

## RESEARCH

## Open Access

## ARAŞTIRMA

## Açık Erişim

## The Relationship Between Posttraumatic Growth and Psychological Resilience in the Covid-19 Pandemic: The Mediating Role of Cognitive Flexibility and Positive Schemas

*Covid-19 Pandemisinde Travma Sonrası Büyüme ve Psikolojik Sağlamlık: Bilişsel Esneklik ve Pozitif Şemaların Aracı Rolü*

Seval Erden Çınar , Cem Boyalı , Yakup Özkapu 

### Authors Information

#### Seval Erden Çınar

Professor, Marmara University,  
İstanbul, Turkey  
[seval.erden@marmara.edu.tr](mailto:seval.erden@marmara.edu.tr)

#### Cem Boyalı

Psychological Counselor, Ministry of  
National Education, İstanbul, Turkey  
[cemboyali94@gmail.com](mailto:cemboyali94@gmail.com)

#### Yakup Özkapu

Psychological Counselor, Ministry of  
National Education, İstanbul, Turkey  
[yakupozkapu@gmail.com](mailto:yakupozkapu@gmail.com)

### ABSTRACT

The aim of this study was to examine the serial multiple mediator roles of cognitive flexibility and positive schemas in the relationship between posttraumatic growth and psychological resilience of adult individuals in the Covid 19 pandemic. Correlational survey model was used in this study. The sample of the research consists of 329 adult individuals, 233 women (70,8%) and 96 men (29,2%). Personal Information Form, Posttraumatic Growth Inventory, Positive Schema Scale, Cognitive Flexibility Inventory, and The Brief Resilience Scale were used as data collection tools. The research data were analyzed by using SPSS Statistics 21.0 and SPSS Process Macro. In this study, The PROCESS Macro proposed by Hayes was used to conduct serial multiple mediation analysis. According to the findings of the study, the mediator role of cognitive flexibility and positive schemas in the relationship between posttraumatic growth and psychological resilience was found to be statistically significant.

### Article Information

#### Keywords

Psychological Resilience  
Cognitive Flexibility  
Positive Schema  
Posttraumatic Growth

#### Anahtar Kelimeler

Psikolojik Sağlamlık  
Bilişsel Esneklik  
Pozitif Şema  
Travma Sonrası Büyüme

#### Article History

Received: 25/04/2021

Revision: 08/02/2022

Accepted: 15/03/2022

### ÖZET

Araştırmanın amacı Covid-19 pandemisinde travma sonrası büyüme ile psikolojik sağlamlık arasındaki ilişkide bilişsel esneklik ve pozitif şemaların sıralı çoklu aracı rolünün incelenmesidir. Araştırmada tarama türünde ilişkisel model kullanılmıştır. Araştırmanın örneklemini 233'ü kadın (%70,8), 96'sı erkek (%29,2) toplamda 329 yetişkin birey oluşturmaktadır. Araştırmada veri toplama aracı olarak Kişisel Bilgi Formu, Travma Sonrası Büyüme Envanteri, Pozitif Şema Ölçeği, Bilişsel Esneklik Envanteri ve Kısa Psikolojik Sağlamlık Ölçeği kullanılmıştır. Veriler SPSS Statistics 21.0 ve SPSS PROCESS Makro kullanılarak analiz edilmiştir. Bu çalışmada, sıralı çoklu aracılık analizini yapmak için Hayes tarafından önerilen PROCESS makro kullanılmıştır. Araştırmanın bulgularına göre travma sonrası büyüme ile psikolojik sağlamlık arasındaki ilişkide bilişsel esneklik ve pozitif şemaların aracı rolünün istatistiksel olarak anlamlı olduğu görülmüştür.

**Cite this article as:** Erden Çınar, S., Boyalı, C., & Özkapu, Y. (2022). The relationship between posttraumatic growth and psychological resilience in the covid-19 pandemic: the mediating role of cognitive flexibility and positive schemas. *Turkish Psychological Counseling and Guidance Journal*, 12(64), 1-17. <https://doi.org/10.17066/tpdrd.1095688>

**Ethical Statement:** The study was approved by the Marmara University Institute of Educational Sciences Research and Publication Ethics Committee on March 19, 2021 (No: # 2100081892 / 2021-2-28).

## INTRODUCTION

Humans experience difficulties in many aspects of both the natural external world and their own nature throughout their lives, and from time to time they are unable to cope. Some of these difficulties, which disrupt the integrity and harmony of the individual, are referred to in the literature as trauma or traumatic events. While Herman (1992) defines witnessing horrific events and the pain of powerlessness experienced as trauma, Briere and Scott (2014) state that even a very upsetting event that creates long-term psychological effects in a person's life and weakens coping skills will qualify as a traumatic event. In the DSM 5, a traumatic event is defined as 'the state of being directly experienced or witnessed, being experienced by a family member or close friend, or being professionally experienced, being confronted in a frightening way with death or serious injury, or being sexually assaulted' (American Psychiatric Association, 2014). Examining all of these definitions, one finds that the situation fits the definitions of trauma and can be labeled as trauma due to the fact that the Covid 19 epidemic has resulted in deaths, risk of transmission of the virus, and risk of death, loss, or risk of loss of a loved one, and inadequacy of individual coping skills for all of this.

Given the impact of infectious diseases and microbiological threats on mental health, the Covid 19 epidemic affecting the entire world has become a global crisis with devastating consequences that deeply affect not only individuals but also societies. This crisis, which deeply affected public health, not only harmed people's physical health but also had a significant impact on their mental health (Huang et al., 2020). Boyraz and Legros (2020) reported that infection with covid-19, knowing or being in a close relationship with a person infected with covid-19, quarantine or hospitalization due to covid-19, loss of a loved one due to covid-19, and the worries and stressors associated with the pandemic (fear of infection, worries about the health and safety of family members, financial losses, job loss, housing problems, social isolation, etc.) can cause an increased risk of PTSD and chronic mental health problems.

To prevent the spread of the epidemic after Covid-19, some rules and restrictions have been introduced in our country and around the world. These have profoundly changed people's lifestyles and social relationships and have created a high level of anxiety in people, along with the fear of infection. Therefore, it is estimated that the COVID -19 epidemic may have negative effects on mental health, both individually and socially. (Casagrande et al., 2020). Hawryluck et al. (2004) indicated that the quarantine measures taken during the epidemics were perceived as a threat by people, leading to widespread fear and occasionally even riots. All of this indicates that, in addition to contracting the virus and the disease process, the precautions taken to prevent the spread of infection or the fear of infection can cause serious psychological, emotional, and financial problems for some people and can be perceived as a traumatic experience by those affected. Traumatic experiences can elicit a range of physical, emotional, cognitive, spiritual, or behavioral reactions. These reactions, which occur during the acute phase, can sometimes persist even after the factors that caused the trauma have been eliminated and can cause post-traumatic stress disorder (Sayar, 2020). However, traumatic events do not always result in the occurrence of undesirable and negative reactions, but can also lead to positive psychological changes. Therefore, concepts such as psychological resilience, cognitive flexibility, positive schemas, and post-traumatic growth, which are the subject of positive psychology, are crucial to ensure positive adaptation to the new situation and maintain psychological balance. It is believed that clarifying the connections between the mentioned concepts will help overcome the Covid epidemic, as well as the crisis processes our country has experienced as a result, individually and socially, and promote well-being.

## **Posttraumatic Growth**

Life events and traumas are regarded as one of the variables that affect the psychological resilience level of the person. McCann et al. (1988) reported that the traumatic experience damages and destroys the cognitive schemas of the individuals about themselves and the world, and accordingly causes the formation of negative new schemas that disrupt the harmony of the person depending on the feature and nature of the trauma. However, unexpected positive changes can also occur in people after frightening and confusing trauma, where basic assumptions can be seriously questioned (Tedeschi & Calhoun, 2004). Individuals can turn these newly formed disrupting and negative schemas into a harmonious, meaningful, and positive structure by reviewing them (Brooks et al., 2020; Ümmet, 2020). These positive changes mentioned, which are explained as post-traumatic growth, provide people with new perspectives and include individual growth (Kleim & Ehlers, 2009). Therefore, the concept of post-traumatic growth refers to the positive psychological change experienced as a result of struggling with challenging living conditions (Tedeschi & Calhoun, 2004).

Tedeschi and Calhoun (2004) emphasize psychological resilience by stating that the development of capacity to cope with trauma in individuals is vital for post-traumatic growth. Since psychological resilience is directly related to the ability to adapt to life crises as a personality trait (Calhoun & Tedeschi, 1998), many studies (Westphal & Bonanno, 2007; Nishi et al., 2010; Büyükaşık-Çolak et al., 2012; Li et al., 2015; Üzar-Özçetin & Hiçdurmaz, 2017) were determined to be related to the concept of post-traumatic growth.

## **Psychological Resilience**

Challenging life events are a natural part of being alive. Therefore, every person can be exposed to such experiences at some point in their life. However, the reactions to the same event and the adaptation process may be different from person to person. Psychological resilience takes an important part in explaining that difference. As a matter of fact, psychological resilience research focuses on the person's individual differences in the adaptation process (Masten, 1994). Psychological resilience is generally defined as the capacity of an individual's system to successfully adapt to situations that threaten the ability to function, vitality and development (Masten, 2014). Thanks to their psychological resilience, people can adapt to compelling life events such as wars, terrorist incidents, natural disasters, death and, divorce in a dynamic process that occurs as a result of the influence of protective factors that support the adaptation process in life and risk factors that have a negative effect on each other (Kararımak, 2006). While protective factors transform all kinds of effects of challenging life events into positive outcomes (Masten & Reed, 2002), they also prevent negative effects (Durlak, 1998). Risk factors, on the other hand, prevent the person from using their full potential. Consequently, researching and defining protective and risk factors in the life of the individual is very important in terms of better understanding and developing the concept of psychological resilience and preparing the ground for preventive studies. Considering the studies conducted for this purpose, it can be expressed that the factors that make it easier or difficult for the person to adapt to the new situation are examined in three categories as individual, familial and environmental (Özkapu, 2019).

Thinking structures and schemas that individuals have are regarded as important variables in the formation of psychological resilience. In consequence, Güleç (2020) emphasized "cognitive flexibility" by stating that individuals with cognitive flexibility would have high psychological resilience, while Masten and Coatsworth (1998) emphasized "post-traumatic growth" by stating that protective factors may also

have positive outcomes arising from psychological resilience and Keyfitz et al. (2013) underlined "positive schemas" by stating that positive schemas play a protective role in psychological resilience. In the light of this information, the concept of psychological resilience will be discussed within the framework of individual protective factors such as cognitive flexibility, positive schemas, and post-traumatic growth.

### **Cognitive Flexibility**

While cognitive flexibility is defined as the ability to adapt the cognitive processing strategies of the individual to face new and unexpected conditions in the environment, it is stated that this skill expresses a learning process, that is, it can be acquired through experience (Cañas et al., 2003). Studies in the literature that cognitive flexibility develops depending on age are in the quality to prove this situation (Crone et al., 2004; Spensley & Taylor, 1999). It is considered significant for individuals to use their cognitive flexibility skill in order to be able to react appropriately in the face of changing conditions or unexpected events. In order for a person to use their cognitive flexibility, the awareness that they have options or alternatives in any situation, the willingness to be flexible or adapt to the situation, and self-efficacy for having the ability to be flexible are quite important (Martin & Anderson, 1998).

Stating that individuals with cognitive flexibility can replace compulsive and maladaptive thoughts with more harmonious and balanced thoughts, Gülüm and Dağ (2012) also express that these individuals consider difficult situations as manageable situations. When viewed from this aspect, it is regarded that cognitive flexibility may be a concept related to psychological resilience, which is defined as the coping processes of individuals against challenging life events (Johnson, 2008). Thus, when the literature is examined, it can be seen that there are studies supporting this relationship (Bozkurt, 2019; Güleç, 2020; Soltani et al., 2013). In the research conducted by Geyik-Koç (2020) on university students, it was concluded that as the psychological resilience of the students increased, their cognitive flexibility levels also increased.

### **Positive Schemas**

Cognitive flexibility is generally defined as the ability to cognitively adapt to constantly changing situations (Cañas et al., 2003; Gabrys et al., 2018). Considering the effects of cognitive structures formed by individuals in the early stages of life on current behaviors, it is considered that it will be important to examine these cognitive structures. Another factor that facilitates the adaptation of individuals to the environment and other people is schemas (Soygüt et al., 2009). Piaget (1964) expresses that schemas are cognitive structures that occur in individuals throughout life in order to make sense of the world through generalizations and abstractions. According to Beck (1964), schemas are stable cognitive structures that are used to scan, encode, and evaluate stimuli from the environment and conduct thought processes. With the help of these structures, individuals can direct themselves and interpret their experiences by categorizing them in a meaningful way. Expressing that schemas are patterns formed in childhood, Young and Klosko (2019) state that these patterns repeat throughout life and also affect the styles of emotions, thoughts, behaviors, and establishing relationships.

Schemas, which are generally known to develop during childhood or adolescence, are functional in terms of facilitating the adaptation of individuals to the environment they are in (Soygüt et al., 2009). Keyfitz et al. (2013) examined the positive schemas that contribute to the psychological functionality of the individual and stated that these schemas are schemas of valuableness, optimism, self-efficacy, success, and trust. While valuableness schema includes the feeling that the individual has value as an individual,

optimism schema includes the belief that the individual's outcome expectations will be positive rather than negative, self-efficacy schema includes the individual's beliefs about their ability to activate their cognitive resources and action plans in the situations they encounter, success schema includes the belief that the individual will achieve success as a result of their performance or behavior and trust schema includes the positive expectations of the individual about the intentions or behaviors of the people around them that they can trust. It has also been observed that these schemas predict the psychological resilience of the individual (Keyfitz et al., 2013). Besides, when the literature is examined, it is seen that the studies on schemas are generally made on maladaptive schemas and the studies on positive schemas are quite limited.

In light of all this information, the relevant literature emphasizes that individuals experience some positive and negative changes when they go through traumatic experiences such as the Covid 19 epidemic. Some cognitive changes occur with post-traumatic growth (Tedeschi & Calhoun, 2004), which is defined as positive changes following a traumatic experience. When individuals experience growth after trauma, the process of recognizing and accepting a stressful event becomes easier (Calhoun & Tedeschi, 2006). This situation contributes to the individual's ability to view stressful events from a new perspective. Therefore, posttraumatic growth is expected to have a positive impact on cognitive flexibility, which is defined as the ability to adapt cognitive processing strategies to meet new and unexpected conditions in the environment (Cañas et al., 2003). It is thought that individuals who can interpret challenging life events harmoniously thanks to their cognitive flexibility can also be influenced by schemas formed in childhood that serve to make sense of the world throughout life (Piaget, 1964; Young et al., 2003). Following challenging life events, individuals can use cognitive flexibility to gain a positive perspective within the framework of positive schemas such as valuableness, optimism, self-efficacy, success, and confidence. It is believed that individuals' psychological resilience to challenging situations in their lives increases as a result of these processes. It is believed that individuals' psychological resilience levels to challenging situations in their lives increase as a result of these processes. With this in mind, the purpose of this study, which aims to examine the aforementioned relationships, is to examine the sequential mediating role of cognitive flexibility and positive schemas in the relationship between posttraumatic growth and resilience.

## METHOD

### Research Model

In the research, correlational survey model was used. The model is a research design in which the relationship between two or more variables is examined without interfering with the variables (Büyüköztürk et al., 2012). In this study, the relationships between post-traumatic growth, positive schemas, cognitive flexibility, and psychological resilience variables will be examined. Then, it will be investigated whether cognitive flexibility and positive schema mediate the relationship between posttraumatic growth and psychological resilience.

### Participants

A total of 329 adults consist of 233 women (70.8%), and 96 men (29.3%) participated in the study. During the data collection process, which was conducted during a period when the pandemic was intensely experienced, deaths due to covid-19 occurred, and restrictions were applied throughout the country, participants were asked to complete the scales considering a traumatic event they had experienced. Convenience sampling one of the purposeful sampling methods was chosen as the sampling method.

Convenience sampling which gives practicality and speed to the study is a sampling method that the researcher generally prefers when the researcher cannot use other sampling methods (Yıldırım & Şimşek, 2016). Due to the epidemic process in our country, this sampling method was chosen for the study. Informed consent forms and items regarding the scales were sent to the participants via Google Forms. Participants were asked to participate in the study on a voluntary basis.

### **Ethical Statement**

The study was approved by the Marmara University Institute of Educational Sciences Research and Publication Ethics Committee on March 19, 2021 (No: # 2100081892 / 2021-2-28). In addition, consent forms were obtained from all participants included in the study.

### **Data Collection Tools**

**Personal Information Form.** With the Demographic Information Form prepared by the researchers, information on the age and gender of the participants was collected.

**Posttraumatic Growth Inventory.** The scale developed by Tedeschi and Calhoun (1996), was adapted to Turkish culture by Kağan et al. (2012). Developed in the six-point Likert type, the scale consists of 21 items. The scale has three sub-dimensions: "Change in Self-Perception", "Change in life philosophy" and "Change in Relationships with Others". Kağan et al. (2012) found the internal consistency coefficients of the scale as 0.88 for Change in Self-Perception sub-dimension, 0.78 for Change in Life Philosophy sub-dimension, 0.77 for Change in Relationships with Others, and 0.92 for all items. In this study, it was found .90, for Cronbach's alpha reliability coefficient of the scale, 0.85 for the "Change in Self Perception" sub-dimension, 0.76 for the "Change in Life Philosophy" sub-dimension, and 0.82 for the "Change in Relationships with Others" sub-dimension.

**Positive Schema Scale.** The scale developed by Keyfitz (2010) to determine individuals' positive schema areas and levels was adapted to Turkish culture by Kılıç (2018). The scale, which was developed in a six-point Likert type and consists of 17 items, has five sub-dimensions: "Self-efficacy", "Success", "Confidence", "Optimism", and "Valuableness". As the score obtained from the scale increases, the level of positive schema increases. The Cronbach alpha internal consistency coefficient of the scale was found to be ,89 for the whole scale; ,84 for the self-efficacy sub-dimension; ,82 for the success sub-dimension; ,91 for the confidence sub-dimension; ,88 for the optimism sub-dimension and ,84 for the valuableness sub-dimension by Kılıç (2018). In this study, the Cronbach alpha reliability coefficient of the scale was found to be ,88 for the whole scale; ,77 for the self-efficacy sub-dimension; ,77 for the success sub-dimension; ,89 for the confidence sub-dimension; ,76 for the optimism sub-dimension and ,78 for the valuableness sub-dimension.

**Cognitive Flexibility Inventory.** The scale developed by Dennis and Wal (2010) in order to measure the cognitive flexibility levels of individuals was adapted to Turkish culture by Sapmaz and Doğan (2013). The scale is a five-point Likert type and consists of 20 items and has two sub-dimensions which are "Alternatives" and "Control". Cronbach's alpha reliability coefficient of the scale was found to be .90 for the whole scale, .90 for the "Alternatives" sub-dimension, and .84 for the "Control" sub-dimension by Sapmaz and Doğan (2013). In this study, Cronbach's alpha reliability coefficient was found to be 90 for the whole scale, .91 for the "Alternatives" sub-dimension, and .85 for the "Control" sub-dimension.

**Brief Psychological Resilience Scale.** Developed by Smith et al. (2008) in order to measure the psychological resilience level of individuals, the scale was adapted to Turkish culture by Doğan (2015). The scale developed in a five-point Likert type consists of 6 items and one dimension. Cronbach's alpha reliability coefficient of the scale was found as .83 by Doğan (2015). In this study, the Cronbach's alpha reliability coefficient of the scale was found to be .85.

## Data Analysis

The data of the study were analyzed by SPSS Statistics 21.0 and SPSS Process Macro. Data were collected from 345 participants in the study. However, when incorrect or incomplete filling in data collection tools and data with extreme values were excluded from the analysis, the analysis of the data was continued with the data of 329 participants (233 women, 96 men). In order to apply parametric tests in analyzing the data, the adequacy of the sample number was first examined. After observing that this condition was fulfilled, the normality of the distribution was examined in the relevant sample. As a result of the analysis conducted, it is seen that the skewness and kurtosis values are between -1 and +1. According to Büyüköztürk et al. (2013), the fact that the coefficients of skewness and kurtosis are between -1 and +1 can be interpreted as the distribution does not show a significant deviation from a normal distribution. Concordantly, it has been interpreted that the data have a normal distribution.

Pearson Correlation Analysis via SPSS 21.0 package program was used to examine the relationships between variables. SPSS Process Macro v3.5 program was used in serial multiple mediation analysis. Model 6 assumptions were followed in the SPSS Process Macro developed by Hayes (2013).

## RESULTS

Before examining the relationships between variables in the study, it was checked whether the data had normality assumptions or not. In addition, it was also examined whether there was a multicollinearity problem among the independent variables of the study. The skewness-kurtosis values related to the normality of the data and the VIF and tolerance values where the multi-connection problem is examined are shown in Table 1.

**Table 1. Skewness and Kurtosis values for the variables**

Variables	N	Skewness	Kurtosis	VIF	Tolerance
Posttraumatic Growth	329	-,291	-,292	,760	1,316
Cognitive Flexibility	329	-,095	-,604	,791	1,264
Positive Schema	329	-,287	-,309	,635	1,574
Psychological Resilience	329	-,255	-,238		

As seen in Table 1, as a result of the analysis, it is observed that the skewness and kurtosis values for each variable in the study are between -1 and +1. In this context, it has been interpreted that the data have a normal distribution (Büyüköztürk et al.2013). In addition, looking at VIF and tolerance values, which are values that can be examined for whether there is a multicollinearity problem among the independent variables, it has been observed that VIF values are less than 10 and tolerance values are greater than 0.2 (Field, 2009). Accordingly, it can be said that there is no multicollinearity problem between the independent variables. After examining the assumptions of normality and multiple connectivities, correlations between variables were examined. In order to examine the correlations between variables,

Pearson Correlation Analysis was performed, one of the parametric tests and the obtained findings are shown in Table 2.

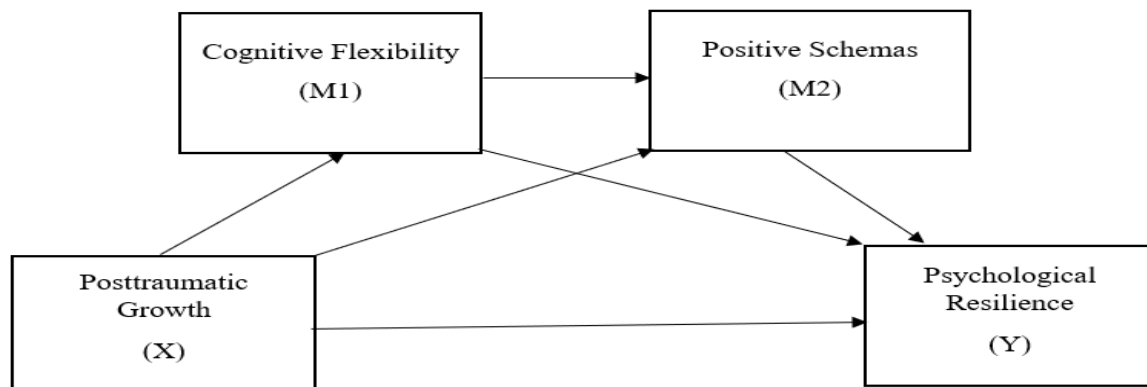
Variables	(1)	(2)	(3)	(4)
Posttraumatic Growth (1)	1,00			
Cognitive Flexibility (2)	,23**	1,00		
Positive Schema (3)	,49**	,46**	1,00	
Psychological Resilience (4)	,13*	,52**	,36**	1,00

\*\* $p < .001$ , \* $p < .05$

According to the findings obtained, a significant positive relationship was found between cognitive flexibility with posttraumatic growth ( $r = .23$ ;  $p < .001$ ), and psychological resilience ( $r = .13$ ;  $p < .05$ ) with positive schema ( $r = .49$ ;  $p < .001$ ). Also, while a linear relationship was obtained between the positive schema and cognitive flexibility ( $r = .46$ ;  $p < .001$ ) and psychological resilience ( $r = .36$ ;  $p < .001$ ), a positive significant relationship was also found between cognitive flexibility and psychological resilience variables ( $r = .52$ ;  $p < .001$ ).

### Serial Multiple Mediator Analysis

At this stage of the research, the model of the research is shown. The serial multiple mediation model (Model 6) proposed by Hayes (2013) was used to analyze the relationships between variables in the model. The model of the research is shown in Figure 1.



**Figure 1. Serial Multiple Mediator Model**

As seen in Figure 1, the independent variable was determined as post-traumatic growth (X), the dependent variable was psychological resilience (Y), the first mediator variable was cognitive flexibility (M1), and the second mediator variable was positive schema (M2). According to Baron and Kenny (1986), in a mediating model, before the mediator variable entered the model, there should be a relationship between the independent variable (X) and the dependent variable (Y) (Step 1), between the independent variable (X) and the mediating variables (M) (Step 2) and between the mediator variables (M) and the dependent variable (Y) (Step 3). In addition, when the mediator variable (M) is added to the model, it is expected that the relationship becomes insignificant or the relationship coefficient decreases significantly (Step 4). Accordingly, at this stage of the research, four hypotheses were formed in order to determine the mediating effect:

H1 = Post-traumatic growth significantly predicts psychological resilience.



H2 = Posttraumatic growth significantly predicts cognitive flexibility and positive schema variables.

H3 = Cognitive flexibility and positive schema variables significantly predict psychological resilience.

H4 = When cognitive flexibility and positive schema variables are included in the analysis, the relationship between posttraumatic growth and psychological resilience will become statistically insignificant (full mediating effect) or decrease (partial mediating effect).

In addition, whether the indirect effects in the tested model are statistically significant or not will be examined on 5000 Bootstrap samples.

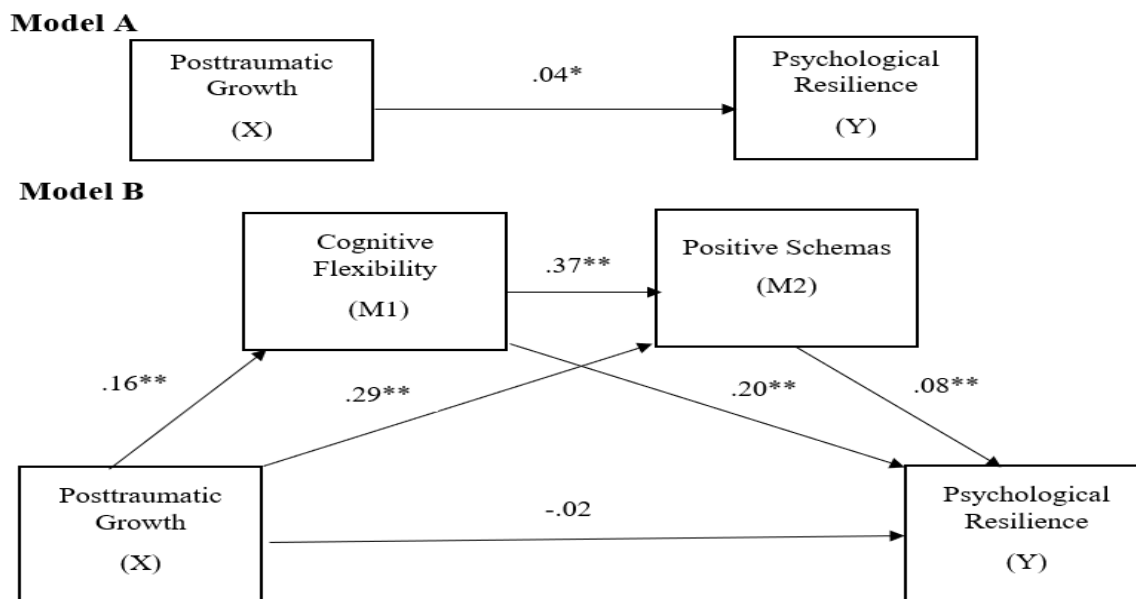


Figure 2. Statistical Values of the Serial Multiple Mediator Model

In Figure 2, the statistical values of the serial multiple mediator models are shown. In examining the mediating role of cognitive flexibility and positive schema in the relationship between post-traumatic growth and psychological resilience, the effect of post-traumatic growth on psychological resilience was first examined. When observing the model defined as Model A in Figure 2, it is seen that post-traumatic growth has a significant positive effect on psychological resilience before mediating variables are included in the analysis ( $\beta = .13$ ;  $p < .05$ ). Accordingly, it is seen that H1 is confirmed. When looking at the model defined as Model B in Figure 2, the statistical values that appear when independent (X), dependent (Y), and mediator variables (M1 and M2) are entered into the analysis together can be observed. Looking at this model, it is seen that posttraumatic growth significantly predicts cognitive flexibility positively ( $\beta = .23$ ;  $p < .001$ ). Besides, it is seen that post-traumatic growth has a significant positive effect also on the positive schema ( $\beta = .41$ ;  $p < .001$ ). The significant effect of the independent variable on the two mediators shows that H2 is also confirmed. Then, the effects of cognitive flexibility and positive schema variables on psychological resilience were examined. It is seen that cognitive flexibility has a significant positive effect on psychological resilience ( $\beta = .45$ ;  $p < .001$ ). Positive schema, on the other hand, significantly predicts psychological resilience positively ( $\beta = .19$ ;  $p < .001$ ). Accordingly, H3 is also confirmed. Then, when the variables of cognitive flexibility and positive schema are analyzed, it is seen that the effect of post-traumatic growth on psychological resilience becomes insignificant ( $\beta = -.07$ ;  $p > .05$ ). Accordingly, it is seen that all the assumptions of the serial multiple mediator models are satisfied. After providing these

assumptions, whether the mediating effect is significant or not was examined with 5000 Bootstrap samples. The statistical values found are shown in Table 3.

**Table 3. Total, direct and indirect effects of variables**

Effects	Bootstrapping Value	SH	t	p	Lower	Upper
Total Effect	.039	.017	2.294	.022*	.006	.073
Direct Effect	-.022	.017	-1.301	.194	-.055	.011
Total Indirect Effect	.061	.012			.037	.085
Indirect Effect (X → M1 → Y)	.033	.009			.016	.051
Indirect Effect (X → M2 → Y)	.024	.009			.007	.042
Indirect Effect (X → M1 → M2 → Y)	.001	.001			.001	.002

\* p <.05

Whether the mediating effects of cognitive flexibility and positive schema variables were significant in the model was examined with 5000 Bootstrap samples. The Bootstrap sampling method requires much fewer assumptions than the Baron and Kenny (1986) approach, can be used in small samples, and is widely accepted in the literature (Shrout & Bolger, 2002). As seen in Table 2, it is seen that the total indirect effect is significant according to the estimates evaluated at 95% confidence interval as a result of 5000 Bootstrap sampling method (bootstrap = .061, CI = .037, .085). In the first indirect effect (X → M1 → Y), it was found that posttraumatic growth (X) significantly predicted psychological resilience (Y) through cognitive flexibility (M1) (bootstrap = .033, CI = .016, .051). In the second indirect effect (X → M2 → Y), posttraumatic growth (X) appears to significantly predict psychological resilience (Y) through the positive schema (M2) (bootstrap = .024, CI = .007, .042). In the third indirect effect (X → M1 → M2 → Y), it was found that posttraumatic growth (X) significantly predicted psychological resilience (Y) through cognitive flexibility (M1) and positive schema (M2) (bootstrap = .001, CI = .001, .002). When the mediator variables are entered into the analysis, it is seen that the direct effect of post-traumatic growth (X) on psychological resilience (Y) becomes insignificant (bootstrap = -.022, CI = -.055, .011). In this case, it can be expressed that cognitive flexibility (M1) and positive schema (M2) variables have a full mediating effect on the relationship between posttraumatic growth (X) and psychological resilience (Y), and this effect is significant.

## DISCUSSION

The Covid 19 epidemic has taken its place in the literature as a traumatic event that affects individual and social lives. Hawryluck et al. (2004) argue that quarantine measures taken in epidemic situations may be perceived as a threat by individuals and can cause widespread anxiety. As a matter of fact, anxiety and stressors associated with the epidemic are considered risk factors for post-traumatic stress disorder (Boyras and Legros, 2020; Yunitri et al., 2022). It is emphasized that some psychological problems such as posttraumatic stress disorder and anxiety can occur after a traumatic experience but traumatic events do not always have negative effects; positive psychological changes can also occur in individuals. These positive changes, referred to as post-traumatic growth, provide individuals with new perspectives and involve individual growth (Kleim & Ehlers, 2009). Therefore, although the Covid 19 epidemic brings new threats to individuals, it is important not to ignore the post-traumatic growth that has occurred after coping with this difficult crisis. This is because studies show that people can experience post-traumatic growth during the Covid-19 process (Chen et al., 2021; Sun et al., 2021).

Based on the relevant literature, in this study, it was aimed to examine the sequential mediating role of cognitive flexibility and positive schema variables in the relationship between posttraumatic growth and resilience in adults during the Covid 19 period. In accordance with the main aim of the research, relationships between the variables were examined, firstly. The findings were indicated that, there are positive and significant relationships between posttraumatic growth, cognitive flexibility, positive schema, and resilience.

When the literature is examined, it is observed that there is a relationship between post-traumatic growth and psychological resilience (Westphal & Bonanno, 2007; Nishi et al., 2010; Büyükaşık-Çolak et al., 2012; Li et al., 2015; Özçetin & Hiçdurmaz, 2017). Tedeschi and Calhoun (2004) emphasize that psychological resilience is closely related to the post-traumatic growth in individuals. Kagan et al. (2012) indicate that dimensions of posttraumatic growth include changes in self-perception, changes in life philosophy, and changes in relationships. These positive changes in self-perception, life philosophy, and relationships are expected to increase an individual's psychological resilience to new life events. This information in the literature supports our findings regarding the relationship between posttraumatic growth and psychological resilience.

On the other hand, the relationship between cognitive flexibility and psychological resilience was found to be significant in the present study. It is seen that there are studies and opinions supporting this finding in the literature. Gülüm and Dağ (2012) express that individuals with cognitive flexibility perceive difficult situations as manageable situations by substituting more harmonious and balanced thoughts for compulsive and incompatible thoughts. In this context, psychological resilience, which is defined as the coping processes of individuals against challenging life events (Johnson, 2008), is considered to be related to cognitive flexibility. It is seen that this idea is supported by different studies in the literature (Bozkurt, 2019; Güleç, 2020; Geyik-Koç, 2020; Soltani et al., 2013). Accordingly, individuals with high cognitive flexibility are expected to have high levels of psychological resilience.

Another variable thought to be related to psychological resilience is positive schemas. According to the current research findings, this relationship seems to be significant. According to Young and Klosko (2019), schemas are patterns that affect our emotions, thoughts, and behaviors. Although some of these schemas are incompatible (Young & Klosko, 2019), some schemas contribute to the psychological functionality of individuals (Keyfitz et al., 2013). For this reason, it is considered that positive schemas that contribute to the functionality of individuals may be related to psychological resilience, another feature that contributes positively to the lives of individuals.

After determining the relationships between the variables, the mediator roles of cognitive flexibility and positive schemas in the relationship between posttraumatic growth and psychological resilience were examined. The findings we obtained show that cognitive flexibility and positive schemas have full mediating effects on the relationship between posttraumatic growth and psychological resilience. In other words, while the effect of post-traumatic growth on psychological resilience was significant, its direct effect became insignificant when cognitive flexibility and positive schemas entered the analysis. In the model tested, post-traumatic growth indirectly affected psychological resilience only through cognitive flexibility and positive schema variables. In this case, it can be said that cognitive flexibility and positive schemas play a fully mediating role in the relationship between posttraumatic growth and psychological resilience. This situation shows us the importance of cognitive flexibility and positive schemas in the

proven relationship between posttraumatic growth and psychological resilience (Westphal & Bonanno, 2007; Nishi et al., 2010; Büyükaşık-Çolak et al., 2012; Li et al., 2015; Özçetin & Hiçdurmaz, 2017).

### Limitations and Suggestions

One of the most important limitations of the study is that due to the nature of the research, the feelings, thoughts, and perceptions of the participants regarding the variables cannot be examined in depth. Therefore, it is thought that it will be beneficial to support the data of this research with qualitative data in future studies on the subject.

The sample of this study consists of adults over the age of 18. That situation is considered as another limitation of the research, as it does not show how the results are in the younger age groups. It is thought that studies with younger sample groups will contribute to the literature in terms of examining these variables in a different sample group.

In this study, the relationships between posttraumatic growth, cognitive flexibility, positive schemas, and psychological resilience variables were examined. There is no study in the literature in which these variables coexist. Besides, the inclusion of other variables that may be related to these variables in future research will provide more information on the subject.

People sometimes experience challenging life events such as disasters, wars, and epidemics. In order to increase the level of psychological resilience, which is seen as one of the most important capacities that individuals need in the face of challenging life events, it is thought that it will be important for social mental health to carry out studies to increase the levels of post-traumatic growth, cognitive flexibility, and positive schema, which we found to have an effect on this variable. Also, it is considered that the preparation and implementation of psycho education programs related to the subject may be beneficial in terms of the psychological resilience of individuals. As a matter of fact, when different psycho education programs prepared on psychological resilience are examined in the literature, it is seen that these programs result effectively (Akça-Koca & Erden, 2018; Balcı, 2018; Erden-Çınar & Eminoğlu, 2020; Gurgan, 2020).

In addition, it has been observed that experts in the field conducted preventive and remedial studies on social media during the epidemic to protect people's psychological resilience and reveal their protective factors in adverse situations that may arise later. Considering the place and importance that social media occupies today, it is considered that preventive and remedial studies conducted in these channels are very important both individually and socially. From the perspective of post-traumatic growth, the fact that individuals achieve psychological gains after traumatic experiences such as an epidemic through such studies is not only post-traumatic growth but also contributes positively to cognitive flexibility, positive schemas, and psychological resilience. In this context, it is recommended that experts in the field organize such preventive and remedial studies through social media.

## REFERENCES

- Akça-Koca, D., & Erden, S. (2018). The effect of cognitive-behavioral group counseling on psychological resilience and level of humor in adolescents. *Life Skills Journal of Psychology*, 2(3), 61-72. <https://doi.org/10.31461/ybpd.414466>
- American Psychiatric Association (2014). *Mental bozuklukların tanısal ve sayımsal elkitabı (DSM 5) [Diagnostic and statistical manual of mental disorders (5th ed.)]* (E. Köroğlu, Trans.). Hekimler Yayın Birliği. (Original work published 2013).
- Balcı, İ. (2018). *Çocukluk çağı travmaları ile baş etme yönelimli psiko-eğitim programının psikolojik sağlamlık üzerindeki etkisi [The impact of coping with childhood traumas oriented psycho-education program on resilience]* (Publication No. 511061) [Doctoral dissertation, Karadeniz Technical University]. YÖK Thesis Center.
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173–1182. <https://doi.org/10.1037/0022-3514.51.6.1173>
- Beck, A. T. (1964). Thinking and depression: II. Theory and therapy. *Archives of General Psychiatry*, 10(6), 561–571. <https://doi.org/10.1001/archpsyc.1964.01720240015003>
- Boyraz, G., & Legros, D. N. (2020). Coronavirus disease (covid-19) and traumatic stress: Probable risk factors and correlates of posttraumatic stress disorder. *Journal of Loss and Trauma*, 25(6-7), 503-522. <https://doi.org/10.1080/15325024.2020.1763556>
- Bozkurt, N. (2019). *Ergenlerde psikolojik sağlamlık ve bilişsel esneklik düzeylerinin sınav kaygısı ile ilişkisi [The relationship between resilience and cognitive flexibility levels and test anxiety in adolescents]* (Publication No. 553887) [Master thesis, Istanbul University-Cerrahpasa]. YÖK Thesis Center.
- Briere, J. N. ve Scott, C. (2014). *Travma terapisinin ilkeleri: Belirtiler, değerlendirme ve tedavi için bir kılavuz [Principles of trauma therapy: A guide to symptoms, evaluation, and treatment]* (B. D. Genç, Trans.). İstanbul Bilgi Üniversitesi Yayınları. (Original work published 2006).
- Brooks, S., Amlôt, R., Rubin, G. J., & Greenberg, N. (2020). Psychological resilience and post-traumatic growth in disaster-exposed organisations: Overview of the literature. *BMJ Military Health*, 166(1), 52-56. <https://doi.org/10.1136/jramc-2017-000876>
- Büyükaşık-Çolak, C., Gündoğdu-Aktürk, E., & Bozo, O. (2012). Mediating role of coping in the dispositional optimism-posttraumatic growth relation in breast cancer patients. *The Journal of Psychology*, 146(5), 471–483. <https://doi.org/10.1080/00223980.2012.654520>
- Büyüköztürk, Ş., Çokluk, Ö., & Köklü, N. (2013). *Sosyal bilimler için istatistik [Statistics for social sciences]* (12th ed.). Pegem Akademi.
- Büyüköztürk, Ş., Kılıç Çakmak, E., Akgün, Ö. E., Karadeniz, Ş., & Demirel, F. (2012). *Bilimsel araştırma yöntemleri [Scientific research methods]* (7th ed.). Pegem Akademi
- Calhoun, L. G., & Tedeschi, R. G. (1998). Posttraumatic growth: Future directions. In R. G. Tedeschi, C. L. Park, & L. G. Calhoun (Eds.), *Posttraumatic growth: Positive change in the aftermath of crisis* (pp. 215-238). Lawrence Erlbaum Associates.
- Cañas, J. J., Quesada, J. F., Antoli, A., & Fajardo, I. (2003). Cognitive flexibility and adaptability to environmental changes in dynamic complex problem-solving tasks. *Ergonomics*, 46(5), 482–501. <https://doi.org/10.1080/0014013031000061640>
- Casagrande, M., Favieri, F., Tambelli, R., & Forte, G. (2020). The enemy who sealed the world: Effects quarantine due to the COVID-19 on sleep quality, anxiety, and psychological distress in the Italian population. *Sleep Medicine*, 75, 12–20. <https://doi.org/10.1016/j.sleep.2020.05.011>

- Chen, R., Sun, C., Chen, J. J., Jen, H. J., Kang, X. L., Kao, C. C., & Chou, K. R. (2021). A large-scale survey on trauma, burnout, and posttraumatic growth among nurses during the COVID-19 Pandemic. *International Journal of Mental Health Nursing*, 30(1), 102–116. <https://doi.org/10.1111/inm.12796>
- Crone, E. A., Ridderinkhof, K. R., Worm, M., Somsen, R. J. M., & Van der Molen, M. W. (2004). Switching between spatial stimulus–response mappings: A developmental study of cognitive flexibility. *Developmental Science*, 7(4), 443-455. <https://doi.org/10.1111/j.1467-7687.2004.00365.x>
- Dennis, J. P., & Wal, J. S. V. (2010). The cognitive flexibility inventory: Instrument development and estimates of reliability and validity. *Cognitive Therapy and Research*, 34(3), 241-253. <https://doi.org/10.1007/s10608-009-9276-4>
- Doğan, T. (2015). Adaptation of the Brief Resilience Scale into Turkish: A validity and reliability study. *The Journal of Happiness & Well-Being*, 3(1), 93-102. <https://toad.halileksi.net/sites/default/files/pdf/kisa-psikolojik-saglamlik-olcegi-toad.pdf>
- Durlak, J. A. (1998). Common risk and protective factors in successful prevention programs. *American Journal of Orthopsychiatry*, 68(4), 512-520. <https://doi.org/10.1037/h0080360>
- Erden-Çınar, S., & Eminoğlu, Z. (2020). The effect of cognitive behavioral based psycho-education program on psychological resilience and emotion regulation. *OPUS International Journal of Society Researches*, 15(21), 1401-1429. <https://doi.org/10.26466/opus.626228>
- Field, A. (2009). *Discovering statistic using SPSS* (3rd ed.). Sage Publications Inc.
- Gabrys, R. L., Tabri, N., Anisman, H., & Matheson, K. (2018). Cognitive control and flexibility in the context of stress and depressive symptoms: The cognitive control and flexibility questionnaire. *Frontiers in Psychology*, 9(2219), 1-19. <https://doi.org/10.3389/fpsyg.2018.02219>
- Geyik-Koç, G. (2020). *Bilişsel esneklik ve psikolojik dayanıklılık ile stresle başa çıkma arasındaki ilişkinin incelenmesi [Analysis of the correlation between cognitive flexibility and psychological resilience in coping with stress]* (Publication No. 631281) [Master thesis, Sakarya University]. YÖK Thesis Center.
- Gurgan, U. (2020). The effect of psychodrama integrated psycho-education program on resilience and divorce adjustment of children of divorced families. *World Journal of Education*, 10(1), 56-68. <https://doi.org/10.5430/wje.v10n1p56>
- Güleç, S. (2020). Lise öğrencilerinde bilişsel esneklik ile psikolojik sağlamlık arasındaki ilişkide yaşam amaçlarının aracı rolü [Mediator role of life goals in the relationship between cognitive flexibility and resilience in high school student]. *Gelişim ve Psikoloji Dergisi*, 1(1), 27-35. <https://dergipark.org.tr/tr/pub/gpd/issue/50139/740073>
- Gülüm, İ. V., & Dağ, İ. (2012). The Turkish adaptation, validity and reliability study of the Repetitive Thinking Questionnaire and the Cognitive Flexibility Inventory. *Anatolian Journal of Psychiatry*, 13, 216-223.
- Hawryluck, L., Gold, W. L., Robinson, S., Pogorski, S., Galea, S., & Styra, R. (2004). SARS control and psychological effects of quarantine, Toronto, Canada. *Emerging Infectious Diseases*, 10(7), 1206-1212. <https://dx.doi.org/10.3201%2F1007.030703>
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford Press.
- Herman, J. L. (1992). *Trauma and recovery*. Basic Books.
- Huang, C., Wang, Y., Li, X., Ren, L., Zhao, J., Hu, Y., ... & Cao, B. (2020). Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *The Lancet*, 395(10223), 497-506. [https://dx.doi.org/10.1016%2FS0140-6736\(20\)30183-5](https://dx.doi.org/10.1016%2FS0140-6736(20)30183-5)

- Johnson, B. (2008). Teacher-student relationships which promote resilience at school: A micro-level analysis of students' views. *British Journal of Guidance & Counselling*, 36(4), 385–398. <https://doi.org/10.1080/03069880802364528>
- Kağan, M., Güleç, M., Boysan, M., & Çavuş, H. (2012). Hierarchical factor structure of the Turkish version of the Posttraumatic Growth Inventory in a normal population. *TAF Preventive Medicine Bulletin*, 11(5), 617 – 624. <https://www.cabdirect.org/globalhealth/abstract/20133003640>
- Kararımk, Ö. (2006). Resilience, risk and protective factors. *Turkish Psychological Counseling and Guidance Journal*, 3(26), 129-142. <https://dergipark.org.tr/tr/download/article-file/200210>
- Keyfitz, L. (2010). *The role of positive schemas in child psychopathology and resilience* [Master thesis, The University of Guelph]. <https://hdl.handle.net/10214/23315>
- Keyfitz, L., Lumley, M. N., Hennig, K. H., & Dozois, D. J. A. (2013). The role of positive schemas in child psychopathology and resilience. *Cognitive Therapy and Research*, 37(1), 97–108. <https://doi.org/10.1007/s10608-012-9455-6>
- Kılıç, S. (2018). *Üniversite öğrencilerinde pozitif şemaların iyi oluş ve psikolojik belirtileri yordaması [The prediction of positive schemas of wellbeing and psychopathology of university students]* (Publication No. 527516) [Master thesis, Gazi University]. YÖK Thesis Center.
- Kleim, B., & Ehlers, A. (2009). Evidence for a curvilinear relationship between posttraumatic growth and posttrauma depression and PTSD in assault survivors. *Journal of Traumatic Stress*, 22(1), 45–52. <https://doi.org/10.1002/jts.20378>
- Li, Y., Cao, F., Cao, D., & Liu, J. (2015). Nursing students' post-traumatic growth, emotional intelligence and psychological resilience. *Journal of Psychiatric and Mental Health Nursing*, 22(5), 326–332. <https://doi.org/10.1111/jpm.12192>
- Martin, M. M., & Anderson, C. M. (1998). The Cognitive Flexibility Scale: Three validity studies. *Communication Reports*, 11(1), 1-9. <https://doi.org/10.1080/08934219809367680>
- Masten, A. S. (1994). Resilience in individual development: Successful adaptation despite risk and adversity. In M. C. Wang & E. W. Gordon (Eds.), *Educational resilience in inner-city America: Challenges and prospects* (pp. 3–25). Lawrence Erlbaum Associates, Inc.
- Masten, A. S., & Coatsworth, J. D. (1998). The development of competence in favorable and unfavorable environments: Lessons from research on successful children. *American Psychologist*, 53(2), 205–220. <https://doi.org/10.1037/0003-066X.53.2.205>
- Masten, A. S., & Reed, M. G. J. (2002). Resilience in development. In C. R. Snyder & S. J. Lopez (Eds.), *Handbook of positive psychology* (pp. 74–88). Oxford University Press.
- Masten A. S. (2014). Global perspectives on resilience in children and youth. *Child Development*, 85(1), 6–20. <https://doi.org/10.1111/cdev.12205>
- McCann, I. L., Sakheim, D. K., & Abrahamson, D. J. (1988). Trauma and victimization: A model of psychological adaptation. *The Counseling Psychologist*, 16(4), 531–594. <https://doi.org/10.1177/0011000088164002>
- Nishi, D., Matsuoka, Y., & Kim, Y. (2010). Posttraumatic growth, posttraumatic stress disorder and resilience of motor vehicle accident survivors. *BioPsychoSocial Medicine*, 4, 7. <https://doi.org/10.1186/1751-0759-4-7>
- Özkapu, Y. (2019). *Suriyeli çocuklarla çalışan psikolojik danışmanların, kişilik özellikleri ve öz yeterlik algularının psikolojik sağlamlıkları üzerindeki etkisi [The effect of psychological counselors working with Syrian children on resilience of personality and self-efficiency perceptions]* (Publication No. 565728) [Master thesis, Marmara University]. YÖK Thesis Center.
- Piaget, J. (1964). Part I: Cognitive development in children: Piaget development and learning. *Journal of Research in Science Teaching*, 2(3), 176-186. <https://doi.org/10.1002/tea.3660020306>.

- Sapmaz, F., & Doğan, T. (2013). Assessment of cognitive flexibility: Reliability and validity studies of Turkish version of the Cognitive Flexibility Inventory. *Ankara University Journal of Faculty of Educational Sciences*, 46(1), 143-161. [https://doi.org/10.1501/Egifak\\_0000001278](https://doi.org/10.1501/Egifak_0000001278)
- Sayar, K. (Ed.). (2020). *Kayıt çağı: Salgın zamanlarında ruh sağlığı*. Kapı Yayınları.
- Shrout, P. E., & Bolger, N. (2002). Mediation in experimental and nonexperimental studies: New procedures and recommendations. *Psychological Methods*, 7(4), 422–445. <https://doi.org/10.1037/1082-989X.7.4.422>
- Smith, B. W., Dalen, J., Wiggins, K., Tooley, E., Christopher, P., & Bernard, J. (2008). The Brief Resilience scale: Assessing the ability to bounce back. *International Journal of Behavioral Medicine*, 15, 194–200. <https://doi.org/10.1080/10705500802222972>
- Soltani, E., Shareh, H., Bahrainian, S. A., & Farmani, A. (2013). The mediating role of cognitive flexibility in correlation of coping styles and resilience with depression. *Pajoohandeh Journal*, 18(2), 88-96. <https://pajoohande.sbmu.ac.ir/article-1-1518-en.html>
- Soygüt, G., Karaosmanoğlu, A., & Çakır, Z. (2009). Erken dönem uyumsuz şemaların değerlendirilmesi: Young Şema Ölçeği Kısa Form-3'ün psikometrik özelliklerine ilişkin bir inceleme [Assessment of early maladaptive schemas: A psychometric study of the turkish young schema questionnaire-short form-3]. *Türk Psikiyatri Dergisi*, 20(1), 75-84. <https://app.trdizin.gov.tr/makale/T0RjMk5UQXc/erken-donem-uyumsuz-semalarin-degerlendirilmesi-yung-sema-olcegi-kisa-form-3-un-psikometrik-ozelliklerine-iliskin-bir-inceleme>
- Sözer, Y. (1992). Psikiyatride kriz kavramı ve krize müdahale [The concept of crisis in psychiatry and crisis intervention]. *Kriz Dergisi* 1(1), 8-12. [https://doi.org/10.1501/Kriz\\_0000000007](https://doi.org/10.1501/Kriz_0000000007)
- Spensley, F., & Taylor, J. (1999). The development of cognitive flexibility: Evidence from children's drawings. *Human Development*, 42(6), 300–324. <https://doi.org/10.1159/000022639>
- Sun, W., Chen, W. T., Zhang, Q., Ma, S., Huang, F., Zhang, L., & Lu, H. (2021). Post-traumatic growth experiences among COVID-19 confirmed cases in China: A qualitative study. *Clinical Nursing Research*, 30(7), 1079–1087. <https://doi.org/10.1177/10547738211016951>
- Tedeschi, R. G., & Calhoun, L. G. (1996). The Posttraumatic Growth Inventory: Measuring the positive legacy of trauma. *Journal of Traumatic Stress*, 9(3), 455–471. <https://doi.org/10.1007/BF02103658>
- Tedeschi, R. G., & Calhoun, L. G. (2004). Posttraumatic growth: Conceptual foundations and empirical evidence. *Psychological Inquiry*, 15(1), 1–18. [https://doi.org/10.1207/s15327965pli1501\\_01](https://doi.org/10.1207/s15327965pli1501_01)
- Ümmet, D. (Ed.). (2020). *Tüm kavram ve yaklaşımlarıyla pozitif psikoloji*. Pegem.
- Üzar-Özçetin, Y. S., & Hiçdurmaz, D. (2017). Posttraumatic growth and resilience in cancer experience. *Current Approaches in Psychiatry*, 9(4), 388-397. <https://doi.org/10.18863/pgy.290285>
- Westphal, M., & Bonanno, G. A. (2007). Posttraumatic growth and resilience to trauma: Different sides of the same coin or different coins? *Applied Psychology: An International Review*, 56(3), 417–427. <https://doi.org/10.1111/j.1464-0597.2007.00298.x>
- Yıldırım, A., & Şimşek, H. (2016). *Sosyal bilimlerde nitel araştırma yöntemleri [Qualitative research methods in the social sciences]* (10th ed.). Seçkin Yayınları.
- Young, J. E., & Klosko, J. S. (2019). *Hayatı yeniden keşfetin. [Reinventing your life]* (H. A. Karaosmanoğlu ve E. Tuncer, Trans.). Psikonet. (Original work published 1994).
- Yunitri, N., Chu, H., Kang, X. L., Jen, H. J., Pien, L. C., Tsai, H. T., Kamil, A. R., & Chou, K. R. (2022). Global prevalence and associated risk factors of posttraumatic stress disorder during COVID-19 pandemic: A meta-analysis. *International Journal of Nursing Studies*, 126, 104136. <https://doi.org/10.1016/j.ijnurstu.2021.104136>



### **About Authors**

**Seval Erden Çınar.** Seval Erden Çınar completed her undergraduate education at Marmara University, Department of Educational Sciences in 1997. She completed her master's degree in 2003 and, completed doctorate at Marmara University Institute of Educational Sciences in 2008. She is currently a professor in the Department of Guidance and Psychological Counseling at Marmara University, İstanbul, Turkey.

**Cem Boyalı.** Cem Boyalı completed his undergraduate education at Marmara University, Atatürk Faculty of Education, Department of Guidance and Psychological Counseling in 2016. He completed his master's degree in 2020 and he has been a PhD student at Marmara University Institute of Educational Sciences Guidance and Psychological Counseling since 2020. He is currently a psychological counselor at the Ministry of National Education at İstanbul, Turkey.

**Yakup Özkapu.** Yakup Özkapu completed his undergraduate education at Marmara University, Atatürk Faculty of Education, Department of Guidance and Psychological Counseling in 2016. He completed his master's degree in 2019 and he has been a PhD student at Marmara University since 2020. He is currently a psychological counselor at the Ministry of National Education at İstanbul, Turkey.

### **Author Contribution**

This study was conducted by all the authors working together and cooperatively. All of the authors substantially contributed to this work in each step of the study.

### **Conflict of Interest**

It has been reported by the authors that there is no conflict of interest.

### **Funding**

No funding support was received.

### **Ethical Statement**

The study was approved by the Marmara University Institute of Educational Sciences Research and Publication Ethics Committee on March 19, 2021 (No: # 2100081892 / 2021-2-28). In addition, consent forms were obtained from all participants included in the study.

**Ethics Committee Name:** Marmara University Institute of Educational Sciences Research and Publication Ethics Committee

**Approval Date:** 19.03.2021

**Approval Document Number:** # 2100081892 / 2021-2-28