patterns of psychological consequences of COVID-19 outbreak in Turkey. Therefore, more information is needed about the psychological effects of the COVID-19 pandemic. Although the concepts mentioned above have been investigated separately in previous studies around the world, no study has been found in the literature in which they were investigated together within the scope of COVID-19. Also, studies investigating PTC are limited in the literature. It is thought that the results of this study will contribute to both the research of the concepts and the field of application. Moreover, this study will be informative for the Turkish population.

In this study, it is aimed to examine how participants' PTC levels, PTSD levels, and PTG levels change with different COVID-19 experience (being COVID-19 patient, to have contacted with COVID-19 patient and to never have been contacted with COVID-19 patient, having a chronic disorder or not, having a loved one with COVID-19 or not, losing a loved one due to COVID-19 or not). In COVID-19, having a chronic disorder is a risk factor both getting COVID-19 infection and having severe disease course. Therefore, it is expected that having a chronic disorder increase this periods' trauma severity. Having a loved one with COVID-19 and losing a loved one due to COVID-19 is accepted as traumatic situations according to DSM-5. It is thought that these situations will also increase the trauma severity of the COVID-19 pandemic. Age is also a critical factor as the disease course is more severe, and the mortality rate is so high in older people. It is important to investigate the traumatic intensity of these situations and the risk factors that people experience in terms of the COVID-19 pandemic.

In addition, examining how the general population reacts psychologically to the pandemic is thought to be important in providing information about the results of the symptoms related to trauma, psychological distress, and intervention strategies. The present study will shed light on a better understanding of the effects of the COVID-19 epidemic on individuals' posttraumatic stress and growth levels. In addition, learning the role of positive factors in alleviating the psychopathological responses of traumatic events, such as hope and self-efficacy, is considered important for the clinical development of the clients. Moreover, it is thought that the study will provide information about the relationship between PTSD and PTG, and this result will provide knowledge to the conflicting results of previous studies regarding the relationship between PTSD and PTG.

Based on the literature and aims of the study, the following research questions and hypotheses were evolved.

### *1.9.2. Research Questions*

1) Are PTC, PTSD, PTG, hope, and self-efficacy correlated with each other?
2) Are PTC, PTSD, PTG, hope, and self-efficacy in individuals with chronic health problems different from individuals without chronic health problems?
3) Are PTC, PTSD, PTG, hope, and self-efficacy in people having a loved-one with COVID-19 different from people having no loved-one with COVID-19?
4) Are PTC, PTSD, PTG, hope, and self-efficacy in people who have lost a loved-one due to COVID-19 different from people in people who have not lost a loved-one due to COVID-19?
5) Do PTC and self-efficacy predict PTS and PTG, respectively?

### *1.9.3. Hypothesis*

A number of analyzes will be applied to the data that be obtained from this study. However, based on the purpose of the study, the main hypotheses to be tested are as follows;

H1: As individuals' dysfunctional PTC will increase, PTSD levels also

increase.

H2: As individuals' dysfunctional PTC will increase, PTG levels will decrease.

H3: As individuals' PTSD level will increase, PTG levels will increase.

H4: Individuals with COVID-19 will have more dysfunctional PTC, higher levels of PTSD and higher scores of PTG than people who had been only contacted with a COVID-19 patient or never been contacted with a COVID-19 patient.

H5: Individuals with COVID-19 will have lower levels of hope and self-efficacy than people who had been only contacted with a COVID-19 patient or never been contacted with a COVID-19 patient.

H6: Individuals with severe COVID-19 course will show more dysfunctional PTC, higher level of PTSD and higher level of PTG than people who had a mild COVID-19 course or have never been sick.

H7: Individuals with severe COVID-19 course will have a lower level of hope and self-efficacy than people who had a mild COVID-19 course or have never been sick.

H8: Hope will have a mediating role in the relationship between PTC on PTSD and PTC on PTG, respectively.

H9: Self-efficacy will have a mediating role in the relationship between PTC on PTSD and PTC on PTG, respectively.

# CHAPTER 2: METHOD

## *2.1. Participants*

443 participants were included in the present study. Descriptive statistics of participants are given in Table 1. In total, 285 women and 158 men participated in the study. The ages of the participants ranged from 18 to 72 (with a mean age of 39.88, *SD*= 12.12). Demographic characteristics of participants (education level, the marital status, their living place, whether they have a child/children or not, whether they have a chronic illness or not, whether they use medication or not, whether they have a psychological illness or not, COVID-19 health status, COVID-19 course, whether they have a loved one with COVID-19 or not and whether they lose a loved one due to COVID-19 or not) are viewed in Table 2.

Table 2. Descriptive Statistics of Participants

| | | **N (%)** |
|---|---|---|
| **Gender** | Women | 285 (73.4) |
| | Men | 158 (26.6) |
| **Education Level** | Elementary school | 1 (0.2) |
| | Secondary school | 4 (0.9) |
| | High school | 52 (11.7) |
| | Associate degree | 15 (3.4) |
| | Bachelor's degree | 246 (55.5) |
| | Master's degree | 105 (23.7) |
| | Doctoral degree | 20 (4.5) |

| Table 2. Descriptive Statistics of Participants (Continued) | | |
|---|---|---|
| **Marital Status** | Married | 250 (56.4) |
| | Single | 151 (34.1) |
| | Divorced | 40 (9.0) |
| | Widowed | 2 (0.5) |
| **Participants Living With** | Parents | 106 (24.6) |
| | Friends | 10 (2.3) |
| | Spouses | 60 (13.5) |
| | Spouses and children | 188 (42.4) |
| | Child/Children | 18 (4.1) |
| | Alone | 58 (13.1) |
| **Having Children** | Yes | 250 (56.4) |
| | No | 193 (43.6) |
| **Chronic Health Problem** | Yes | 104 (23.5) |
| | No | 339 (76.5) |
| **Medication Use** | Yes | 146 (33.0) |
| | No | 297 (67.0) |
| **Psychological Health Problem** | Yes | 27 (6.1) |
| | No | 416 (93.9) |
| **Covid-19 Health Status** | Has been a Covid-19 positive patient | 125 (28.2) |
| | Have contacted with a Covid-19 patient | 60 (13.5) |
| | Have never contacted with a Covid-19 patient | 258 (58.2) |

Table 2. Descriptive Statistics of Participants (Continued)

| | | |
|---|---|---|
| **Covid-19 Course** | Severe | 51 (11.5) |
| | Mild | 79 (17.8) |
| | Never been sick | 313 (70.7) |
| **Having a Loved One with Covid-19** | Yes | 331 (70.2) |
| | No | 112 (29.8) |
| **Losing a Loved One due to Covid-19** | Yes | 99 (22.3) |
| | No | 344 (77.7) |

### *2.2. Instruments*

Six measurement tools were used in this study. Except The Personal Information Questionnaire, five measurement tools have been used in previous studies, and all measures have good to excellent psychometric properties. A Personal Information Questionnaire was given to the participants in order to obtain socio-demographic information (Appendix C). Posttraumatic cognitions of the participants were evaluated using the Posttraumatic Cognitions Inventory. PTSD Checklist for DSM-5 was given to measure PTSD symptoms of participants. Afterward, Posttraumatic Growth Inventory was applied to the participants to evaluate their posttraumatic growth levels. Participants' hope level was assessed with Dispositional Hope Scale. Finally, General Self-Efficacy Scale was used to estimate participants' self-efficacy levels. In this section, the scales used in the research will be examined in detail.

#### *2.2.1. Posttraumatic Cognitions Inventory (PCI)*

Posttraumatic Cognitions Inventory (PCI) (Foa et al., 1999) is a 36-item self-assessment scale developed to evaluate trauma-related cognitions, which is thought to be a factor in the appearance and maintenance of Posttraumatic Stress Disorder (Appendix D). It is a 7-point Likert type scale (from 1=totally disagree to 7=totally

agree). The score that can be obtained from the scale is between 36 and 252. High scores on the scale indicate the intensity of inaccurate cognitions related to the traumatic experiences. The scale can be used to differentiate PTSD cases in the clinic, determine the severity of PTSD, as well as to identify inaccurate cognitions that are aimed to be studied in cognitive-behavioral therapy (Foa et al., 1999). The scale consists of 3 subscales which are negative cognitions about the self, negative cognitions about the world, and self-blame. In the original paper, the internal consistency coefficient for the total scale was found .97. The internal consistency coefficients of the subscales were .97 for the '*negative cognitions about oneself*' subscale, .88 for the '*negative cognitions about the world'* subscale, and .86 for the '*self-blame'* subscale. Test-retest reliability for the whole scale was found to be .74 in 1-week intervals (Foa et al., 1999).

Turkish validity and reliability studies were applied by Güleç, Kalafat, Boysan and Barut (2013). The three subscales in the original form of the scale were preserved in the factor distribution on adaptation study. The internal consistency coefficient of the total scale was found .93. The internal consistency coefficients of the subscales were .92 for the *negative cognitions about the self* subscale, .82 for the *negative cognitions about the world* subscale, and .73 for the *self-blame* subscale. Moreover, the temporal reliability scores of the scale were established just tolerable except for the self-blame subscale. The correlation coefficient scores between the scale applications for 15-day intervals were .60 for the negative cognitions about the self, .66 for negative cognitions about the world, and .39 for self-blame (Güleç et al., 2013). In the present study, the total Cronbach alpha score is found as .95 for the total scale.

### *2.2.2. PTSD Checklist for Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (PCL-5)*

The PTSD for Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (PCL-5) is a tool used to a large extent to assess PTSD symptoms (Appendix E) (Weathers et al., 2013). It is the most common assessing instrument to evaluate PTSD symptoms. The total symptom score is calculated with the sum of the scores in each item and gives information about the level of the posttraumatic symptoms. The checklist consists of 20 items. Participants fill the items by self-report measure on a five-point scale (from 0= zero to 4=severe), and the score on the scale is between a

range of 0–80. The scale consists of four scales on PTSD symptom clusters in DSM-5, which are re-experiencing, avoidance, negative alterations, and hyper-arousal. The 20 PCL-5 items have a Cronbach's alpha of. 96, suggesting high internal consistency. The test-retest correlation for the PCL-5 total score was .84 on an average of 31.02 days between two applications (Weathers et al., 2013).

The PCL-5 was adapted to Turkish form by Boysan et al. (2017). It demonstrated good reliability with composite reliability coefficients of re-experiencing (.79–.92), avoidance (.73–.91), negative alterations (.85–.90), and hyperarousal (.81–.88), and temporal reliability with two-week test-retest intra-correlation coefficients of .70, .64, .78, and .76, respectively. The cut-off score for PTSD diagnosis is ≥47, with .76 sensitivity and .69 specificity (Boysan et al., 2017). In the present study, the total Cronbach alpha score is found as .96 for the total scale.

### *2.2.3. Posttraumatic Growth Inventory (PTGI)*

Tedeschi and Calhoun developed Posttraumatic Growth Inventory in 1996 (Appendix F). The scale consists of 21 items and is a likert-type scale ranging from 0 to 5 (0= I did not experience this change as a result of my crisis, 5= I experienced this change to a very great degree as a result of my crisis). The range values of the scale are 0 to 105. Higher scores indicate higher growth after the traumatic event. In the results of the factor analysis in the study, five subscales were identified, which are New Possibilities, Personal Strength, Appreciation, Relating to Others, and Spiritual Enhancement. In the original study the internal consistency was found as .90. The consistency of the subscales varies between .67 and .85. In the study conducted for test-retest reliability, the correlation coefficient was reported as .71. (Tedeschi and Calhoun, 1996).

The Turkish version of the scale was adapted to 723 high school and university students and conducted a validity and reliability study by Kağan et al. (2012). In the results of the study, it was stated that the scale was suitable for a 3-factor structure. Three subscales were defined: Changes in Self-Perception, Changes in Relationships, and Changes in Philosophy of Life. It was stated that the internal consistency level is .92. Internal consistency of subscales were .88 for changes in self-perception, .77 for changes in relationships, and .78 for changes in the philosophy of life. The correlation

coefficient for test-retest reliability was specified as .83 and was found to be acceptable. In the present study, the total Cronbach alpha score is .95 for the total scale, .92 for changes in self-perception, .86 for changes in the philosophy of life, and .86 for changes in relationships.

#### *2.2.4. Dispositional Hope Scale (DHS)*

Dispositional Hope Scale was developed by Snyder et al. (1991) to determine the level of hope of individuals (Appendix G). The scale consists of 12 items and two subscales: *Actuating Thinking* Dimension and *Alternative Ways Thinking* Dimension. Individuals are asked to mark the degree to which the statements in the items reflect their situation on an 8-point Likert-type scale (from 1= absolutely wrong to 8= absolutely right). Four of the items refer to the actuating thinking extent, four refer to the extent of the alternative ways, and the remaining four items are distractor items. The lowest score obtained from the scale is 8, and the highest score is 64 (Snyder et al., 1991). The internal consistency coefficients of the scale were found to be between .71 and .76 for the Acting Thoughts subscale, between .63 and .80 for the Thinking of Alternative Ways subscale, and between .74 and .84 for the total scale. Reliability coefficients of the scale were found to be .85 with a 3-week interval, .73 with an 8-week interval, and .76 with a 10-week interval in the reliability study conducted with the test-retest method. (Snyder et al., 1991).

The scale was adapted to the Turkish version by Tarhan and Bacanlı in 2015. As a result of the factor analysis, two sub-dimensions were obtained consistent with the factor structure in the original scale. It was supported that this two-factor model is a valid model with the results of confirmatory factor analysis. The two-factor structure explains approximately 61% of the total variance. The internal consistency coefficient of the scale was 0.84. The test-retest reliability coefficient was 0.81 for the Actuating Thinking subscales, 0.78 for the Alternative Ways Thinking subscales, and 0.86 for the scale's total score (Tarhan and Bacanlı, 2015). In the present study, the total Cronbach alpha score is found as .89 for the total scale.

### *2.2.5. General Self-Efficacy Scale (GSE)*

Schwarzer and Jerusalem (1995) developed the General Self-Efficacy Scale, and it evaluates perceived self-efficacy in general terms (Appendix H). This evaluation aims to determine the mental estimation that the individual has about his ability to adapt to all stressful life events and cope with the difficulties of daily life (Luszczynska, Scholz and Schwarzer, 2005). The scale, which consisted of 20 items when it was first developed, was revised by the same researchers and the number of items was reduced to 10. It is a 4-point likert-type scale (from 1= absolutely wrong to 4= absolutely right). Scholz et al. (2002) conducted a study by using the 25 language version of the scale. The alpha internal consistency coefficient was found as .86, and the alpha internal consistency coefficients calculated separately for each country sample were found to be between .75 and .91 (Scholz et al., 2002).

The scale was adapted to the Turkish version by Aypay (2010) in a study with 696 participants. As a result of the factor analysis, two factors were obtained, explaining 47 % of the total variance. In this study, the overall internal consistency of the scale was found .83. The test-retest reliability scale was .80. Alpha internal consistencies for the two factors were between .79 and .63. separately. With these results, the Turkish version of the scale could be evaluated as valid and reliable. The scale was applied twice with an interval of eight weeks. The correlation coefficient calculated for test-retest reliability based on the data obtained from 370 participants who participated in both applications was found to be .80 (Aypay, 2010). In the present study, the total Cronbach alpha score is found as .94 for the total scale.

## *2.3. Procedure*

During the COVID-19 process, it was not possible to meet face to face in order to maintain social distance. For this reason, the data was obtained online via Google Forms. The research link was spread to all cities through different channels (social media, students, mail groups, etc.) and shared with the participants. Information about the study (such as the way participants fill the scales and the points that need more attention to fill) and the purpose of the study was explained to participants at the first part of the page. Informed consent was obtained from participants who were willing to attend, and by selected the ‘Yes’ or ‘No’ button, they signed the informed content.

All participants involved in the project were told that no information would be released about participants and that they could leave the study at any stage. The scales took approximately half an hour to complete. Participants filled the online form in the followings order; Personal Information Questionnaire, Posttraumatic Cognitions Inventory, PTSD Checklist for DSM-5, Posttraumatic Growth Inventory, Dispositional Hope Scale, and General Self-Efficacy Scale.

### *2.4. Statistical Analysis*

In the present study, the Statistical Package for Social Sciences (SPSS), version 25 for Mac, and PROCESS v3.5 (Hayes, 2013) were used for the statistical analyses. Before all analysis, the accuracy of data was investigated, and missing values were controlled in SPSS. No missing value was found based on the descriptive statistics. Moreover, Cronbach's alpha reliabilities of the measures used in the present study were computed to each scale obtained from the studies conducted with the Turkish population. Due to the similarity of alpha values with original studies, all scales were decided to use in the present study. Two participants were excluded due to outlier scores and one participant because of being at an age under 18 years. Normality distribution analyzes were applied for all continuous variables to be analyzed. In order to understand whether the variables discussed in the study showed a normal distribution, a normality test was performed. According to Tabachnick and Fidell (2007), skewness and kurtosis values should be in the range of ±1.50 in order to evaluate scales as normally distributed (Tabachnick and Fidell, 2007). It was seen that the skewness level of all scales was in the acceptable range.

For descriptive statistics, mean, standard deviation, percentage analysis, and frequency values were examined. The correlation coefficients among continuous demographic variables and the measures of the study were investigated. In addition, Pearson Correlation Coefficient Analysis was conducted to examine the relationship between all variables. For comparison analysis, participants were grouped according to their own COVID-19 experiences (being COVID-19 patient, to have contacted with COVID-19 patient and to have never been contacted with COVID-19 patient), the severity of COVID-19 (severe, mild, and non-sick), to have a loved one with COVID-19 (to have one or not), losing a loved one due to COVID-19 (yes or no). T-Test Analysis was used to assess differentiation in levels of PTC, PTSD, PTG, hope, and

self-efficacy between groups consisting of two categories, and ANOVA analysis for three groups. In addition, the Mediation Analysis was applied to whether the concepts of hope and self-efficacy have a mediator role in the relationship of PTC on PTSD and PTG.

# CHAPTER 3: RESULTS

In this section, the research questions were examined through the SPSS Version 25 program. Firstly, descriptive analyses of all variables were examined. The relations between the variables are analyzed with the Pearson Correlation Analysis. Then, whether there is a difference between different paired groups in terms of variables was examined using Independent Sample T-Tests analyses. Differences in terms of all variables between COVID-19 status and COVID-19 course groups were examined by One-Way Analysis of Variance (ANOVA). Regression Analysis was used to analyze predicting factors of the concepts of PTSD and PTG. Lastly, the mediating role of the concepts of hope and self-efficacy in the relationship between posttraumatic cognitions, posttraumatic stress, and posttraumatic growth variables was examined by Serial Multiple Mediator Variable Analysis (PROCESS).

## *3.1. Descriptive Analysis*

The mean, standard deviation, minimum and maximum values of the scores obtained from the scales assessing the posttraumatic cognitions, posttraumatic stress, and posttraumatic growth, hope, and self-efficacy levels of the participants and the sub-dimensions of these scales are presented in Table 2.

Table 3. Mean, Standard Deviation, Minimum and Maximum Values of All Scales

| **Scales** | **M** | **SD** | **Min.** | **Max.** |
|---|---|---|---|---|
| PCI | 8.84 | 2.97 | 3 | 18 |
| PCL-5 | 31.80 | 17.25 | 0 | 80 |
| PTGI | 51.72 | 22.41 | 0 | 105 |
| DHS | 50.14 | 8.21 | 16 | 64 |
| GSE | 31.06 | 6.46 | 10 | 40 |

PCI: Posttraumatic Cognitions Inventory, PCL-5: PTSD Checklist for Diagnostic and Statistical Manual of Mental Disorders Fifth Edition, PTGI: Posttraumatic Growth Inventory, DHS: Dispositional Hope Scale, GSE: General Self-Efficacy Scale

### *3.2. Main Analysis*

#### *3.2.1. The Relationships Between the Variables*

The Pearson Correlation Analysis results of the participants' ages, PTC, PTSD, PTG, hope, and self-efficacy levels are given in Table 3.

According to the results presented in Table 3, there is a statistically negative and low correlation between age and PTC, *r*= -.18, *p*= .000, showing that the higher the age the lower the PTC. There is also a negative and low correlation between age and PTSD, *r*= -.22, *p*= .000. In that regard, as participants' age increase, the PTSD level decrease. No significant relationship was found between age and PTG, *r*=.02, *p*= .619. There is a positive and low correlation between age and hope, *r*= .11, *p*= .024. With increasing age, participants show higher levels of hope. Also, there is a positive and low correlation between age and self-efficacy, *r*= .14, *p*= .003. As the age of the participants increases, their self-efficacy also increases.

There is a positive and moderate correlation between PTC and PTSD levels, *r*= .58, *p*= .000. This result demonstrates that an increase in PTC leads to an increase in PTSD. No significant relationship was found between PTC and PTG, *r*=. 01, *p*= .825. There is a negative and low correlation between PTC and hope, *r*= -.25, *p* =.000. With increasing hope, people show lower level of PTC. There is a negative and low correlation between PTC and self-efficacy, *r*= -.22, *p* =.000. Participants' self-efficacy level increase as their PTC levels' decrease.

There is a positive and low level of correlation between PTSD and PTG, *r* = .20, *p* =.000. Furthermore, there is a negative and low level of correlation between PTSD and hope, *r* = -.16, *p* =.001, and a negative and low correlation between PTSD and self-efficacy, *r*= -.20, *p* =.000. In this regard, when participants' PTSD level decrease, hope and self-efficacy levels increase.

There is a positive and low level of correlation between PTG and hope, *r* = .29, *p* =.000. There is a positive and low level of correlation between PTG and self-efficacy, *r* = 23, *p* =.000. With increasing self-efficacy, participants experience higher level of PTG. Lastly, there is a positive and strong correlation between hope and self-

efficacy, $r$= 71, $p$ =.000.

Table 4. Pearson's Correlation Analysis Results for the Variables

| | Age | PCI | PCL-5 | PTGI | DHS | CSE |
|---|---|---|---|---|---|---|
| Age | 1 | | | | | |
| PCI | -.180** | 1 | | | | |
| PCL-5 | -.218** | .580** | 1 | | | |
| PTGI | .024 | .011 | .202** | 1 | | |
| DHS | .107* | -.250** | -.159** | .287** | 1 | |
| GSE | .139* | -.221** | -.201** | .225** | .710** | 1 |

**$p$< 0.01, *$p$< 0.05

PCI: Posttraumatic Cognitions Inventory, PCL-5: PTSD Checklist for Diagnostic and Statistical Manual of Mental Disorders Fifth Edition, PTGI: Posttraumatic Growth Inventory, DHS: Dispositional Hope Scale, GSE: General Self-Efficacy Scale

### *3.2.2. Gender Differences on All Variables*

An independent samples *t*-test was conducted in order to examine whether the levels of PTC, PTSD, PTG, hope and self-efficacy were significantly different in women and men. As shown in Table 4, there are no significant differences for gender in PTC with $t$(441)= .622, $p$= .534, hope, $t$(441)= -.442, $p$= .659, and self-efficacy, $t$(441)= -1.801, $p$= .072. Moreover, women have higher PTSD level ($M$ = 35.08, $SE$ = 16.508), than men ($M$ = 25.90, $SE$ = 17.038). This difference was significant $t$(441)= 5.542, $p$= .000. In addition, women have higher PTG level ($M$ = 54.41, $SE$ = 22.150), than men ($M$ = 46.86, $SE$ = 22.116). This difference was significant $t$(441)= 3.438, $p$= .001.

Table 5. Independent Sample T-Test Comparing All Variables With Genders

| | Group | *N* | Mean | SD | *t* | *df* | *p* |
|---|---|---|---|---|---|---|---|
| PCI | Women | 285 | 8.91 | 3.01 | .622 | 441 | .534 |
| | Men | 158 | 8.72 | 2.89 | | | |

Table 5. Independent Sample T-Test Comparing All Variables With Genders (Continued)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| PCL-5 | Women | 285 | 35.08 | 16.51 | 5.542 | 441 | .000** |
| | Men | 158 | 25.90 | 17.04 | | | |
| PTG | Women | 285 | 54.41 | 22.15 | 3.438 | 441 | .001** |
| | Men | 158 | 46.86 | 22.12 | | | |
| DHS | Women | 285 | 50.01 | 7.76 | -.442 | 441 | .659 |
| | Men | 158 | 50.37 | 8.98 | | | |
| GSE | Women | 285 | 30.65 | 6.48 | -1.801 | 441 | .072 |
| | Men | 158 | 31.80 | 6.37 | | | |

**$p$<0.01, *$p$<0.05

PCI: Posttraumatic Cognitions Inventory, PCL-5: PTSD Checklist for Diagnostic and Statistical Manual of Mental Disorders Fifth Edition, PTGI: Posttraumatic Growth Inventory, DHS: Dispositional Hope Scale, GSE: General Self-Efficacy Scale

### *3.2.3. Differences Between Groups of Chronic Health Problems on All Variables*

An independent samples *t*-test was conducted in order to examine whether the levels of PTC, PTSD, PTG, hope and self-efficacy were significantly different in people with chronic health problem or not. As shown in Table 5, there is no significant difference between having a chronic health problem or not in order to PTC, $t(190.426)= .448$, $p= .675$, PTSD, $t(441)= 1.604$, $p= .109$, hope, $t(189.019)= 1.699$, $p= .091$, and self-efficacy, $t(441)= 1.205$, $p= .229$. Moreover, people with chronic health problem experience higher PTG more ($M$ = 55.92, $SE$ = 19.600), than people with no chronic health problem ($M$ = 50.43, $SE$ = 23.074). This difference was significant $t(198.279)= 2.395$, $p= .018$.

Table 6. Independent Sample T-Test Comparing Groups of Chronic Health Problems on All Variables

| | Groups of Chronic Health Problems | *N* | Mean | SD | *t* | *df* | *p* |
|---|---|---|---|---|---|---|---|
| PCI | Yes | 104 | 8.95 | 2.70 | .448 | 190.426 | .675 |
| | No | 339 | 8.81 | 3.05 | | | |
| PCL-5 | Yes | 104 | 34.17 | 17.07 | 1.604 | 441 | .109 |
| | No | 339 | 31.08 | 17.27 | | | |
| PTG | Yes | 104 | 55.92 | 19.60 | 2.395 | 198.279 | .018* |
| | No | 339 | 50.43 | 23.07 | | | |
| DHS | Yes | 104 | 51.26 | 7.49 | 1.699 | 189.019 | .091 |
| | No | 339 | 49.79 | 8.39 | | | |
| GSE | Yes | 104 | 31.73 | 6.35 | 1.205 | 441 | .229 |
| | No | 339 | 30.86 | 6.49 | | | |

**$p$<0.01, *$p$<0.05

PCI: Posttraumatic Cognitions Inventory, PCL-5: PTSD Checklist for Diagnostic and Statistical Manual of Mental Disorders Fifth Edition, PTGI: Posttraumatic Growth Inventory, DHS: Dispositional Hope Scale, GSE: General Self-Efficacy Scale

### *3.2.4. Differences Between Groups of Having a Loved One With COVID-19 on All Variables*

An independent samples *t*-test was conducted in order to examine whether the levels of PTC, PTSD, PTG, hope and self-efficacy were significantly different in people have a loved-one with COVID-19 or not. As shown in Table 6, there is no significant difference between having a loved-one with COVID-19 or not in order to PTC, $t(441)= .428$, $p= .669$, PTSD, $t(441)= .952$, $p= .342$, hope, $t(441)= 1.826$, $p= .068$, and self-efficacy, $t(441)= -.251$, $p= .082$. Moreover, people having a loved-one with COVID-19 experience higher PTG more ($M = 53.15$, $SE = 22.050$), than people

don't have a loved-one with COVID-19 ($M$ = 48.35, $SE$ = 22.962). This difference was significant $t(441)= 2.070$, $p= .039$.

Table 7. Independent Sample T-Test Comparing The Groups Having a Loved One with COVID-19 on All Variables

| | Groups of Having a Loved One With COVID-19 | *N* | Mean | SD | *t* | *df* | *p* |
|---|---|---|---|---|---|---|---|
| PCI | Yes | 311 | 8.88 | 2.97 | .428 | 441 | .669 |
| | No | 132 | 8.75 | 2.96 | | | |
| PCL-5 | Yes | 311 | 32.31 | 17.20 | .952 | 441 | .342 |
| | No | 132 | 30.61 | 17.37 | | | |
| PTG | Yes | 311 | 53.15 | 22.05 | 2.070 | 441 | .039* |
| | No | 132 | 48.35 | 22.96 | | | |
| DHS | Yes | 311 | 50.60 | 8.01 | 1.826 | 441 | .068 |
| | No | 132 | 49.05 | 8.58 | | | |
| GSE | Yes | 311 | 31.01 | 6.48 | -.251 | 441 | .082 |
| | No | 132 | 31.18 | 6.43 | | | |

**$p<0.01$, *$p<0.05$

PCI: Posttraumatic Cognitions Inventory, PCL-5: PTSD Checklist for Diagnostic and Statistical Manual of Mental Disorders Fifth Edition, PTGI: Posttraumatic Growth Inventory, DHS: Dispositional Hope Scale, GSE: General Self-Efficacy Scale

### *3.2.5. Differences Between Groups of Losing a Loved One Due to COVID-19 on All Variables*

An independent samples *t*-test was conducted in order to examine whether the levels of PTC, PTSD, PTG, hope and self-efficacy were significantly different in people who have lost a loved-one due to COVID-19 versus not. As shown in Table 7, no significant differences were found in all variables; PTC, $t(441)= 1.596$, $p= .111$,

PTSD, $t(441)= 1.833$, $p= .068$, PTG, $t(441)= .814$, $p= .416$, hope, $t(441)= .133$, $p= .894$, and self-efficacy, $t(441)= -.675$, $p= .500$.

Table 8. Independent Sample T-Test Comparing The Groups Losing a Loved One Due to COVID-19 on All Variables

| | Groups of Losing a Loved One Due to COVID-19 | *N* | Mean | SD | *t* | *df* | *p* |
|---|---|---|---|---|---|---|---|
| PCI | Yes | 99 | 9.26 | 2.96 | 1.596 | 441 | .111 |
| | No | 344 | 8.72 | 2.96 | | | |
| PCL-5 | Yes | 99 | 34.60 | 17.02 | 1.833 | 441 | .068 |
| | No | 344 | 31.00 | 17.26 | | | |
| PTG | Yes | 99 | 53.33 | 22.60 | .814 | 441 | .416 |
| | No | 344 | 51.25 | 22.36 | | | |
| DHS | Yes | 99 | 50.23 | 8.65 | .133 | 441 | .894 |
| | No | 344 | 50.11 | 8.09 | | | |
| GSE | Yes | 99 | 30.68 | 6.75 | -.675 | 441 | .500 |
| | No | 344 | 31.17 | 6.38 | | | |

$^{**}p<0.01$, $^{*}p<0.05$

PCI: Posttraumatic Cognitions Inventory, PCL-5: PTSD Checklist for Diagnostic and Statistical Manual of Mental Disorders Fifth Edition, PTGI: Posttraumatic Growth Inventory, DHS: Dispositional Hope Scale, GSE: General Self-Efficacy Scale

### *3.2.6. Differences Between COVID-19 Health Status on All Variables*

To see the impact of COVID-19 health status on all variables, a one-way ANOVA was conducted. Participants' COVID-19 health status are separated three groups; being COVID-19 positive patients, having contacted with a COVID-19 patients and having never contacted with a COVID-19 patient. There is no significant effect of COVID-19 health status on all variables, respectively, PTC, $F(2,440) = 2.43$,

PTSD, $F$ (2,440) = 200.19, PTG, $F$ (2,440) = 727.56, hope, $F$ (2,440) = 79.27, and self-efficacy, $F$ (2,440) = 53.20.

Table 9. ANOVA Analysis Comparing Levels of COVID-19 Health Status with All Variables

| | Covid-19 Health Status | *N* | Mean | SD | Sum of Square | *df* | Mean of Squares | *F* | *p* |
|---|---|---|---|---|---|---|---|---|---|
| PTCI | Positive | 125 | 8.35 | 3.00 | 42.451 | 2 | 21.225 | 2.43 | .089 |
| | Contacted | 60 | 9.13 | 2.89 | | | | | |
| | No-Contact | 258 | 9.01 | 2.95 | | | | | |
| PCL-5 | Positive | 125 | 30.29 | 17.48 | 400.337 | 2 | 200.169 | .67 | .511 |
| | Contacted | 60 | 32.47 | 18.04 | | | | | |
| | No-Contact | 258 | 32.38 | 16.98 | | | | | |
| PTGI | Positive | 125 | 49.03 | 20.86 | 1455.125 | 2 | 727.563 | 1.45 | .235 |
| | Contacted | 60 | 51.13 | 23.38 | | | | | |
| | No-Contact | 258 | 53.16 | 22.86 | | | | | |
| DHS | Positive | 125 | 49.50 | 7.44 | 158.549 | 2 | 79.274 | 1.18 | .309 |
| | Contacted | 60 | 49.30 | 7.87 | | | | | |
| | No-Contact | 258 | 50.64 | 8.62 | | | | | |
| GSE | Positive | 125 | 30.58 | 6.43 | 106.409 | 2 | 53.204 | 1.28 | .280 |
| | Contacted | 60 | 30.32 | 6.29 | | | | | |
| | No-Contact | 258 | 31.47 | 6.51 | | | | | |

$^{**}p<0.01$, $^{*}p<0.05$

PCI: Posttraumatic Cognitions Inventory, PCL-5: PTSD Checklist for Diagnostic and Statistical Manual of Mental Disorders Fifth Edition, PTGI: Posttraumatic Growth Inventory, DHS: Dispositional Hope Scale, GSE: General Self-Efficacy Scale

### *3.2.7. Differences Between COVID-19 Course on All Variables*

To see the impact of COVID-19 course on all variables, a one-way ANOVA was conducted. There was a significant effect of COVID-19 course on PTC, $F$ (2,440) = 4.05. Planned contrasts revealed that comparing with the participants who had COVID-19, participants who avoiding getting COVID-19 have a significantly higher negative PTC, $t$(440) = 2.106.

Also, there was a significant effect of COVID-19 course on PTSD, $F$ (2,440) = 3.65. According to the planned contrasts, when comparing with the participants who had mild course on COVID-19, participants who had severe course on COVID-19 had a significantly higher PTSD, $t$ (440) = .688. There is no significant effect of COVID-19 health status on all variables, respectively, PTG, $F$ (2,440) = 277.49, hope, $F$ (2,440) = 40.12, and self-efficacy, $F$ (2,440) = 53.20.

Table 10. ANOVA Analysis Comparing Levels of COVID-19 Course with All Variables

| | Covid-19 Course | *N* | Mean | SD | Sum of Square | *df* | Mean of Squares | *F* | *p* |
|---|---|---|---|---|---|---|---|---|---|
| PTCI | Severe | 51 | 8.80 | 2.98 | 70.315 | 2 | 35.158 | 4.05 | .018* |
| | Mild | 79 | 8.00 | 3.13 | | | | | |
| | Never | 313 | 9.06 | 2.89 | | | | | |
| PCL-5 | Severe | 51 | 34.92 | 17.93 | 2147.738 | 2 | 1073.869 | 3.65 | .027* |
| | Mild | 79 | 27.39 | 17.09 | | | | | |
| | Never | 313 | 32.41 | 17.03 | | | | | |
| PTGI | Severe | 51 | 51.33 | 19.53 | 554.976 | 2 | 277.488 | .55 | .576 |
| | Mild | 79 | 49.42 | 22.53 | | | | | |
| | Never | 313 | 52.36 | 22.84 | | | | | |

Table 10. ANOVA Analysis Comparing Levels of COVID-19 Course with All Variables (Continued)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Severe | 51 | 50.45 | 7.99 | | | | | |
| DHS | Mild | 79 | 49.23 | 7.08 | 80.031 | 2 | 40.016 | .59 | .553 |
| | Never | 313 | 50.31 | 8.51 | | | | | |
| | Severe | 51 | 31.49 | 6.32 | | | | | |
| GSE | Mild | 79 | 30.30 | 6.51 | 59.524 | 2 | 29.762 | .71 | .491 |
| | Never | 313 | 31.19 | 6.48 | | | | | |

**$p$<0.01, *$p$<0.05

PCI: Posttraumatic Cognitions Inventory, PCL-5: PTSD Checklist for Diagnostic and Statistical Manual of Mental Disorders Fifth Edition, PTGI: Posttraumatic Growth Inventory, DHS: Dispositional Hope Scale, GSE: General Self-Efficacy Scale

### *3.2.8. Variables Predicting Posttraumatic Stress*

The hierarchical multiple regression was applied to predict PTSD on the basis of Stage 1 and Stage 2 with all variables of this study. At Stage 1, PTC ($\beta$=.550, $p$= .000) and PTG ($\beta$= 223, $p$=.000) significantly predicted PTSD and accounted for 37.5% of the variation in PTSD, $R^2$ = .375, $F$(2,440) = 131.739, $p$=.000. After added hope ($\beta$=.015, $p$=.787) and self-efficacy ($\beta$=-.140, $p$=.009) at Stage 2, PTC, PTG and self-efficacy significantly predicted PTSD, while hope not, and explained extra 1.5% and in total 39.0% of the variation in PTSD, $R^2$ = .390, $F$(2, 438) = 5.555, $p$=.004. According to the standardized beta value, PTC is the most significant predictor on PTSD (standardized $\beta$= .550) just because it has the largest standardized beta value from other variables.

Table 11. Regression Analysis Predicting Posttraumatic Stress by All Variables

| | *b* | *SE B* | *β* | *p* |
|---|---|---|---|---|
| Step 1 | | | | |
| Constant | -5.697 | 2.524 | | .025* |

| Table 11. Regression Analysis Predicting Posttraumatic Stress by All Variables (Continued) | | | | |
|---|---|---|---|---|
| Posttraumatic Cognitions | 3.361 | .219 | .578 | .000** |
| Posttraumatic Growth | .151 | .029 | .196 | .000** |
| Step 2 | | | | |
| Constant | 4.712 | 5.027 | | .349** |
| Posttraumatic Cognitions | 3.200 | .226 | .550 | .000** |
| Posttraumatic Growth | .172 | .030 | .223 | .000** |
| Hope | .031 | .115 | .015 | .787 |
| Self-Efficacy | -.375 | .142 | -.140 | .009** |

**$p$<0.01, *$p$<0.05

### *3.2.9. Variables Predicting Posttraumatic Growth*

The hierarchical multiple regression was applied to predict PTG on the basis of Stage 1 and Stage 2 with all variables of this study. At Stage 1, PTS ($\beta$=.310, $p$= .000) and PTC ($\beta$= -.087, $p$=.116) significantly predicted PTG and accounted for 5.8% of the variation in PTG, $R^2$ = .058, $F$(2,440) = 13.495, $p$=.000. After added hope ($\beta$= .250, $p$=.000) and self-efficacy ($\beta$=.091, $p$=.151) at Stage 2, PTSD and hope significantly predicted PTG, while PTC and self-efficacy not, and explained extra 9.6% and in total 15.4% of the variation in PTG, $R^2$ = .096, $F$(2, 438) = 24.761, $p$=.000. According to the standardized beta value, PTSD is the most significant predictor on PTG (standardized $\beta$= .310) just because it has the largest standardized beta value from other variables.

Table 12. Regression Analysis Predicting Posttraumatic Growth by All Variables

| | *b* | *SE B* | *ß* | *p* |
|---|---|---|---|---|
| Step 1 | | | | |
| Constant | 50.253 | 3.263 | | .000** |

| Table 12. Regression Analysis Predicting Posttraumatic Growth by All Variables (Continued) | | | | |
|---|---|---|---|---|
| Posttraumatic Stress | .383 | .074 | .295 | .000** |
| Posttraumatic Cognitions | -1.212 | .429 | -.160 | .005** |
| Step 2 | | | | |
| Constant | .765 | 7.699 | | .921 |
| Posttraumatic Stress | .403 | .071 | .310 | .000** |
| Posttraumatic Cognitions | -.655 | .416 | -.087 | .116 |
| Hope | .682 | .172 | .250 | .000** |
| Self-Efficacy | .314 | .218 | .091 | .151 |

**$p$<0.01, *$p$<0.05

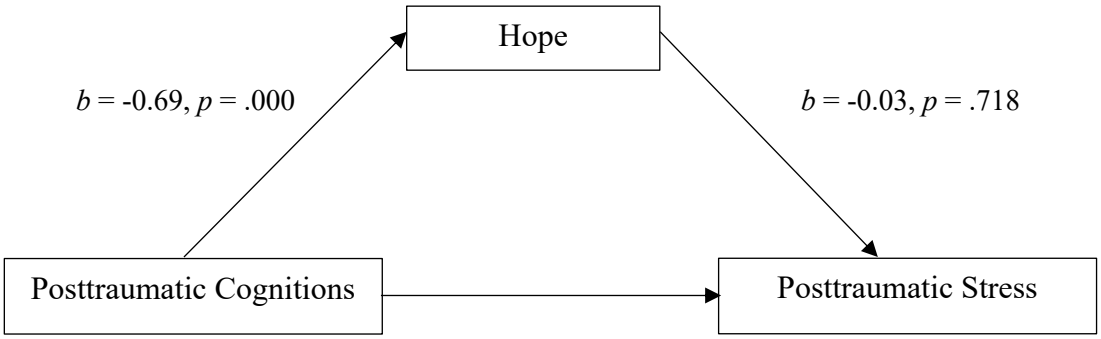
### *3.2.10. The Results About the Mediating Role of Hope and Self-Efficacy on the Relationship Between Posttraumatic Cognitions, Posttraumatic Stress and Posttraumatic Growth*

In this section, the mediation role of hope and self-efficacy on the relationship between PTC, PTSD and PTG was analyzed using Simple Mediator Analysis (PROCESS Model 4) (Hayes, 2013). PTC were included in the analysis as independent variables, PTSD and PTG as dependent variables. Hope and self-efficacy were added to the analysis as mediating variables, respectively. Whether the effect of mediating variables was significant was examined with 5000 bootstrap samples and 95% confidence interval. The effect of mediating variables was examined by creating four different models.

#### *Mediating role of hope in the relationship between posttraumatic cognitions and posttraumatic stress*

PTC significantly predicted hope, $b$ = -0.69, $t$ = -5.43, $p$ = .000. It was a negative relationship. PTC explained 6% of the variance. PTC significantly predicted PTSD even with hope, $b$ = 3.35, $t$ = 14.37, $p$ = .000. Hope didn't significantly predicted PTSD, $b$ = -0.03, $t$ = -0.36, $p$ = .718. When hope was not in the model, PTC

significantly predicted PTSD, $b = 3.37$, $t = 14.95$, $p = .000$. There was not a significant indirect effect of PTC on PTSD through hope, $b = 0.021$, BCa Cl [-0.103, 0.148].



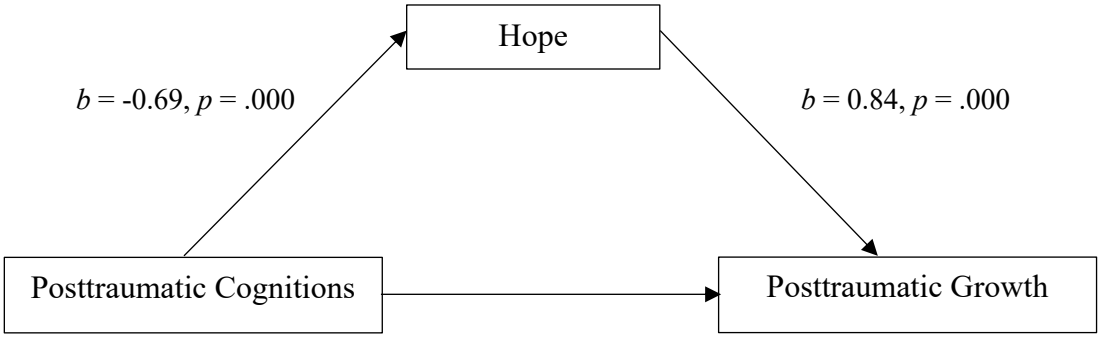

Direct effect, $b = 3.35$, $p = .000$

Indirect effect, $b = 0.021$, 95% Cl [-0.103, 0.148]

Figure 1. Regression Coefficients for the Relationship Between Posttraumatic Cognitions and Posttraumatic Stress as Mediated by Hope

***Mediating role of hope in the relationship between posttraumatic cognitions and posttraumatic growth***

PTC significantly predicted hope, $b = -0.69$, $t = -5.43$, $p = .000$. It was a negative relationship. PTC explained 6% of the variance. PTC didn't significantly predict PTG even with hope, $b = 0.66$, $t = 1.87$, $p = .063$. Hope significantly predicted PTG, $b = 0.84$, $t = 6.57$, $p = .000$. When hope was not in the model, PTC did not significantly predict PTG, $b = 0.08$, $t = 0.22$, $p = .825$. There was a significant indirect effect of PTC on PTG through hope, $b = -0.583$, BCa Cl [-0.866, -0.341].




Direct effect, $b = 0.66$, $p = .063$

Indirect effect, $b = -0.583$, 95% Cl [-0.866, -0.341]

Figure 2. Regression Coefficients for the Relationship Between Posttraumatic Cognitions and Posttraumatic Growth as Mediated by Hope

***Mediating role of self-efficacy in the relationship between posttraumatic cognitions and posttraumatic stress***

PTC significantly predicted self-efficacy, $b$ = -0.48, $t$ = -4.76, $p$ = .000. It was a negative relationship. PTC explained 5% of the variance. PTC significantly predicted PTSD even with self-efficacy, $b$ = 3.28, $t$ = 14.19, $p$ = .000. Self-efficacy significantly predicted PTSD, $b$ = -.020, $t$ = -1.94, $p$ = .053. When self-efficacy was not in the model, PTC significantly predicted PTSD, $b$ = 3.37, $t$ = 14.95, $p$ = .000. There was a significant indirect effect of PTC on PTSD through self-efficacy, $b$ = 0.989 BCa Cl [0.003, 0.223].

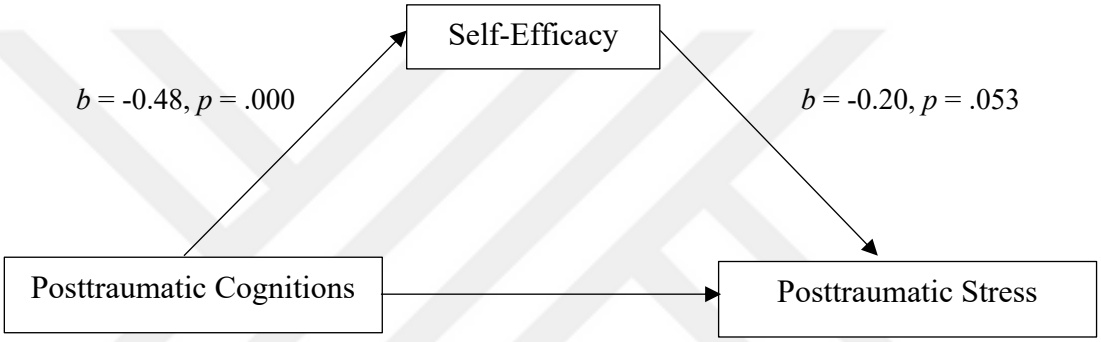



Figure 3. Regression Coefficients for the Relationship Between Posttraumatic Cognitions and Posttraumatic Stress as Mediated by Self-Efficacy

***Mediating role of self-efficacy in the relationship between posttraumatic cognitions and posttraumatic growth***

PTC significantly predicted self-efficacy, $b$ = -0.48, $t$ = -4.76, $p$ = .000. It was a negative relationship. PTC explained 5% of the variance. PTC didn't significantly predict PTG even with self-efficacy, $b$ = 0.48, $t$ = 1.33, $p$ = .189. Self-efficacy significantly predicted PTG, $b$ = -0.83, $t$ = 5.02, $p$ = .000. When self-efficacy was not in the model, PTC did not significantly predict PTG, $b$ = 0.08, $t$ = 0.22, $p$ = .825. There was a significant indirect effect of PTC on PTG through self-efficacy, $b$ = -0.399 BCa Cl [-0.655, -0.188].

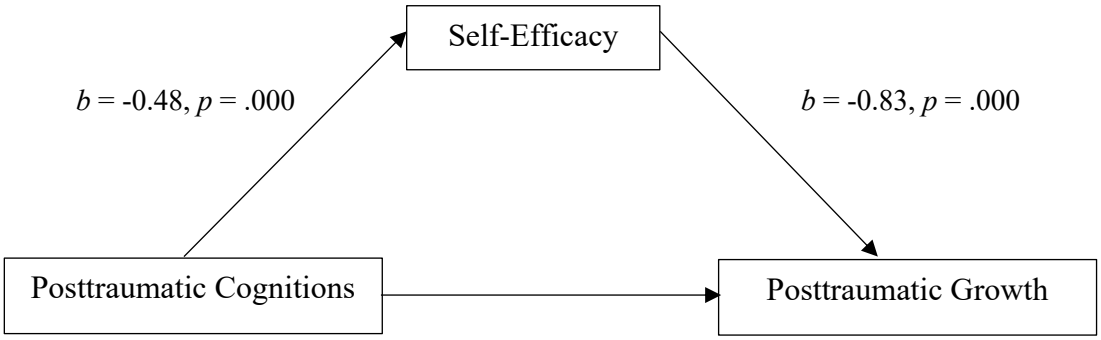



Figure 4. Regression Coefficients for the Relationship Between Posttraumatic Cognitions and Posttraumatic Growth as Mediated by Self-Efficacy

# CHAPTER 4: DISCUSSION

This study aimed to examine the relationship between PTC and PTSD and PTG, respectively, in the context of the mediating role of the concepts of hope and self-efficacy during the COVID-19 pandemic. This section will discuss the results obtained from the analyses applied with the research questions and hypotheses. Firstly, the findings on the relationship between the research variables and the results according to the group differentiation of the variables will be summarized. Then, findings regarding whether there is a difference between the groups regarding the COVID-19 health status and COVID-19 course of the participants will be given. Then, the study findings predicting PTSD and PTG will be presented. Finally, the findings of the mediation analysis, which is the main purpose of the research, will be mentioned. The findings obtained from the research will be evaluated within the scope of the relevant literature and will be discussed in the context of their similarities and differences with the findings obtained from other studies in the literature. Finally, the strengths and limitations of the study will be discussed.

## *4.1. The Findings About The Relationship Between All Variables*

The relationships among participants' age, PTC, PTSD, PTG, hope and self-efficacy levels were examined. According to the results, a negative relationship was found between the age of the participants and their PTC and PTSD levels. According to this result, as the age of the participants increases, PTC and PTSD scores decrease. In a study done with 113 participants to investigate the role of the trauma and individual characteristics on PTSD, the results revealed that younger participants were found to have more dysfunctional PTC in accidental trauma (de Haan et al., 2019). There are several possible explanations for this situation. The first is that the role of age may vary depending on the type of trauma. In their study, Trickey et al. (2012) found a significant relationship between younger age and PTSD in nonintentional trauma cases compared with intentional trauma cases. At this point, the person's previous trauma history may be essential. The traumatic experience reported by younger participants in the study may have been their first ever. In the present study, the first encounter with such a difficult disease of people, who have not had a pandemic experience before, may have increased their dysfunctional PTC and PTSD. Another

explanation could be that younger people might be more negatively affected by the pandemic than older. Because older people, especially those who didn't work or go out as much as younger people before COVID-19 pandemic, may have used to staying at home anyway. However, younger people may have perceived the situation more negatively due to the restriction of activities such as going to school/work that they did before the COVID-19 pandemic. Also, it is thought that older people might have developed more efficient coping strategies with the years. These could be the reason to have decreased levels of stress and cognition.

No significant relationship was found between PTG and age. A study done by Evans, Williams and Leu (2013) showed a significant correlation between age and PTG scale total score. As they get older, individuals may become more inclined to attempt new activities and realize their own abilities. PTG has been linked to physical exercise and a good diet, both of which have been emphasized as critical in the treatment of illnesses. Additionally, according to the researchers, PTG increases the likelihood of engaging in health-promoting behaviors such as avoidance to use drugs and alcohol and reducing smoking (Evans, Williams and Leu, 2013).

However, there is a positive correlation between age and hope and self-efficacy scores. Accordingly, it can be said that as the age of the individuals increases, their hope and self-efficacy levels also increase. In a study conducted with a sample of 700 participants from Turkey, it was aimed to evaluate the relationship between optimism and hope levels in the adult age group, and quality of life in health in physical and mental fields. No significant difference was found between different age groups and levels of hope (Öcal et al., 2020). Also, the results of a study with 87 young sex workers in Hong Kong, which is investigated different levels of threat and their relationship with mental health, revealed that there is no significant relationship between age and both, hope and self-efficacy (Mo et al., 2018). On the contrary of literature, present study has a positive relationship between hope, self-efficacy, and age. The COVID19 pandemic has created a pause in people's lives, even for a short time. This pause may be a situation that will motivate people to increase expectations for life, to see life as more meaningful and to achieve the goals they want to reach. Moreover, as people age increase, their desire to achieve these goals and wishes may increase. In addition, as age increases, the feeling of difficulty in coping with worries

may decrease. The participants' experiences of coping with past difficulties may have made them feel more hopeful and confident in this event.

According to the findings, the positive relationship between PTC and PTSD levels shows that as PTC increase, PTSD levels also increase. According to the cognitive model, after the traumatic experience, the negative, distorted thoughts of the person about trauma and posttraumatic experiences are associated with the continuation of the person's stress reactions (Ehlers and Clark, 2000). In this study, the correlation relationship between these two variables seems to be compatible with the cognitive model explaining PTSD. Furthermore, according to the current study findings, as expected, as the level of cognitions of individuals due to the traumatic event increases, people experience higher levels of PTSD symptoms including re-experiencing, hyperarousal and avoidance. This finding is consistent with the results of other studies that found a positive and significant relationship between PTC and the level of PTSD symptoms (Dekel et al., 2010; Ehlers and Clark, 2000; Janoff-Bulman, 2004; Lilly and Pierce, 2013; Şan, 2018). Kleim et al. (2013) found in their longitudinal outcome study that positive changes in PTCs foresee following improvements in PTSD. According to this result, it can be said that altering dysfunctional PTCs plays an important role in decreasing PTSD symptoms.

No significant relationship was found between PTC and PTG. In a study, there are statistically significant relationships between PTCs and both, PTSD and PTG, and the relationship with PTSD is barely stronger than PTG (Juczyński and Ogińska-Bulik, 2018). In contrast with the finding of current study that there is no significant relationship between PTC and PTG, in various studies in the literature, results show that as the level of PTC increases, the construction of new meaning and belief systems becomes necessary and PTG can occur only as a result of this construction (Joseph and Linley, 2005; Joseph, Murphy and Regel, 2012; Tedeschi and Calhoun, 2004; Thombre, Sherman and Simonton, 2010; Yılmaz, 2006). Traumatic life events lead to the impairment of the basic assumptions of the individual about themselves and the world. To cope with these events, the hypothetical world needs to be restructured (Janoff-Bulman, 1992). Old assumptions no longer provide a safe way to continue daily life, old clarity and security disappear (Tedeschi and Calhoun, 2004). Over time, with the help of personally meaningful reassessments and support from close ones,

many trauma survivors are able to restructure their inner worlds and can experience PTG (Janoff-Bulman, 1992). According to the current study findings, the inability of participants to make meaningful reassessments or receive social support may have resulted in their lack of growth. In addition, the findings contradict Janoff-Bulman's (2004) view that the change in basic assumptions after trauma must be impaired in order to initiate a process such as growth. In other words, PTCs may not have changed enough level to produce PTG in this study. Moreover, the effects of trauma on assumptions may emerge over time in the posttraumatic process, and that the time when measurements for the study are taken may be early for this effect to occur.

A negative relationship was found between PTCs and the concepts of hope and self-efficacy. According to this result, it can be said that as the level of PTC increases, the levels of hope and self-efficacy decrease. As a result of a study, it was found that adolescents sought constructive and effective ways to cope with the traumatic situation with the hope they developed after the traumatic event. It is also seen that they reconstruct their thoughts about self, others and the world after the traumatic event (Zhou et al., 2017). This situation explains the decrease in negative cognitions after trauma with the effect of increased hope. Moreover, Samuelson et al. (2017), conducted a study with 268 trauma-exposed adults to investigate the association between PTSD symptoms and cognitive problems with a mediator role of self-efficacy. This study results' show that self-efficacy and PTC have a negative correlation. According to Bandura (1997), the most important factors constituting self-efficacy are the acquisition of cognitive, behavioral, and self-regulation skills that can manage what one has experienced throughout their lives. Perceived self-efficacy affects not the performance itself, but the thoughts about performance quality. Schemas determine the way individuals evaluate themselves and the way individual interpret information, the function of memory and the perception of competence (Bandura, 1997). Therefore, as people's negative PTCs increase after a traumatic situation, their self-efficacy levels may decrease.

A positive relationship was found between PTSD and PTG. According to this point, it can be said that as people's PTSD levels increase, they experience more PTG. Calhoun and Tedeschi (1998) state that psychological distress that continues at a manageable level is necessary for the initiation and continuation of cognitive

processing required for growth. Cognitive and emotional reminders of what has been gained, paradoxically, as well as what has been lost, are needed for growth to emerge and continue. They also state that growth and stress can coexist, and that growth is not a process that comes after the end of stress. Therefore, it is possible that people are experiencing the growth while continuing to show signs of stress (Calhoun and Tedeschi, 1998). Linley and Joseph (2004) state that certain circumstances must exist in order for posttraumatic growth to occur. To begin, it is claimed that the possibility of death of the traumatic circumstance encountered, the ideas that the individual cannot control the incident, and the feeling of helplessness are the variables that contribute to growth. Other crucial aspects include reinterpreting experiences positively, adopting acceptance as a coping mechanism, deliberately ruminating, and having an optimistic temperament. Finally, there is an uncertain association between stress response and posttraumatic growth following traumatic situations (Linley and Joseph, 2004).

The negative relationship between PTSD and both, hope and self-efficacy shows that as the PTSD level increases, hope and self-efficacy levels decrease. According to the results of a research, patients' self-efficacy beliefs were found to have a significantly negative relationship with intrusion, hyperarousal, and traumatic stress symptoms, as well as a positive relationship with PTG (Mystakidou et al., 2015). At another study including newly diagnosed individuals with primary breast cancer, researchers revealed that there was a relationship between PTSD and self-efficacy (Koopman et al., 2002). People's belief that they will overcome difficult situations and their confidence in their ability to cope may reduce the negative effects of traumatic events and enable them to cope with the event more easily.

A positive relationship was also found between PTG, hope, and self-efficacy. According to this result, as people's PTG levels increase, their hope and self-efficacy levels increase. This result is similar with the results of Byra and Ćwirynkało's study. According to their study, hope and self-efficacy were positively correlated with PTG. Although both concepts have significant relationship in their study, self-efficacy had higher correlation with PTG than hope (Byra and Ćwirynkało, 2020). Cieslak et al. (2009) stated that the high positive relationship between coping self-efficacy and psychological well-being is coherent with the idea that confidence in one's ability to manage posttraumatic recovery should increase one's sense of control. A stronger

sense of well-being should result from improved control beliefs (Cieslak et al., 2009). In this sense, in current study, it is an expected result that PTG will be experienced as self-efficacy and hope increase. Developing thoughts such as 'I can get over this situation/I can cope with it' along with high control feelings can be the reason to experience higher growth.

Hope has a strong and positive correlation with self-efficacy. In overcoming with challenging situations, hope and self-efficacy are positively correlated. These findings are coherent with those of other researchers who looked at the relationship between these factors in people facing major life difficulties (e.g. Byra and Ćwirynkało, 2020; Pietrzyk and Lizińczyk, 2015). This strong correlation could be explained by Bandura's self-efficacy concept. According to Bandura (1977, 1989), the idea of self-efficacy consists of the assumption that there are two sets of expectations. First one is outcome expectancies (i.e., whether a person believes that a certain action will result in a specific outcome) and second one is efficacy expectancies (i.e., whether a person believes that he or she can act in a certain manner that will result in the intended outcome). Despite the fact that outcome and efficacy expectations are bidirectional, Bandura argues that efficacy expectations are the most significant. The agency element of hope theory are like to the efficacy expectations, while the pathways element of hope theory is similar with the outcome expectations. Hope theory asserts that when people take a step for a goal-directed enterprise, both agency and paths are required and iterative on the contrary with the emphasis on efficacy expectations of self-efficacy theory. Lastly, both theories are cognitive in nature (Bandura, 1977; Bandura, 1989).

### *4.2. The Findings About The Group Differences on All Variables*

It was investigated whether there were significant differences between the genders in terms of PTC, PTSD, PTG, hope and self-efficacy levels. No difference was found between male and female participants in terms of PTC, hope, and self-efficacy. At a study, Solomon, Gelkopf and Bleich (2005) found that at a sample with trauma coping participants, women have lower levels of self-efficacy than men (Solomon, Gelkopf and Bleich, 2005). At present study, women experience more PTSD and PTG than men. At H1N1 epidemic, Xu et al. (2011) found that women were disposed to improve higher PTSD. Also, the female participants of Sun et al.'s study

had higher PTSD scores than the male participants (Sun et al., 2021). At literature, there were studies which demonstrated that PTSD affects approximately twice as many women as it does men (Christiansen and Elklit, 2012; Kessler et al., 1995). Besides the effect of the gender on PTSD, being female was discovered to be the fourth major predictor of greater level of PTG at a study. In comparison to men, women are more likely to consider about the trauma, make sense of it, and as a result, reconsideration of the traumatic event is more likely to end up their higher formation of PTG (Leong Abdullah et al., 2019).

It was examined whether there were differences in terms of PTC, PTSD, PTG, hope and self-efficacy levels according to whether the participants had chronic diseases or not. No difference was found in terms of PTC, PTSD, hope and self-efficacy. People with a chronic disease appear to experience more PTG than those with no chronic disease. In fact, chronic diseases have created a silent global epidemic, and together with the COVID-19 epidemic, it has prepared a ground that increases the effects of the epidemic. Data obtained in the early period drew attention to the fact that the disease is more common and more severe in individuals with chronic diseases (Sandalci, Uyaroğlu and Güven, 2020). In a study published from Wuhan in January 2020, at least one chronic disease was detected in 51% of 99 patients (Chen et al., 2020). The severe effects of chronic diseases in this pandemic may have caused these people to perceive the pandemic more traumatic, and thus experience more PTG. Also, people living with chronic illness may already be more experienced coping with their illness. For this reason, when a disease such as a pandemic is encountered, PTG may be higher. However, in order to explain this causality more clearly, it should be investigated with further studies.

It was investigated whether there was a differentiation in terms of PTC, PTSD, PTG, hope and self-efficacy levels, depending on whether a loved one of the participants had COVID-19. No difference was found in terms of PTC, PTSD, hope and self-efficacy. It is seen that people who have a relative with COVID-19 experience more PTG than those who do not. The fact that individuals realize the gains they have achieved as a result of traumatic situations enables PTG formation to occur despite obstacles (Long et al., 2020). McMillen, Smith and Fisher (1997) conducted a study with individuals who experienced natural disasters and found that the severity of the

disaster were positively correlated with recovery when they realized that they had an advantage from the situation they lived in, but negatively correlated with recovery when they did not see an advantage. In other words, the beneficial properties of adverse conditions increase PTG formation (McMillen, Smith and Fisher, 1997). The fact that people who have a loved one with COVID-19 experience more PTG can be explained with this statement. It is thought that these people experience more change in their philosophy of life and change in interpersonal relationships by taking advantage of the traumatic situation they experience due to the fact that their relative has a potentially fatal disease that could be evaluated as severe.

There is no differentiation in terms of PTC, PTSD, PTG, hope and self-efficacy levels between those who lost their relatives due to COVID-19 and those who did not. Traumatic situations disrupt the course of life that people want to have, causing the patient to show personal development in other ways. Although it is difficult to cope with for loss for people who have lost a loved one, sometimes people experience more growth with the beliefs that they are good, more humane, and more talented (Znoj, 2005). Therefore, in this study, people who lost their relatives due to COVID-19 were expected to have higher negative cognitions as well as to experience higher growth rates. However, no significant difference was observed between the two groups. During the COVID-19 pandemic process, some limitation were applied to prevent the spread and the continuation of the disease. In this regard, people who contracted the COVID-19 were treated in hospitals for a long time without receiving visitors. During this period, people could not see their relatives or communicate with them very few times. Also, the funeral ceremonies of people who died due to COVID-19 were held with very few people. For this reason, many people who lost their loved ones could not attend to the funeral of their loved ones. The lack of rituals that people want to perform against their loved ones can be a condition that interrupts the mourning processes of the people and delays the mental processing of loss. For this reason, the impairment in the existing cognition of people may not have occurred and PTSD or PTG may not have developed. In addition, negative experiences in these processes may have prevented the development of hope and self-efficacy.

The differentiation in terms of PTC, PTSD, PTG, hope and self-efficacy levels depending on the COVID-19 health status of the participants were examined. There

was no difference in terms of all variables. In a study, it was seen that unknown risk, physical problems, social alienation, fear of the virus being transmitted to others and negative news spread through the media caused the formation of PTSS in people living in Wuhan and its surrounding provinces (Bo et al., 2020). The strict quarantine process, the scarcity of medical services, and the scarcity of personal protective equipment harm people's social life and their quality of life may decrease (Bo et al., 2020). Traumatic events must clearly involve a direct or indirect threat of death or serious injury. As a life-threatening medical condition, biohazards such as the COVID-19 pandemic, are defined as a traumatic event that can result in PTSD syndrome (Zhang et al., 2020). In regards with these statements, especially in terms of PTC, PTSD and PTG among the groups who had COVID-19, were in contact, or had no contact, statistically significant differentiation was expected. However, no difference was observed between the groups. The study which is done by Zhang et al. (2020) was carried out when the time the disease first appeared and where COVID-19 first emerged, in Wuhan, China. According to the study findings, it is seen that people who had more contacted with the epidemic area, experienced more PTSD (Zhang et al., 2006). However, it is thought that the rapid and uncontrolled spread of the COVID-19 in the first periods, as well as the lack of information about the disease, will increase the perception of the traumatic level of the situation. The emergence and spread of the disease in Turkey occurred at a later time, and until this time, many information about the disease (speed of spread, ways of spread, restrictions for prevention, ways of treatment, success of treatment, etc.) became clearer. This may have caused the participants to perceive the traumatic level of the COVID-19 pandemic to be lower, and to increase their belief that they would be treated even if they were infected. It is thought that the perception of the stress level to be lower prevents the statistical significant difference between the groups for the existing variables. Moreover, the numbers of the groups formed in terms of the COVID-19 health status of the participants are quite different from each other. It is thought that this situation can prevent a statistically significant difference that may arise.

It was examined whether there was a difference between the COVID-19 course levels of the participants and their PTC, PTSD, PTG, hope and self-efficacy levels. Compared to people with severe or mild COVID-19 course, people who are not infected with COVID-19 have more negative cognitions. It was also found that those

who had severe COVID-19 had a higher level of PTSD than those who had mild. There is no difference between the groups in terms of PTG, hope and self-efficacy levels. According to Sutin et al. (2010), the way people perceive and think about the stressful life events they experience in their lives affect their coping styles. It is possible that more negative life events will cause worse psychological problems. The persons' seeing the stressful life event at the center of their lifes and their negative perspectives also affect the way that their other experiences. Moreover, it can cause a negative perspective towards life (Sutin et al., 2010). With these respect, those who have a more severe course of COVID-19 illness than mild severe disease may therefore experience more PTSD. However, according to the current study findings, no significant difference was found according to the participants' PTC, PTSD, PTG, hope and self-efficacy levels in terms of different COVID-19 health status. When combined with this previous result, the influencing factor in terms of these variables may not be whether or not to have the COVID-19, but how severe the COVID-19 period affected peoples' life's. In other words, the intensity of the traumatic situation may be more important.

### *4.3. The Findings About the Variables Predicting Posttraumatic Stress and Posttraumatic Growth*

To determine how much the variables included in this study predicted PTSD, a regression analysis was performed. The concepts of PTC, PTG and self-efficacy are important predictors on PTSD, while the concepts of hope is not significant predictors of PTSD. While both PTC and PTG explain 37.5% of PTSD together, the variance that is explained increases to 39% with the concepts of hope and self-efficacy. It is thought that the percentage that only the two concepts explain together is quite high. At some research on the literature, regression analysis results show that just the PTC explained the 58% of the variance of PTSD (Carek, Norman and Barton, 2010). Because of the pandemic, the risk is particularly direct, fast, and unguessable nowadays. This has a global impact. The pictures and the information in the media indicated direct risk and this affect largely to people's attention, ideas and emotions. These signals frequently elicit anxiety reactions and enhance disaster-related thinking, resulting in a rise in the likelihood of the worst-case scenario (Karataş, Uzun and Tagay, 2021). Since the PTC is the highest predictors of PTSD, it is recommended for people who have experienced

trauma to change their PTSD symptoms by addressing dysfunctional cognitions related to the traumatic event during the treatment process. In the current study, hope does not significantly predict PTSD. Individuals who are more hopeful and recover from trauma are more likely to use active coping strategies, while less likely to use maladaptive avoidance strategies. Individuals can benefit from goal oriented thinking strategies. These strategies can help them achieve their goals and improve their functions after a stressful experience (Lee and Gallagher, 2017). Hope may be more correlated with good outcomes after a traumatic event, as it involves specific goal-oriented processes (Ai et al., 2007). This may be the reason why the concept of hope could not significantly predict PTSD in the current study. Also, in further research, it is recommended to apply other concepts that can explain the concept by including them in the model.

Lastly, a regression analysis was performed to determine how much the variables included in the study predicted PTG. The concepts of PTSD and hope are important predictors on PTG, while the concepts of PTC and self-efficacy are not significant predictors of PTG. While both PTC and PTSD together explain 5.8% of PTG, the variance explained by the concepts of hope and self-efficacy increases to 9.6%. PTSD is the highest significant predictor on PTG. Calhoun and Tedeschi (1998) stated that PTSD and PTG can coexist, and therefore, growth does not have a mechanism that begins when the stress is over. It is thought that people will continue to grow while showing symptoms of PTSD (Calhoun and Tedeschi, 1998). This situation could be the explanation of that the highest predictor of the PTG is PTSD. In another study done by Ateş (2019), it was investigated whether PTC predict PTG or not and no significant predictive effect was found according to the results. In this respect, the results of the present study is consistent with the literature. Hope is a significant predictor of PTG. Arnau et al. (2007) found that hope is linked to less posttraumatic symptoms of depression and anxiety, and the findings of one meta-analytic analysis show that hope has a protective role toward PTSD symptoms (Gallagher, Long and Phillips, 2019). After stressful events such as natural catastrophes, hope may encourage better results (Ying et al., 2014). Numerous trauma related researches have found that having hope for the future predicts a higher PTG (e.g., Casellas-Grau, Ochoa and Ruini, 2017; Heidarzadeh, Dadkhah and Gholchin, 2016; Yuen, Ho and Chan, 2014). As a result, this point has been observed to divert

attention away from the negative consequences of stressful situations (e.g., Scheier and Carver, 1985) and encourage the adoption of positive coping techniques to trauma (e.g., Nes and Segerstrom, 2006), resulting in the progressive realization of PTG. In the results of the current study, it was seen that while hope could not predict PTSD, it significantly predicted PTG. This is also compatible with the findings of the literature. It is thought that PTG is a part of the person's adaptation after trauma and the existence of factors that can help overcome difficulties such as social support and resilience in order to develop growth is considered important. The variance which is explained with the variables is quite low, because it is thought that the concepts explaining PTG at a higher rate were not included in the study. Further researches are needed to determine and clarify the other variables that predict PTG.

### *4.4. The Results About the Mediating Role of Hope and Self-Efficacy on the Relationship Between Posttraumatic Cognitions, Posttraumatic Stress and Posttraumatic Growth*

To assess the mediating role of hope and self-efficacy on the relationship between PTC, PTSD, and PTG, four different models were tested with mediation analyses. According to results, hope did not play a significant mediating role in the relationship between PTC and PTSD. Zhang et al. (2020) revealed that people who have a lot of contact with the disease area experience higher PTSD in their study conducted in Wuhan when the disease first appeared (Zhang et al., 2006). Having limited information about the disease, the rapid and uncontrolled spread of the disease may have increased the traumatic level in that process. The disease emerged later in Turkey and until this time, a lot of information about the disease such as its spread rate, separation ways, prevention and treatment methods, and treatment success has been discussed. This may have enabled the participants to perceive the trauma level of the disease lower and increase their belief that they will be treated. Along with the hopes and thoughts that this situation will pass, it may have prevented the occurrence of PTSD. Moreover, it is thought that people's reactions to the stressful conditions they encounter are affected by hope. This situation may cause the person to stick some of the goals they have set to achieve in their lives or to move away from these goals. Individuals with low hope levels will stop striving to achieve their current goals, and in this case, they may cause unwanted psychological changes (Rand and Cheavens,

2009). The course of reevaluating the goal and the power of thinking about hope are critical for people going through difficult times (Hullmann et al., 2014). Individuals may benefit from more goal-oriented thinking processes that can help them achieve their goals and improve their psychological and social functions after a stressful experience (Lee and Gallagher, 2017). Considering the findings of the current study, it is seen that PTC provide suitable conditions for hope that will enable people to stick to their current goals or set new goals, but this situation is not determinative on the PTSD that may occur in the next period. It is thought that using appropriate coping styles against the traumatic situation or setting new goals for themselves by participants prevent the model to explain the development of PTSD. The significant mediating effect of hope on the relationship between PTC and PTG supports this finding. In addition, in the findings of this study, it was seen that PTC highly predicted PTSD. At this point, even if hope explains PTSD, the mediating effect of hope may have been insufficient since PTC explained it in high level.

On the other hand, there was a significant indirect effect of PTC on PTG through hope. In a study, it was seen that people who need to stay in quarantine have higher levels of psychological distress than those who do not stay in quarantine (Laslo-Roth, George-Levi and Margalit, 2021). At same study, it has been found that hope is a mediating factor in predicting the reduction of psychological stress in situations that challenge individuals' coping capacities. These study findings demonstrate the importance of hope in coping with high stress and chaotic conditions during the time of pandemic disease (Laslo-Roth, George-Levi and Margalit, 2021). Another study results revealed that the participants found constructive and effective ways to cope with the traumatic situation by means of hope after the traumatic event. They also restructure their thoughts about themselves, others, and the world after the traumatic event (Zhou et al., 2017). The current study finding also supports the literature in this sense. While the mediating role of hope in relationship between PTC and PTSD was insignificant, it was significant for growth. This increases the importance of hope for having more positive experiences after traumatic situations. From a different perspective, in a study, it was observed that high hope was associated with cognitive reassessment of the traumatic situation which is enabling people to rethink the situation in a positive way. This situation enables people to integrate their new knowledge about trauma into existing knowledge and thus the formation of PTG (Zhou and Wu, 2018).

This could also be an explanation of this result.

Moreover, there was a significant indirect effect of posttraumatic cognitions on posttraumatic stress through self-efficacy. When the literature is examined, there are studies that self-efficacy mediates the relationship between the concepts related to trauma and PTSD. The results of a study of 46 flood survivors showed that self-efficacy mediated the effects of stress one year after the event and the acute stress response after the flood on PTSD symptoms (Benight and Harper, 2002). In another study with 150 participants, self-efficacy explained 47% of the variance of trauma-related stress. Also, a study done by Benight et al., (1999) with a sample of hurricane survivors as participants, the effect of hope on PTSD was mediated by self-efficacy (Benight et al., 1999). Sutin (2010) states that the way people perceive and think about the traumatic situation that they had experienced affects their coping styles. It is thought that worse psychological problems may occur with more negative life events. Perceiving traumatic events in the center of life and negative thoughts about situations also affect other experiences of people. It may also cause a more negative perspective towards life (Sutin et al., 2010). One reason why self-efficacy beliefs affect PTSD symptoms may be that traumatic situations force people's coping skills after the events happen (Benight and Bandura, 2004). It has been observed that individuals with high levels of PTSD symptoms perceive themselves as less fortunate and have a weaker sense of control when compared to those have similar traumatic experiences and levels of influence (Sumalla, Ochoa and Blanco, 2009). It is thought that individuals, who consider themselves less fortunate in the face of events and who have opinions that they will not overcome the traumatic situation, will experience PTSD more.

Also, there was a significant indirect effect of PTC on PTG through self-efficacy. Cieslak et al. (2009) found a high positive relationship between coping self-efficacy and psychological well-being. They state that this situation is compatible with the idea that confidence in one's ability to manage posttraumatic recovery should increase the sense of control one feels (Cieslak et al., 2009). The fact that people develop thoughts such as *'I can overcome this situation/I can cope with it'* after traumatic events and high control feelings may have led to more growth. Researchers think that the indirect effect of self-efficacy is inevitable because individuals react both to the effect of trauma and to adjustment problems caused by the traumatic event

(Benight and Bandura, 2004). If we consider that PTG has the effect of successfully coping with the symptoms and consequences that occur after a traumatic event, people with higher self-efficacy levels can provide higher efficacy in coping with the consequences and problems of the traumatic situation (Byra and Ćwirynkało, 2020). People with high sense of self-efficacy are confident in their own ability to deal with a variety of environmental requests. Individuals with high perceived efficacy may cope with challenging situations. The motivation level of people could increase or decrease associated with their self-efficacy levels. People shape what they will do in their minds, and their level of self-efficacy determines the expectations positive or negative situations that can occur. In the face of failure, people with high self-efficacy recover more easily and remain committed to achieving their goals. People with high self-efficacy can choose difficult situations, explore their environment or develop new ones (Bandura, 1997). In this context, within the scope of the current study, it can be said that when the PTC, that people develop after traumatic situations, are that they can overcome with the traumatic situation, their PTG experiences will increase even more.

### *4.5. Limitations of This Study and Future Suggestions*

The research has some limitations. First of all, the majority of the participants in the study consist of people with a high level of education. In addition, the gender and COVID-19 distributions of the participants are not equal. It is thought that this situation may create a limitation regarding the generalizability of the results. Repeating further studies to include people at different socioeconomic levels will provide more generalizable results.

In this study, only the COVID-19 experience of the participants was taken as the traumatic life experience. However, participants may have been exposed to different traumatic situations before the research or during the data collection process. Furthermore, even though individuals report some traumatic experiences, it could be beneficial to assess the impact of the traumatic situation on the person, namely how much individuals experience the traumatic situations as distressing and aversive. This situation may cause some of the results obtained in the study findings not only from the experience of COVID-19, but also from the effect of other traumatic situations. In order to control this situation, in future studies, it can be learned whether the participants have experienced different traumatic situations and these traumatic

situations can be included in the analysis process.

Another limitation of the study is that the sample was not a clinical sample. Being diagnosed with PTSD was not a criterion for the sample of the study, and traumatic stress symptoms were investigated at all levels. However, some of the participants may currently have different psychiatric diagnoses such as PTSD and anxiety and may be receiving treatment for them at the same time on the study. In order to make a comparison, the analysis was carried out by forming the groups according to the cut-off score specified in the original scale content. In this case, the confounding effect of persons with the diagnosis was not controlled. Results may be different in groups with higher PTSD levels. For this reason, working with the diagnosis group may yield more accurate results. It is recommended that all variables be investigated in more detail, in comparison with people outside the clinical population, by reaching the people diagnosed in future studies.

Research data were collected online during the COVID-19 period. For this reason, individuals were asked to fill in the study link by sending them. This situation causes for researchers not to know the conditions that participants' filling the scales and not to exclude the environmental impact due to not being able to create conditions that will be the same for everyone. During the study, the variables were examined with the self-report method. This can also affect the limited answers given by the person. It can also cause participants to answer for the way they want to present themselves (such as having less negative cognition, having less stress, or having higher growth).

In this study, some questions were asked to the participants about their COVID-19 status and their experiences related to the disease (disease course, a loved one with COVID-19, etc.). However, collecting information about other factors that may affect the participants even if they were not sick during this period (their experiences in the process, their perceptions about the process, etc.) could have been useful for interpreting the results and for additional analysis. In future researches, questions about people's perceptions of the process can also be included in the studies. Also, we did not measure coping strategies with COVID-19 stressors in this study. However, the model would be very complex if we also measured coping mechanisms as a variable. Therefore, future research may also look at coping mechanisms.

# CHAPTER 5: CONCLUSIONS

Traumatic experiences are events that have existed since the history of humanity and have serious effects on individuals and societies in every period. While the focus of research on traumatic experiences and their effects was generally the negative effects of such experiences, such as depression, anxiety disorders and PTSD, in recent years, there has been an increasing interest in people experiencing positive changes in different areas of life after traumatic experiences compared to pre-traumatic experiences. This information shows that traumas, that are so shocking that they can separate people's lives like a knife in the form of before and after, do not only have negative psychological effects, but depending on certain processes, they can also experience a growth process in which people create new meanings about themselves and life.

The purpose of this research is to examine the relationship between PTC, PTSD and PTG, respectively. The mediating role of hope and self-efficacy during the COVID-19 pandemic is also investigated in this context. According to study findings, participants with a chronic disease experience more PTG than people without a chronic disease. It has been observed that people who have a relative with COVID-19 also experience more PTG than those who do not. No differentiation was found in the variables included in the study in terms of COVID-19 health status. Participants who have never been contacted with COVID-19 have more negative PTC than participants who have had COVID-19. Also, people with severe disease course experienced higher PTSD than those with mild disease course. While the concept of hope does not have a mediating effect between PTC and PTSD, hope has a significant mediating effect between PTC and PTG. There is a significant mediating effect of self-efficacy between PTC and PTSD and PTG, respectively.

The present study is the first one that is investigating the concepts of hope and self-efficacy as mediating factors in the relationship between PTC and PTSD and PTG, respectively. The results highlighted again the importance of addressing and re-evaluating PTC to assess the development of PTSD and PTG that will occur in the next process of a traumatic experience. It is thought that the current study will contribute to the field, since there is no study that will provide more detailed

information on the causes of situations that occur in people after traumatic situations and that these concepts, which can contribute positively to development of people after trauma, are discussed together. In this context, it was important to investigate PTSD and PTG together. In addition, it is thought that the current study will contribute to the literature with the new information it provides about the pandemic and its traumatic effects. It also has the following clinical implications.

### *5.1. Implications*

People's basic beliefs, which serve to make sense of themselves and the world, are shaken by the effect of traumatic events, and people experience a shocking confrontation about their vulnerability, mortality and controllability of life (Cann et al., 2011). This shake-up in existing cognitive structures triggers the rethinking process, which can be seen as an effort to make sense of the traumatic event, as a natural result. The level and long-term persistence of repetitive thoughts about the traumatic event, which have negative content and come to mind uncontrollably, are generally associated with PTSD symptoms (Ogińska-Bulik and Juczyński, 2016).

With the findings of the current study, addressing and re-evaluating PTC during therapy with people who have encountered a traumatic situation will affect the PTSD or PTG level that will occur in the next process. In addition, it is thought that the use of techniques that will increase the level of hope in overcoming the traumatic situation in the therapy content or the interventions that will increase the self-efficacy thoughts individuals might be useful in increasing the effectiveness of therapy. It is thought that the current study is a contribution to the field since there is no study in which these concepts were discussed together. In further studies, researchers could add some other concepts (such as coping strategies, personality types, psychological strength, social support and etc.) to have more detailed knowledges about trauma and its consequences with present study variables.

In the literature review conducted during the execution and reporting period of the study, studies that determined the PTSD levels of individuals in the COVID-19 process were found. However, there are few studies that examine the factors affecting PTSD and PTG in detail. In addition, the current study addressed the different experiences of people with the COVID-19 and analyzed their relationship with study

variables. For this reason, it is thought that the current study will contribute to the literature and the new information it provides about the pandemic.

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# APPENDICES

## *Appendix A: Ethics Committee Approval*

**SAYI :** B.30.2.İEÜ.0.05.05-**020**-*110* 22.01.2021

**KONU :** Etik Kurul Kararı hk.

**Sayın Nilay Burhanoğlu,**

**"Covid-19 Salgını Döneminde Travma sonrası Bilişlerin Travma sonrası Stres ve Travma Sonrası Büyüme Üzerinde Etkisi: Umut ve Öz-Yeterlilik Kavramlarının Aracı Rolü"** başlıklı projenizin etik uygunluğu konusundaki başvurunuz sonuçlanmıştır.

Etik Kurulumuz 25.12.2020 tarihinde sizin başvurunuzun da içinde bulunduğu bir gündemle toplanmış ve projenin incelenmesi için bir alt komisyon oluşturmuştur. Projenizin detayları alt komisyon üyelerine gönderilerek görüş istenmiştir. Üyelerden gelen raporlar doğrultusunda Etik Kurul 22.01.2021 tarihinde tekrar toplanmış ve raporları gözden geçirmiştir.

Sonuçta 22.01.2021 tarih ve 116 numaralı **"Covid-19 Salgını Döneminde Travma sonrası Bilişlerin Travma sonrası Stres ve Travma Sonrası Büyüme Üzerinde Etkisi: Umut ve Öz-Yeterlilik Kavramlarının Aracı Rolü"** konulu projenizin etik açıdan uygun olduğuna oy birliği ile karar verilmiştir.

Gereği için bilgilerinize sunarım.

Saygılarımla,

[redacted]

**Prof. Dr. Murat Bengisu**

**Etik Kurul Başkanı**

***Appendix B: Informed Consent Form***

SAYIN KATILIMCI,

Bu araştırma, İzmir Ekonomi Üniversitesi bünyesinde, Klinik Psikoloji Yüksek Lisans programı kapsamında Dr. Öğretim Üyesi Yasemin Meral Öğütçü danışmanlığında Nilay Burhanoğlu tarafından hazırlanan bir tez çalışmasıdır. Çalışmanın amacı; COVID-19 salgının kişilerin bilişlerine etkisinin ve bu etkilerdeki bireysel farklılıkların araştırılmasıdır.

Çalışma yaklaşık olarak 20 dakika sürecektir. Çalışmaya katılabilmeniz için 18 yaş ve üzeri olmanız gerekmektedir. Bu çalışmaya katılmak tamamen gönüllülük esasına dayanmaktadır. Çalışmaya katılmama veya katıldıktan sonra herhangi bir anda çalışmadan çıkma hakkına sahipsiniz.

Çalışma yürütülürken sizden kimliğinizi ortaya çıkaracak hiçbir bilgi talep edilmeyecektir. Cevaplarınız gizli tutulacak, yalnızca araştırma görevlisi tarafından değerlendirilecektir. Ölçeklerden elde edilen sonuçlar, yalnızca bilimsel amaçlar doğrultusunda kullanılacaktır.

Ölçeklerde bulunan sorulara vereceğiniz yanıtların doğruluğu, araştırmanın niteliği açısından oldukça önemlidir. Lütfen her bir ölçeğin yönergesini dikkatli okuyunuz ve sorulara sizi en iyi ifade eden cevabı vermeye çalışınız.

Herhangi bir soru ya da sorun bildirmek için Nilay Burhanoğlu (nburhanoglu@gmail.com) ile iletişime geçebilirsiniz.

Katılımınız için şimdiden teşekkür ederiz.

***Appendix C: Personal Information Questionnaire***

1) Yaşınız:……..

2) Cinsiyetiniz: Kadın ( )
Erkek ( )
Diğer. ( )

3) Eğitim seviyeniz: Okur-yazar ( )
İlkokul ( )
Ortaokul ( )
Lise ( )
Önlisans ( )
Lisans ( )
Yüksek lisans ( )
Doktora ( )

4) Medeni durumunuz: Evli ( )
Bekar ( )
Boşanmış ( )
Dul ( )

5) Kiminle birlikte yaşıyorsunuz? Ailemle (anne-baba) ( )
Arkadaşlarımla ( )
Eşimle ( )
Eşim ve çocuklarımla ( )
Çocuğum/Çocuklarımla ( )
Tek başıma ( )

6) Çocuğunuz var ise sayısı:…….

7) Herhangi bir kronik rahatsızlığınız var mı? Evet ( )
Hayır ( )

8) Herhangi bir ilaç kullanıyor musunuz? Evet ( )
Hayır ( )

9) Herhangi bir psikolojik rahatsızlığınız var mı? Evet ( )
Hayır ( )

10) COVID-19 sağlık durumunuz nedir? Hastayım ( )
Hastaydım ama iyileştim ( )

Temasım oldu ama hasta olmadım ( )

Temasım oldu ama test yaptırmadım ( )

Hiç temasım olmadı ( )

11) Hastalığınız bittiyse üzerinden ne kadar zaman geçti? (Gün olarak)…….

12) Hastalık seyriniz nasıldı? Ağır geçti, bir süre hastanede kaldım ( )

Ağır geçti ancak evdeydim ( )

Hafif semptomlarla geçti ( )

Semptomsuz geçti ( )

Hasta olmadım ( )

13) Sevdiğiniz bir yakınınız COVID-19 hastalığına yakalandı mı? Evet ( )

Hayır ( )

14) COVID-19 sebebiyle bir yakınınızı kaybettiniz mi? Evet ( )

Hayır ( )

***Appendix D: Posttraumatic Cognitions Inventory***

Aşağıda travmatik bir yaşantı sonrasında insanların sahip olabileceği düşünceler yer almaktadır. Yaşadığınız travmatik olay/Olaylarla ilişkili olarak aşağıdaki düşüncelere ne ölçüde katıldığınızı öğrenmek istiyoruz. Lütfen her bir ifadenin size ne kadar uygun olduğunu, maddelerin başındaki boşluğa 1 ve 7 arasında puanlar vererek değerlendiriniz. İnsanlar travmatik olaylara farklı tepkiler verirler. Bu ifadelerin doğru veya yanlış cevabı yoktur.

1-Kesinlikle katılmıyorum
2-Katılmıyorum
3-Pek katılmıyorum
4-Ne katılıyorum ne katılmıyorum
5-Biraz katılıyorum
6-Katılıyorum
7-Kesinlikle katılıyorum

( ) 1. Bu olay benim davranışım yüzünden oldu.
( ) 2. Doğru şeyi yapacağım konusunda kendime güvenemiyorum.
( ) 3. Güçsüz biriyim.
( ) 4. Öfkemi kontrol edemeyip korkunç bir şey yapabilirim.
( ) 5. En ufak bir hayal kırıklığıyla bile baş edemiyorum.
( ) 6. Eskiden mutlu bir insandım şimdiyse hep mutsuzum.
( ) 7. İnsanlara güven olmaz.
( ) 8. Her zaman tetikte olmalıyım.
( ) 9. İçimde bir şeylerin öldüğünü hissediyorum.
( ) 10. Kimden zarar geleceği hiçbir zaman bilinemez.
( ) 11. Çok dikkatli olmalıyım çünkü bundan sonra ne olacağı hiç belli olmaz.
( ) 12. Yetersiz bir insanım.
( ) 13. Duygularımı kontrol edemeyeceğim ve korkunç bir şey olacak.
( ) 14. Eğer olayı düşünürsem, bununla başa çıkamayabilirim.
( ) 15. Böyle bir insan olduğum için bu olay benim başıma geldi.
( ) 16. Bu olaydan beri verdiğim tepkiler, benim aklımı kaçırmakta olduğumu gösteriyor.
( ) 17. Bir daha asla normal duygular hissedemeyeceğim.
( ) 18. Dünya tehlikeli bir yer.
( ) 19. Bir başkası olsa bu olayın olmasını engelleyebilirdi.
( ) 20. Kalıcı bir biçimde kötü yönde değiştim.
( ) 21. Kendimi insan değil, eşya gibi hissediyorum.
( ) 22. Benim yerimde başkası olsa bu duruma düşmezdi.
( ) 23. İnsanlara güvenemem.
( ) 24. Kendimi insanlardan kopmuş ve yalnız hissediyorum.

( ) 25. Bir geleceğim kalmadı.
( ) 26. Kötü şeylerin başıma gelmesini engelleyemem.
( ) 27. İnsanlar göründükleri gibi değil.
( ) 28. Yaşadığım olay hayatımı mahvetti.
( ) 29. Bende yanlış giden bir şeyler var.
( ) 30. Bu olaydan beri verdiğim tepkiler, benim olayla başa çıkmayı beceremediğimi gösteriyor.
( ) 31. Bu olayın gerçekleşmesine neden olan, benimle ilgili bir şeyler var.
( ) 32. Bu olayla ilgili düşüncelerime tahammül edemeyip dağılabilirim.
( ) 33. Artık kendimi tanıyamıyorum.
( ) 34. İnsanın başına ne zaman kötü bir şey geleceği asla bilinemez.
( ) 35. Kendime güvenemiyorum.
( ) 36. Bundan sonra başıma iyi bir şey gelemez

*Appendix E: Pstd Checklist For Diagnostic and Statistical Manual Of Mental Disorders, Fifth Edition*

**Aşağıda <u>çok stresli bir olay karşısında</u> insanların yaşayabildikleri problemlerin bir listesi yer almaktadır. *Zihninizi meşgul etmeye <u>DEVAM EDEN yaşadığınız en kötü olayı</u>* düşünerek aşağıda listelenen her bir problemi dikkatlice okuyun. <u>SON BİR AY İÇİNDE</u> bu olayın size ne kadar sıkıntı verdiğini, sağdaki kutuların içindeki size en uygun rakamı yuvarlak içine alarak gösteriniz.**

| *GEÇEN AY içinde aşağıda yer alan durumlar sizi ne ölçüde bunalttı:* | *Hiç* | *Çok az* | *Orta derecede* | *Oldukça fazla* | *Aşırı* |
|---|---|---|---|---|---|
| **1. Stresli olayın tekrarlayan, rahatsız eden ve istenmeyen anıları sizi ne kadar bunalttı?** | **0** | **1** | **2** | **3** | **4** |
| **2. Stresli olaya ilişkin tekrarlayan, rahatsız eden rüyalar sizi ne kadar bunalttı?** | **0** | **1** | **2** | **3** | **4** |
| **3. Aniden stresli olayı sanki gerçekten bir daha yaşıyormuş gibi hissetmek veya davranmak (sanki gerçekten olayın yaşandığı ana geri dönmüş yeniden yaşıyormuş gibi) sizi ne kadar bunalttı?** | **0** | **1** | **2** | **3** | **4** |
| **4. Bir şeyler size stresli olayı anımsattığı zaman yaşadığınız üzüntü hissi sizi ne kadar bunalttı?** | **0** | **1** | **2** | **3** | **4** |
| **5. Bir şeyler size stresli olayı anımsattığı zaman güçlü fiziksel tepkiler vermek *(örneğin, kalp çarpıntısı, nefes almada güçlük, terleme gibi)* sizi ne kadar bunalttı?** | **0** | **1** | **2** | **3** | **4** |
| **6. Stresli olayla ilişkili anılardan, düşüncelerden ve duygulardan kaçınmaya çalışmak sizi ne kadar bunalttı?** | **0** | **1** | **2** | **3** | **4** |
| **7. Stresli olayı anımsatan etraftaki hatırlatıcı şeylerden *(örneğin, insanlardan, yerlerden, konuşmalardan, etkinliklerden, nesnelerden veya durumlardan)* kaçınmaya çalışmak sizi ne kadar bunalttı?** | **0** | **1** | **2** | **3** | **4** |
| **8. Stresli olaya ilişkin önemli kısımları hatırlamada yaşanan güçlükler sizi ne kadar bunalttı?** | **0** | **1** | **2** | **3** | **4** |
| **9. Kendiniz, diğer insanlar veya dünya hakkında güçlü olumsuz düşüncelere sahip olmak (*örneğin, kötü biriyim, bende ciddi şekilde yanlış olan bir şeyler var, kimseye güvenilmez, dünya tümüyle tehlikeli bir yerdir gibi düşünceler*) sizi ne kadar bunalttı?** | **0** | **1** | **2** | **3** | **4** |
| **10. Stresli olay veya bu olayın sonrasında ortaya çıkan durumlar için kendinizi veya bir başkasını suçlamak sizi ne kadar bunalttı?** | **0** | **1** | **2** | **3** | **4** |

| | | | | | |
|---|---|---|---|---|---|
| **11. Korku, dehşete kapılma, öfke, suçluluk veya utanç gibi güçlü olumsuz duygular sizi ne kadar bunalttı?** | **0** | **1** | **2** | **3** | **4** |
| **12. Daha önce yapmaktan keyif aldığınız etkinliklere olan ilginizi kaybetmek sizi ne kadar bunalttı?** | **0** | **1** | **2** | **3** | **4** |
| **13. Başka insanlardan uzak veya kopmuş hissetmek sizi ne kadar bunalttı?** | **0** | **1** | **2** | **3** | **4** |
| **14. Olumlu duyguları yaşayamamak *(örneğin, mutluluğu hissedememek veya size yakın insanlara sevgi dolu hisler duyamamak)* sizi ne kadar bunalttı?** | **0** | **1** | **2** | **3** | **4** |
| **15. Asabi davranışlar, öfke patlamaları veya öfkeli hareketler sizi ne kadar bunalttı?** | **0** | **1** | **2** | **3** | **4** |
| **16. Çok fazla risk almak veya size zarar verebilecek şeyler yapmak sizi ne kadar bunalttı?** | **0** | **1** | **2** | **3** | **4** |
| **17. Aşırı tetikte olmak veya temkinli davranmak veya hazırda beklemek sizi ne kadar bunalttı?** | **0** | **1** | **2** | **3** | **4** |
| **18. Yerinden sıçramak veya kolayca irkilmek sizi ne kadar bunalttı?** | **0** | **1** | **2** | **3** | **4** |
| **19. Dikkati toplamada güçlükler sizi ne kadar bunalttı?** | **0** | **1** | **2** | **3** | **4** |
| **20. Uykuya dalma veya uykuyu devam ettirme güçlükleri sizi ne kadar bunalttı?** | **0** | **1** | **2** | **3** | **4** |

## *Appendix F: Posttraumatic Growth Inventory*

Sizden öğrenmek istediğimiz, yaşamınızda önemli yer tutan travmatik yaşam olaylarının, hayatınızda ne ölçüde pozitif değişikliklere sebep olduğudur. Geçmişte yaşadığınız krizden/krizlerden sonra yaşamınızda ve düşüncelerinizde meydana gelen değişimleri lütfen aşağıda verilen puanlama ölçütlerine göre 0 ve 5 arasında değerlendiriniz.

| 0 | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Stresli olay(lar) sonucu bu değişimi hiçbir şekilde yaşamadım. | Çok az bir düzeyde | Bir miktar | Orta düzeyde | Oldukça fazla | Stresli olay(lar) sonucu bu değişimi çok büyük ölçüde yaşadım. |

1.Yaşamda önem verdiğim şeylerin öncelik sırası değişti (0) (1) (2) (3) (4) (5)
2.Kendi hayatıma verdiğim değerde büyük bir artış oldu (0) (1) (2) (3) (4) (5)
3.Yeni ilgi alanları keşfettim (0) (1) (2) (3) (4) (5)
4.Kendime güven hissinde artış oldu (0) (1) (2) (3) (4) (5)
5.Manevi konuları daha iyi anlamaya başladım (0) (1) (2) (3) (4) (5)
6.Başım sıkıştığında insanlara güvenebileceğimi daha iyi anladım (0) (1) (2) (3) (4) (5)
7.Yaşamım için yeni bir yön belirledim (0) (1) (2) (3) (4) (5)
8.Kendimi diğer insanlarla çok daha yakın hissetmeye başladım (0) (1) (2) (3) (4) (5)
9.Duygularımı ifade etmeye daha çok istekliyim (0) (1) (2) (3) (4) (5)
10.Zorlukları göğüsleyebileceğimi daha iyi anladım (0) (1) (2) (3) (4) (5)
11.Yaşamımda daha iyi şeyler yapabiliyorum (0) (1) (2) (3) (4) (5)
12.Her şeyi olduğu gibi, daha çok kabullenebiliyorum (0) (1) (2) (3) (4) (5)
13.Her günümü daha iyi değerlendirebiliyorum (0) (1) (2) (3) (4) (5)
14.Daha önce var olmayan yeni olanaklara kavuştum (0) (1) (2) (3) (4) (5)
15.Diğer insanlara karşı daha şefkatliyim (0) (1) (2) (3) (4) (5)
16.İlişkilerime daha çok emek sarf etmeye başladım (0) (1) (2) (3) (4) (5)
17.Değişmesi gereken şeyleri değiştirebilmek için daha çok çaba harcıyorum (0) (1) (2) (3) (4) (5)
18.Daha güçlü bir inanca sahibim (0) (1) (2) (3) (4) (5)
19.Düşündüğümden çok daha güçlü olduğumu keşfettim. (0) (1) (2) (3) (4) (5)
20.İnsanların ne kadar mükemmel olabildiklerine dair çok şey öğrendim (0) (1) (2) (3) (4) (5)
21.Başkalarına ihtiyaç duyuyor olmayı daha çok kabullendim (0) (1) (2) (3) (4) (5)

## *Appendix G: Dispositional Hope Scale*

| | Kesinlikle yanlış (1) | Çoğunlukla yanlış (2) | Oldukça yanlış (3) | Biraz yanlış (4) | Biraz doğru (5) | Oldukça doğru (6) | Çoğunlukla doğru (7) | Kesinlikle doğru (8) |
|---|---|---|---|---|---|---|---|---|
| 1. Sıkıntılı bir durumdan kurtulmak için pek çok yol düşünebilirim. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 2. Enerjik bir biçimde amaçlarıma ulaşmaya çalışırım. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 3. Çoğu zaman kendimi yorgun hissederim. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 4. Bir problemin birçok çözüm yolu vardır. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 5. Tartışmalarda kolayca yenik düşerim. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 6. Hayatta önem verdiğim şeylere ulaşmak için pek çok yol düşünebilirim. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 7. Sağlığım için endişelenirim. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 8. Başkalarının ümitsizliğe kapıldığı durumlarda bile sorunu çözecek bir yol bulabileceğimi bilirim. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 9. Geçmiş yaşantılarım beni geleceğe iyi hazırladı. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 10. Hayatta oldukça başarılıyım. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 11. Genellikle endişelenecek bir şeyler bulurum. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 12. Kendim için koyduğum hedeflere ulaşırım. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

## *Appendix H: General Self-Efficacy Scale*

Bu ölçek, bireylerin stresli yaşantılarla başa çıkabilme ve bunlara uyum sağlayabilme becerilerine yönelik algılarını belirlemek amacıyla geliştirilmiştir. Aşağıda bazı düşünceleri içeren ifadeler yer almaktadır. Bu ifadelere katılma derecenizi "Tamamen yanlış", "Biraz doğru", "Orta düzeyde doğru", "Tamamen doğru" seçeneklerinden size en uygun olanı işaretleyerek göstermeniz beklenmektedir. Lütfen her bir ifadede belirtilen düşüncenin size ne kadar uyduğunu düşününüz. Her bir ifadeye katılma derecenizi kendinize en uygun gelen seçeneğin altındaki kutucuğu işaretleyerek gösteriniz. Lütfen hiçbir maddeyi yanıtsız bırakmayınız. Değerli katkılarız için teşekkür ederim.

| | Tamamen yanlış | Biraz doğru | Orta düzeyde doğru | Tamamen doğru |
|---|---|---|---|---|
| **1)** Yeterince çaba harcarsam, zor sorunları çözmenin bir yolunu daima bulabilirim. | ☐ | ☐ | ☐ | ☐ |
| **2)** Bana karşı çıkıldığında, istediğimi elde etmemi sağlayacak bir yol ve yöntem bulabilirim. | ☐ | ☐ | ☐ | ☐ |
| **3)** Amaçlarıma bağlı kalmak ve bunları gerçekleştirmek benim için kolaydır. | ☐ | ☐ | ☐ | ☐ |
| **4)** Beklenmedik olaylarla etkili bir biçimde başa çıkabileceğime inanıyorum. | ☐ | ☐ | ☐ | ☐ |
| **5)** Yeteneklerim sayesinde beklenmedik durumlarla nasıl başedebileceğimi biliyorum. | ☐ | ☐ | ☐ | ☐ |
| **6)** Gerekli çabayı gösterirsem, birçok sorunu çözebilirim. | ☐ | ☐ | ☐ | ☐ |
| **7)** Baş etme gücüme güvendiğim için zorluklarla karşılaştığımda soğukkanlılığımı koruyabilirim. | ☐ | ☐ | ☐ | ☐ |
| **8)** Bir sorunla karşılaştığımda, genellikle birkaç çözüm yolu bulabilirim. | ☐ | ☐ | ☐ | ☐ |
| **9)** Başım dertte olduğunda, genellikle bir çözüm düşünebilirim. | ☐ | ☐ | ☐ | ☐ |
| **10)** Önüme çıkan zorluk ne olursa olsun, üstesinden gelebilirim. | ☐ | ☐ | ☐ | ☐ |