



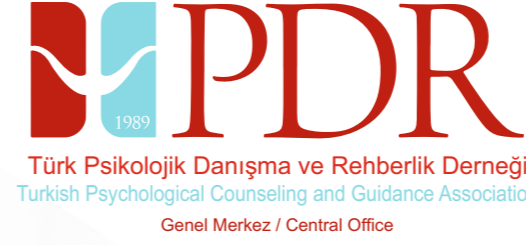
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Korkutreis Mah. Necatibey Cad. No: 20/12 Çankaya/Ankara - Türkiye  
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**List of referees in this issue / Bu sayıdaki hakemlerin listesi \***

---

Dr. Abdullah Sürücü

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## RESEARCH

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## 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  
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### 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 ilişki 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.

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## 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.

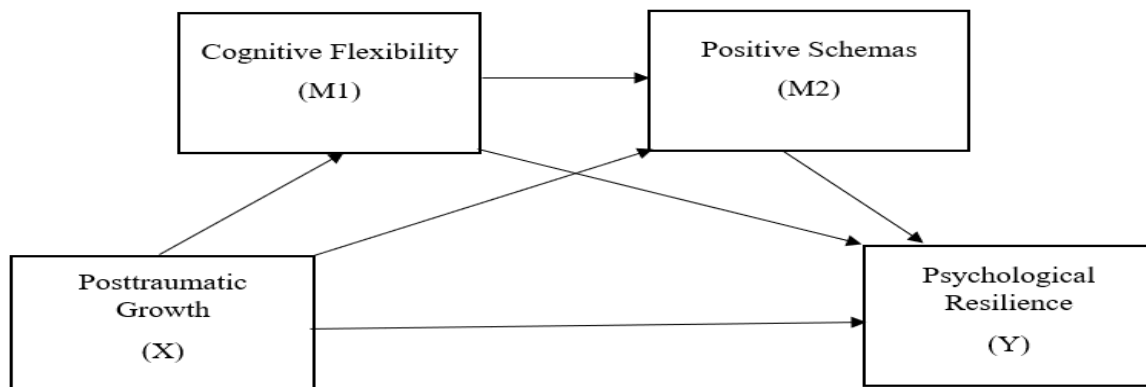
Variables	(1)	(2)	(3)	(4)
Posttraumatic Growth (1)	1,00			
Cognitive Flexibility (2)	,23**	1,00		
Positive Schema (3)	,49**	,46**	1,00	
Psychological Resilience (4)	,13*	,52**	,36**	1,00

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

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.

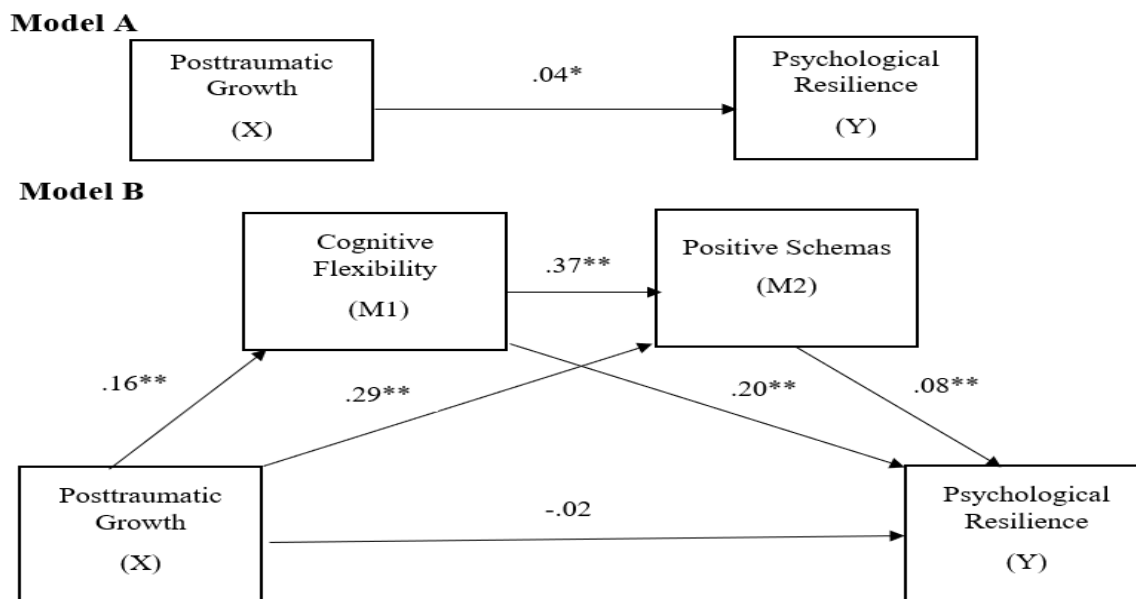


Figure 2. Statistical Values of the Serial Multiple Mediator Model

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.

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### **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.

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### **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

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## RESEARCH

## Open Access

## ARAŞTIRMA

## Açık Erişim

## Career Adaptability and Unemployment Anxiety in Turkish Senior Undergraduate Students: The Mediating Role of Career Stress

*Üniversite Son Sınıfı Devam Eden Türk Öğrencilerde Kariyer Uyumluluğu ve İşsizlik Kaygısı:  
Kariyer Stresinin Aracı Rolü*

Ayşe Sibel Demirtaş , Ahmet Kara 

**Authors Information****Ayşe Sibel Demirtaş**

Associate Professor, Alanya Alaaddin Keykubat University, Antalya, Turkey [sibel.demirtas@alanya.edu.tr](mailto:sibel.demirtas@alanya.edu.tr)

**Ahmet Kara**

Assistant Professor, Kastamonu University, Kastamonu, Turkey [ahmetkara@kastamonu.edu.tr](mailto:ahmetkara@kastamonu.edu.tr)

**ABSTRACT**

The purpose of this study is to reveal the mediating role of career stress in the relationship between career adaptability and unemployment anxiety. A total of 410 senior undergraduate students, 308 females (73.7%) and 110 males (26.3%), participated in this study. The ages of the participants ranged from 18 to 36 years with a mean age of 22.25 (SD:1.87). The data were collected using the Personal Information Form, the Career Adaptability Scale, the Career Stress Scale, and the Unemployment Anxiety Scale. The fit of the model was assessed using the path analysis technique. Also, the bootstrapping analysis was performed to provide evidence for the significance of the mediating effect in the model. The findings of the research confirmed that career uncertainty and lack of information partially mediated the relationship between career discovery and unemployment anxiety. Furthermore, the findings revealed that career uncertainty, lack of information, and pressure of finding a job fully mediated the relationship between career plan and unemployment anxiety. The results were discussed in the framework of the literature and the recommendations were proposed.

**Article Information****Keywords**

Career Adaptability  
Career Stress  
Unemployment Anxiety

**Anahtar Kelimeler**

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**ÖZET**

Bu araştırmanın amacı, kariyer uyumluluğu ile işsizlik kaygısı arasındaki ilişkide kariyer stresinin aracılığını ortaya koymaktır. Araştırmaya 308'i kadın (%73.7), 110'u erkek (%26.3) olmak üzere toplam 410 son sınıf lisans öğrencisi katılmıştır. Katılımcıların yaşları 18 ile 36 arasında ( $\bar{X}=22.25$ ,  $SD=1.87$ ) değişmektedir. Veriler, Kişisel Bilgi Formu, Kariyer Uyumluluğu Ölçeği, Kariyer Stresi Ölçeği ve İşsizlik Kaygısı Ölçeği ile toplanmıştır. Modelin veri ile uyumu, yol analizi tekniği ile analiz edilmiştir. Ayrıca modeldeki aracılık etkisinin anlamlılığına ek kanıt sağlamak amacıyla bootstrapping analizi yapılmıştır. Araştırmanın bulguları kariyer keşfi ile işsizlik kaygısı arasındaki ilişkide kariyer belirsizliği ve bilgi eksikliğinin kısmi aracı olduğunu doğrulamıştır. Ayrıca, bulgular kariyer planı ile işsizlik kaygısı ilişkisinde kariyer belirsizliğinin, bilgi eksikliğinin ve iş bulma baskısının tam aracı olduğunu ortaya koymuştur. Sonuçlar, literatür çerçevesinde tartışılmıştır ve öneriler geliştirilmiştir.

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**Ethical Statement:** The research was reviewed and approved by the Scientific Research and Publication Ethics Committee of Alanya Alaaddin Keykubat University (01.06.2020-2020/09).

## INTRODUCTION

According to Turkey Statistical Institute (2019), unemployed is used for all persons “who have used at least one of the job search channels in the last three months to look for a job from those who are not employed within the reference period and are able to start work within two weeks”. Unemployment is a social issue that was centralized in the literature for its relation to mental health (Helpman, 2010). In a recent study by Shah (2019), the participants reported that unemployment affects wide-ranging areas of their lives, including worsened physical health, increased difficulties with stress management, a reduced sense of self-control, and identity confusion. In another study, Paul and Moser (2009) studied the role of unemployment on mental health with meta-analytic methods across 237 cross-sectional and 87 longitudinal studies. Based on the meta-analyses of longitudinal studies and natural experiments, they reported that unemployment is not only correlated to distress but also causes it. A longitudinal study on unemployment, conducted by Hammarström and Janlert (1997), revealed that unemployment correlated positively with changes in nervous complaints and depressive symptoms.

Anxiety refers to negatively evaluated thoughts and images associated with potential threats or dangers (Borkovec, 1985), high negative affect related to a sense of uncontrollability (Barlow, 1988) that disrupts one's ability to function in the tasks of daily living (Emilien et al., 2002). Most people experience anxiety from time to time. However, unemployment, which is one of the biggest problems of our age, and the inadequacy of the work causes the undergraduate students to worry about not being able to find a job for the workforce who is underemployed for a lower wage or has to work in a job outside of their profession (Tekin & Korkmaz, 2016). Unemployment anxiety is defined as a state of despair and hopelessness in the individual's expectation of not being able to find a job and the state of being hopeless and anxious about his future (Kırcı, 2010). Several factors affect unemployment anxiety. For example, Tekin and Korkmaz (2016) reported, based on the findings of the study on university students in Turkey, that undergraduate students have unemployment anxiety caused by sub-dimensions of employment difficulties in the economy, personal pessimism and lack of self-confidence, environmental and social outlook, and lack of qualitative knowledge and skills. On the other hand, career adaptability was proposed as a protective related factor to unemployment anxiety in this study.

### **Career Adaptability and Unemployment Anxiety**

There are various definitions in the literature on career adaptability. For example; Creed et al. (2009) conceptualized career adaptability as a structure that includes factors such as individuals investigating themselves and their current opportunities, planning future career activities, choosing the best possible opportunities, and being good decision-makers in terms of managing personal or environmental factors. In another definition, career adaptability is defined as certain competence indicator that affects individuals' ability to adapt themselves to changing and unpredictable environmental conditions (Rottinghaus et al., 2005). When these definitions are examined, career adaptability is a psycho-social resource that includes a variety of competencies that enable individuals to cope with unpredictable environmental variables. These competencies are considered factors that constitute career adaptability (Savickas, 2013).

There are two approaches in the literature regarding the factors that comprise career adaptability. The first one is Career Construction Theory (Savickas, 1997, Savickas, 2005, Savickas, 2013), which explains career adaptability in the context of adaptability. In this theory, career adaptability is considered as a

structure consisting of four adaptation skills including concern, confidence, curiosity, and control (Savickas & Porfeli, 2012). Career concern refers to the ability of individuals to plan. Career confidence reflects the self-efficacy levels of individuals. Career curiosity is individuals' investigation about themselves and their environment. Career control, on the other hand, shows individuals' ability to make decisions and take responsibility (Savickas, 2005). Individuals increase their career adaptability by using these four adaptation skills (Eryılmaz & Kara, 2018). The second approach considers career adaptability in two dimensions (Han & Rojewski, 2015). The first dimension of career adaptability is career exploration, which shows individuals discovering themselves and their profession. The second dimension is career plan, which reflects individuals' determination of future goals. This study is based on two dimensions of career adaptability.

There is little research on the relationship between career adaptability and unemployment anxiety in the literature. A study was conducted by Kara et al., (2019) showed that career adaptability of senior university students is an important variable in reducing their unemployment anxiety. The results of the study by Vignoli (2015) also showed that adolescents' career exploration was positively and significantly related to general trait anxiety and career anxiety. Based on the findings of these studies, career adaptability was considered as an important individual characteristic affecting unemployment anxiety in the current study.

### **The Mediating Role of Career Stress**

Throughout their lives, individuals experience stress in the face of life events that they cannot predict, control, or consider as an overload (Cohen et al., 1983). Based on Lazarus and Folkman's (1984) stress model including a relational and process-oriented definition of stress, career stress is conceptualized as "a dynamic interaction between the individual and the environment that is appraised by the individual as taxing or exceeding his or her resources and jeopardizing his or her wellness" (Choi et al., 2011).

Literature review reveals that there are some studies revealing that career adaptability and career stress are related. For example, Yun (2016) found that career adaptability is a factor affecting career stress. The results of the study conducted by Stoltz et al. (2013) also showed that there is a significant and negative relationship between career adaptability and coping with stress. Fiori et al. (2015) found that career adaptability is an important variable that predicts career stress. Based on the results of the study, they concluded that since the individuals with high career adaptability experienced less negative affect they have lower levels of stress.

### **The Current Study**

Literature review shows that decrease in unemployment anxiety positively related to psychological well-being and cognitive flexibility of individuals (Alioat & El Keshky, 2020), career adaptability and career desires (Kara et al., 2019), mental health (Paul & Moser, 2006), self-esteem (Kıcır, 2010) and psychological resilience (Taşgın et al., 2017). Choi and Lee (2013) reported that unemployment stress of undergraduate students positively related to physical and mental health problems and negatively correlated with self-esteem. The authors also found that senior grade is the factor affecting unemployment stress.

In line with the above-mentioned research and findings, it is considered that the development of a model that addresses unemployment anxiety in terms of a personal and psychological context can contribute to both career development and mental health development of individuals. In Turkey, due to the high unemployment and the complexity of businesses, while the individuals tend to explore various career opportunities, they also face difficulties in finding satisfying and longer-term jobs (Konstam et al. 2015).

The findings of this study can facilitate the training of individuals who can structure their careers in a healthy and productive way and have mental health integrity. In addition, their mental health can be strengthened in terms of both raising awareness and regulating their emotions so that they are aware of their own potential and use it at the highest level. In this way, the goals of individuals to realize themselves as happier and more productive individuals and to reach successful and competent human resources that will contribute to society can be realized. Consequently, the purpose of this study is to evaluate the mediating role of career stress in the relationship between career adaptability and unemployment anxiety. For this purpose, the hypotheses described below were developed and a hypothetical model was proposed (Figure 1).

Hypothesis 1. Career exploration, which is one of the career adaptability dimensions, significantly predicts career stress dimensions (career ambiguity, external conflict, and employment pressure).

Hypothesis 2. Career plan, which is one of the dimensions of career adaptability, significantly predicts career stress dimensions (career ambiguity, external conflict, and employment pressure).

Hypothesis 3. Career stress dimensions (career ambiguity, external conflict, and employment pressure) significantly predict unemployment anxiety.

Hypothesis 4. Career discovery, which is one of the career adaptability dimensions, significantly predicts unemployment anxiety.

Hypothesis 5. Career stress dimensions (career ambiguity, external conflict, and employment pressure) have a mediating effect between career exploration and unemployment anxiety.

Hypothesis 6. Career stress dimensions (career ambiguity, external conflict, and employment pressure) have a mediating effect between career plan and unemployment anxiety.

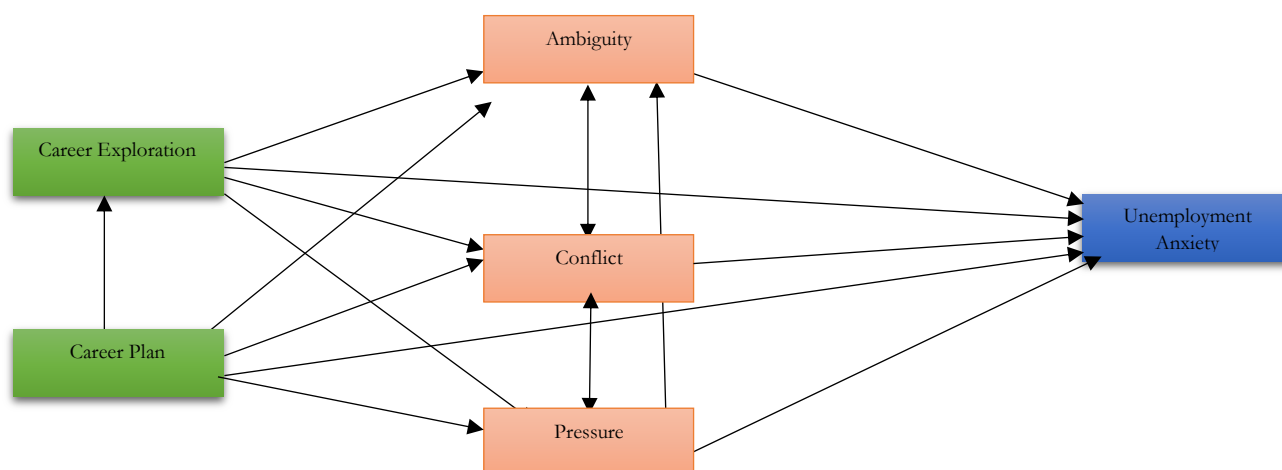


Figure 1. Hypothesized Model

## METHOD

### Participants and Procedure

A total of 410 undergraduates (senior students) participated in the study. Of these students 308 (73.7%) participants were women and 110 (26.3%) participants were male. The convenient sampling was used to choose the participants of the study. Cohen et al. (2011) stated that convenience sampling refers to “choosing the nearest individuals to serve as respondents and continuing that process until the required



sample size has been obtained or those who happen to be available and accessible at the time” (p. 155). The participants of this study were the senior students enrolled in the Faculty of Education of a university located in Antalya, Turkey. The age range of the students is 18-36 and the mean age is 22.25 (SD: 1.87). The data were collected in classroom settings by the researchers in the 2019-2020 second term. All students voluntarily participated in the study.

### **Ethical Statement**

The authors declare that they continue to work in this study in accordance with scientific work ethics and Helenski declaration. In addition, the participants participated in the research voluntarily. Accordingly, the research was reviewed and approved by the Scientific Research and Publication Ethics Committee of Alanya Alaaddin Keykubat University (01.06.2020-2020/09).

### **Measures**

***Personal Information Form.*** The form was created by the researchers to get personal information (age, gender, education program, grade) about the participants.

***Career Adaptability Scale (CAS).*** The CAS was developed by Eryılmaz and Kara (2016). It consists of 10 items and two dimensions including career exploration and career plan. The increase in the scores is an indicator of higher career adaptability. The exploratory and confirmatory factor analysis methods were used for the factor structure of the scale. In the exploratory factor analysis, the total explained variance was found to be 55.87%. Also, the results of the confirmatory factor analysis were showed that the two-factor model had high fit indexes ( $\chi^2/df$  70.75/34= 2.08; GFI=.94, CFI=.98, AGFI=.90, NFI=.95 ve RMSEA= .07) (Eryılmaz & Kara, 2016). Cronbach’s alpha internal consistency coefficient was found as .85. The results of the reliability analysis conducted in this study; it was calculated as .79 for career plan, .89 for career discovery, and .90 for the whole scale.

***Career Stress Inventory (CSI).*** The CSI was created by Choi et al. (2011) to measure career-related stress sources and experiences of university students. The original scale consists of 20 items and 4 factors (career ambiguity, lacking information, employment pressure, external conflict). The adaptation study of the scale to Turkish was carried out by Özden and Sertel-Berk (2017). Exploratory factor analysis was conducted within the scope of the construct validity of the Turkish form of scale, and as a result, a 3-factor structure that explains 64.7% of the total variance and called "career ambiguity and lack of information", "external conflict" and "employment pressure " was revealed (20 items). The internal consistency coefficient of the Turkish version of the CSI scale and the factors were calculated between .83 and .94 (Özden & Sertel-Berk, 2017). In this study, Cronbach’s alpha coefficients of the scale and the factors were found between .83 and .94.

***Unemployment Anxiety Level Test (UALT).*** The UALT was created by Tekin (2015) to measure the unemployment levels of the individuals. It consists of 26 items and four factors. In this study, the unemployment anxiety levels of individuals were measured by taking the total score of UALT. It can be evaluated that the unemployment anxiety levels of individuals increase with the increase of the scores obtained from UALT. The exploratory factor analysis technique was used in the validity study by Tekin (2015). In the exploratory factor analysis, the factor loads of the scale varied between 0.41 and 0.74, and the variance explained was 47.43%. Cronbach’s alpha coefficient of the total scale was found .90 (Tekin, 2015). In this study, it was calculated as .92.

## Validity and Reliability Analysis for Measures within The Current Study

In this study, the validity and reliability analyses of the measurements were also conducted. Internal consistency coefficient was used in the reliability analysis. Validity analysis was examined using the confirmatory factor analysis technique. The results of these analyses were presented in Table 1.

**Table 1. Validity and reliability analysis of measures**

Parameter	CAS	CSI	UALT
$\chi^2/sd$	4.32	4.89	3.54
RMSEA	0.08	0.09	0.07
NFI	0.93	0.85	0.81
CFI	0.95	0.87	0.86
GFI	0.93	0.82	0.80
TLI	0.93	0.86	0.84
RFI	0.91	0.83	0.80
IFI	0.95	0.87	0.86
Cronbach's Alpha	0.90	0.94	0.92

CAS: Career Adaptability Scale; CSI: Career Stress Inventory; UALT: Unemployment Anxiety Level Test

## Data Analysis

The purpose of this study was to evaluate the mediating role of career stress in the relationship between career adaptability and unemployment anxiety. For this purpose, the hypothetical model was tested by the path analysis. Standardized path coefficients and goodness of fit indexes were used to determine the fit of the model with the data. In this study,  $\chi^2$ ,  $\chi^2/df$  ratio, GFI, CFI, NFI, AGFI, and RMSEA values were examined. The model was evaluated according to the fit index criteria recommended by Schermelleh-Engel et al. (2003) (Table 4).

A mediation test was also performed in the model. For this purpose, the stages of testing mediation suggested by Baron and Kenny (1986) were taken into account. In addition, bootstrapping analysis was conducted to provide additional evidence for the significance of the mediating effect in the model. In the bootstrapping analysis, 1000 bootstrap, indirect path coefficient, and confidence intervals were created (Shrout & Bolger, 2002). In the bootstrapping analysis, the fact that the indirect path coefficient confidence intervals do not contain zero shows that the mediating effect is significant (Hayes, 2017).

## RESULTS

### Descriptive Findings

The descriptive statistics regarding the observed variables in the hypothesized model within the scope of this study are given in Table 2. The outcome variable for the hypothesized model is unemployment anxiety. Total scores obtained from the Unemployment Anxiety Scale constitute the observed variable of unemployment anxiety. The predictor variable is career adaptability. Career adaptability has two observed variables: "career exploration" and "career plan". The mediator variable is career stress. Career stress is represented by three observed variables: "career ambiguity and lack of information", "external conflict" and "employment pressure."

**Table 2. Descriptive statistics for the variables in the model**

	N	Min.	Max.	Mean	Std. Deviation	Skew.	Kurt.
Unemployment Anxiety	418	32.00	125.00	76.23	20.30	.00	-.58
Career Exploration	418	6.00	30.00	24.52	4.76	-1.46	2.64
Career Plan	418	4.00	20.00	14.93	3.22	-.69	.49
Career Ambiguity/Lack of Information	418	10.00	60.00	25.32	11.68	.77	-.13
External Conflict	418	4.00	24.00	9.91	5.16	.76	-.30
Employment Pressure	418	6.00	36.00	22.68	7.27	-.16	-.71

The skewness and kurtosis values given in Table 2 are within the limits of multivariate normality assumptions. Finney and Distefano (2006) state that multivariate normality assumptions are met if the skewness value is not greater than +/- 2 and the kurtosis value is not greater than +/- 7. Based on these results, it was concluded that the scores did not show a significant deviation from the normal distribution.

### The Correlations among Career Adaptability, Career Stress, and Unemployment Anxiety

The relationships among career adaptability, career stress, and unemployment anxiety were analyzed with Pearson correlation coefficient analysis. The findings from the correlation analysis are presented in Table 3.

**Table 3. Pearson correlation coefficients related to research variables**

	1	2	3	4	5	6
1. Unemployment Anxiety	1					
2. Career Adaptability (Career Exploration)	-.371**	1				
3. Career Adaptability (Career Plan)	-.356**	.663**	1			
4. Career Stress (Career Ambiguity/LI)	.672**	-.503**	-.487**	1		
5. Career Stress (External Conflict)	.550**	-.311**	-.294**	.697**	1	
6. Career Stress (Employment Pressure)	.742**	-.239**	-.307**	.640**	.539**	1

\*\* $p < .01$ ; LI: Lack of Information

As presented in Table 3, there are significant relationships among all observed variables. The highest correlation coefficient was found to be high and positive ( $r = .742, p < .01$ ) between the employment pressure and unemployment anxiety. On the other hand, the lowest correlation coefficient was found to be low and negative ( $r = -.239, p < .01$ ) between career exploration and the employment pressure.

### Mediation Analysis

The purpose of this study is to test the mediating role of career stress in the relationship between career adaptability and unemployment anxiety. As a result of the path analysis conducted for this purpose, the standardized path coefficients of the hypothetical model are presented in Figure 2. The path analysis results of the hypothetical model are also presented in Table 4.



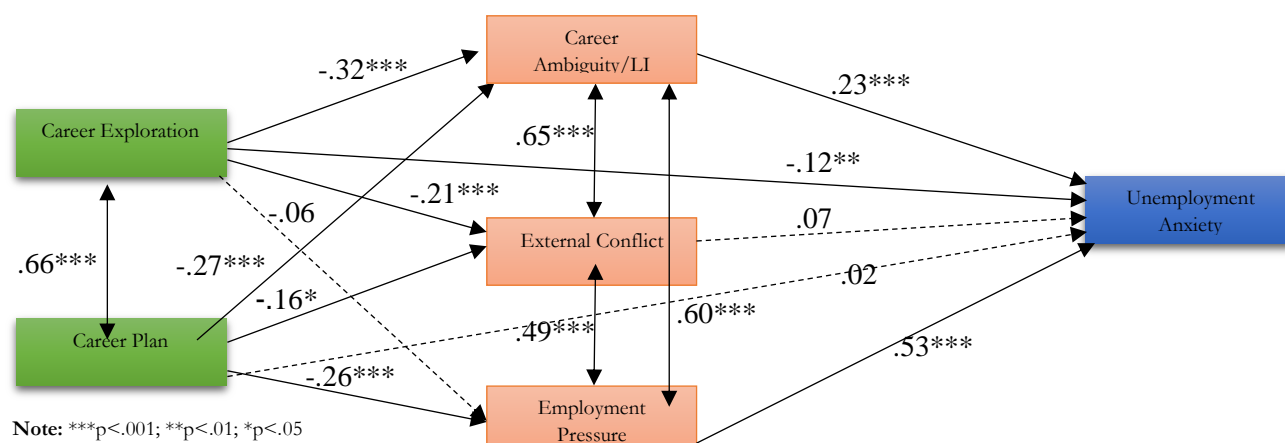


Figure 2. Standardized path coefficients of the hypothetical model

Table 4. Path analysis results of the hypothetical model

			Estimate	S.E.	C.R.	P
Career Ambiguity/LI	<---	Career Exploration	-.789	.135	-5.850	***
External Conflict	<---	Career Exploration	-.224	.067	-3.357	***
Career Ambiguity/LI	<---	Career Plan	-.991	.199	-4.972	***
External Conflict	<---	Career Plan	-.250	.099	-2.533	.011
Employment Pressure	<---	Career Plan	-.598	.141	-4.253	***
Employment Pressure	<---	Career Exploration	-.097	.095	-1.018	.309
Employment Anxiety	<---	Career Ambiguity/LI	.403	.090	4.476	***
Employment Anxiety	<---	Employment Pressure	1.487	.111	13.361	***
Employment Anxiety	<---	External Conflict	.277	.167	1.660	.097
Employment Anxiety	<---	Career Exploration	-.501	.179	-2.796	.005
Employment Anxiety	<---	Career Plan	.120	.260	.463	.644

\*\*\* $p < .001$ ; \*\* $p < .01$ ; \* $p < .05$ ; LI: Lack of Information

As presented in Table 4, the path analysis results showed that some paths were not statistically significant. Accordingly, non-meaningful ways paths were excluded from the analysis, and the analysis was repeated.

Goodness of fit index values of the final model obtained after repeating the analysis were  $\chi^2(3, N = 418) = 4.09$ ,  $p > .05$ ;  $\chi^2/sd = 1.36$ ; GFI = .99; CFI = .99; NFI = .99; AGFI = .97; RMSEA = .03 (90% confidence interval for RMSEA = .000-.093). The model was evaluated according to the fit index criteria recommended by Schermelleh-Engel et al. (2003). These values are shown in Table 5.

Table 5. The goodness of fit indices of the final model

Goodness of Fit Indices	Goodness of Fit	Values of the Model	Fit
p value	.05 < p ≤ 1.00	p=.25	Good fit
$\chi^2/sd$	0 ≤ $\chi^2/sd$ ≤ 2	1.36	Good fit
RMSEA	0 ≤ RMSEA ≤ .05	.03	Good fit
GFI	.95 ≤ CFI ≤ 1.00	.99	Good fit
CFI	.97 ≤ CFI ≤ 1.00	.99	Good fit
NFI	.95 ≤ NFI ≤ 1.00	.99	Good fit
AGFI	.90 ≤ AGFI ≤ 1.00	.97	Good fit

As presented in Table 5, the goodness of fit index values of the final model revealed that the model has a perfect fit with the data. Standardized path coefficients of the final model are shown in Figure 3. The path analysis results of the final model are presented in Table 6.

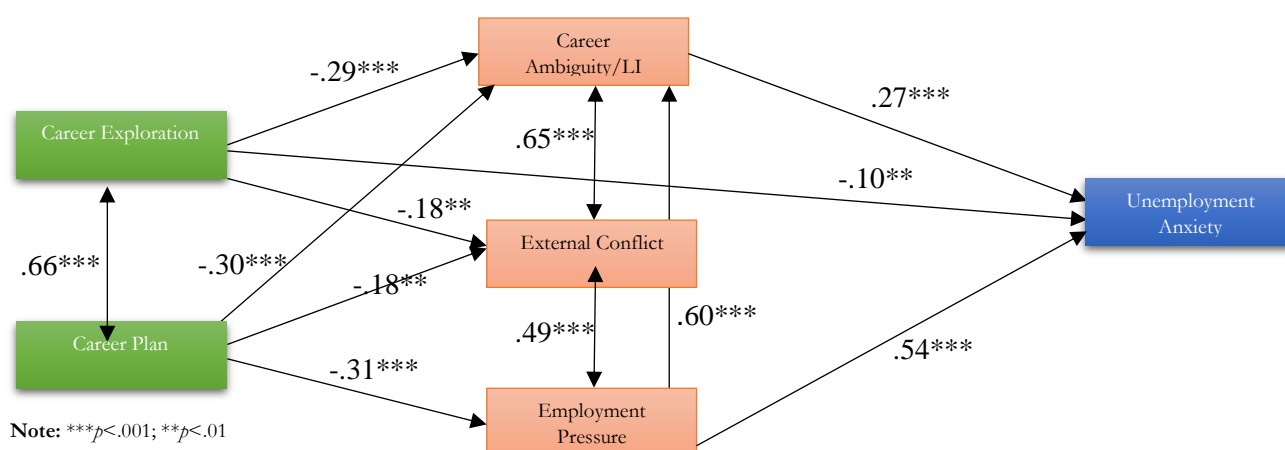


Figure 3. Standardized path coefficients of the final model

Standardized path coefficients of the final model are presented in Figure 3. The results showed that one-unit increase in career exploration reduces individuals' career ambiguity/lack of information with 0.29 units ( $t = -6.55; p < .001$ ). One-unit increase in career exploration decreases external conflict with 0.18 unit ( $t = -3.28; p < .01$ ). One-unit increase in career exploration decreases unemployment anxiety with 0.10 unit ( $t = -2.99; p < .01$ ). One-unit increase in career plan reduces individuals' career ambiguity/lack of information with 0.30 units ( $t = -5.86; p < .001$ ). However, a one-unit increase in career plan decreases external conflict with 0.18 units ( $t = -3.03; p < .01$ ). In addition, one-unit increase in career plan decreases employment pressure with 0.31 unit ( $t = -6.57; p < .001$ ). On the other hand, one-unit increase in career ambiguity/lack of information increases unemployment anxiety with 0.27 units ( $t = 6.16; p < .001$ ). Also, one-unit increase in employment pressure increases unemployment anxiety with 0.54 units ( $t = 13.81; p < .001$ ).

Table 6. Path analysis results of the final model

			Estimate	S.E.	C.R.	P
Career Ambiguity/LI	<---	Career Exploration	-.706	.108	-6.550	***
Career Ambiguity/LI	<---	Career Plan	-1.072	.183	-5.861	***
Employment Pressure	<---	Career Plan	-.693	.105	-6.578	***
External Conflict	<---	Career Exploration	-.191	.058	-3.281	,001
External Conflict	<---	Career Plan	-.283	.093	-3.032	,002
Employment Anxiety	<---	Career Ambiguity/LI	.474	.077	6.162	***
Employment Anxiety	<---	Employment Pressure	1.513	.110	13.818	***
Employment Anxiety	<---	Career Exploration	-.444	.148	-2.993	,003

\*\*\* $p < .001$ ; \*\* $p < .01$ ; LI: Lack of Information

### The Mediation of Career Stress in the Relationship Between Career Adaptability and Unemployment Anxiety

In this section, the mediating role of career stress in the relationship between career adaptability and unemployment anxiety was tested. The stages of testing mediation suggested by Baron and Kenny (1986) were taken into account in this study. First, the mediating role of career ambiguity/lack of information in the relationship between career exploration and unemployment anxiety was investigated. The results showed that the direct effect of career exploration on unemployment anxiety ( $\beta: -.37; t = -8.15$ ) was significant ( $p < .001$ ). When career ambiguity/lack of information is entered in this relationship, the effect of career exploration on unemployment anxiety ( $\beta: -.10; t = -2.99$ ) decreases but the p-value is significant ( $p < .01$ ). This finding confirms that career ambiguity/lack of information partially mediated the

relationship between career exploration and unemployment anxiety. Second, the mediating role of career ambiguity/lack of information and employment pressure in the relationship between career plan and unemployment anxiety was tested. The results showed that the direct effect of career plan on unemployment anxiety ( $\beta$ :  $-.36$ ;  $t = -7.77$ ) was found to be significant ( $p < .001$ ). When career ambiguity/lack of information and unemployment pressure were entered in this model, the effect decreases ( $\beta$ :  $.02$ ;  $t = 0.55$ ) and the p-value becomes meaningless ( $p > .05$ ). According to this finding, it was concluded that career ambiguity/lack of information and unemployment pressure are full mediators in the relationship between career plan and unemployment anxiety.

### Significance of Indirect Effects – Bootstrapping

In Table 7, the indirect path coefficients and confidence intervals in the bootstrapping test were presented.

**Table 7. Bootstrap test results for career stress**

Model pathway	Bootstrap values		Bias %95CI	
	( $\beta$ )	SE	Lower	Upper
<b>Indirect effect</b>				
Career Exploration → Career Ambiguity/LI → Unemployment Anxiety	-.07	.01	-.11	-.05
Career Plan → Career Ambiguity/LI and Unemployment Pressure → Unemployment Anxiety	-.24	.03	-.32	-.17

Note. Bootstrap is based on 1,000 resamples (Hayes, 2009).  $\beta$  = Standardized coefficients. SE: Standard error, \* $p < .05$ .

The fact that the indirect path coefficient confidence intervals in the bootstrapping test do not contain zero indicates that the mediating effect is significant. The results of the bootstrapping test showed that the partial mediating role of career ambiguity/lack of information was found to be significant in the relationship between career exploration and unemployment anxiety ( $b = -.24$ , 95% CI =  $-.32, -.17$ ). In addition, it was revealed that career ambiguity/lack of information and unemployment pressure had a significant mediating role in the relationship between career plan and unemployment anxiety ( $b = -.07$ , 95% CI =  $-.11, -.05$ ).

## DISCUSSION

The findings of this study showed that the hypothesized model which aimed to explain unemployment anxiety of university senior students was confirmed. The fit indices and standardized path coefficients obtained in the study revealed that the final path model was statistically significant. The results of the direct effects of the model showed that career exploration (the factor of career adaptability), career ambiguity/lack of information (the factor of career stress) significantly predicted external conflict. In addition, career exploration was found to be a significant predictor of unemployment anxiety. Career plan, (the other factor of career adaptability) was found to significantly predict career ambiguity/lack of information, external conflict, and employment pressure (the factors of career stress). Finally, it was found that career ambiguity/lack of information and employment pressure (the factors of career stress) predicted unemployment anxiety significantly. The results of the indirect effects of the model showed that career ambiguity/lack of information partially mediated career exploration and unemployment anxiety. In addition, career ambiguity/lack of information and employment pressure fully mediated the relationship between career plan and unemployment anxiety.

## **Career Adaptability and Employment Anxiety**

The findings of the current study showed that career adaptability correlated negatively with employment anxiety. We haven't met any studies in the literature that show the relationship between career adaptability and employment anxiety. However, there are some similar studies in the literature. For example, the recent study by Jia et al. (2020) provided evidence that career adaptability and general anxiety negatively correlated and both these variables mediated the relationship between future time perspective and career decision making-difficulty on undergraduates. Pouyaud et al. (2012) also found negative relationships between career adaptability and general anxiety on 11th-grade students. On the other hand, in a study by Maggiori et al. (2013) on a sample of employed and unemployed adults (N=2002), adaptability resources were found to be positively related to both general and professional well-being. In another similar study, Konstam et al. (2015) found a positive correlation between career adaptability and life satisfaction on a sample of unemployed emerging adults. These studies confirmed the relationship between career adaptability and employment anxiety. Moreover, university students are in the critical stage for their future careers. Without career adaptability students can become anxious about their employment. The results of the study by Tsai et al. (2017) indicate that if university students experience uncertainty about their career choices, abilities, and interests and what types of jobs suit them, they may be anxious about their career undecidedness. Career adaptability is an important psycho-social resource including a variety of competencies that enable individuals to cope with unpredictable environmental variables (Savickas, 2013). Our findings are consistent with prior studies.

## **The Mediating Role of Career Stress**

This study also revealed that career adaptability and career stress negatively correlated. This finding is consistent with the studies in which a negative relationship was found between these variables. For example, Fiori et al. (2015) reported that individuals higher on career adaptability experienced less negative affect, which led to lower levels of stress. A meta-analysis study by Rudolph et al. (2017), reported that career adaptability is related to the measures of adaptation results including stress. In another study, Yun (2016) found a significant relationship between career adaptability and career stress on a sample of college students. Furthermore, Creed et al. (2009) examined the relationship between career adaptability and career concerns on 245 first-year university students and found that decisionmaking and self-exploration (the dimensions of career adaptability) were negatively associated with career concerns of university students. These findings are consistent with our study. These results suggest that university students with higher career adaptability have lower career stress. In the relationship between career adaptability and career stress, self-regulatory mechanisms are important as they are activated in times of stress, change, or when confronted with career challenges (Creed et al. 2009).

One of the hypotheses of the study is that career stress and unemployment anxiety are related variables. This finding confirmed the findings of the study by Kıcı (2017) which revealed a significant relationship between sub-dimensions of the stress symptoms and unemployment anxiety. Herr (1989) stated that unemployment are reflected in behaviors which suggest various problems in mental illness. The findings of the current study show that high career stress is associated with high unemployed anxiety. In this relationship, career ambiguity which was found to be a dimension of career stress has a crucial role on anxiety stemming from not knowing exactly what to do in the future (Choi & Lee, 2013).

## Implications and Limitations

In the light of the relevant literature and based on the research findings, it can be concluded that the senior undergraduate students with career adaptability have a low-level of stress, thus they have a lower level of unemployment anxiety. This study examining the mediating role of career stress in the relationship between career adaptability and unemployment anxiety of undergraduate students has some limitations. One limitation of the study is that the participants were selected using the convenience sampling method. Similar studies on different samples can increase the generalizability of the research findings. Another limitation of the research is that the study is carried out in a cross-sectional design. Hence, further longitudinal and experimental studies are required in the context of cause and effect. Based on the mediation model found significant in this study, further research is also recommended to establish the paths for researchers in career counseling. The dimensions of this model can be considered as an important source in defining the problems of the clients, finding reasons and, intervention studies for career counselors. Also, the dimensions of this model for researchers can be a guide in experimental design studies to develop unemployment anxiety prevention programs. This research was designed in a quantitative design. In future research, qualitative research can be conducted in order to gather in-depth information to discover the causes of unemployment anxiety processes and the factors that may be effective.

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### **About Authors**

**Ayşe Sibel Demirtaş.** The author received her undergraduate degree from English Language Teaching Program at Ondokuz Mayıs University, and hold her Master's and Ph.D. degree in Psychological Counseling and Guidance Program at Gazi University. She is currently working as an associate professor at Alanya Alaaddin Keykubat University, Psychological Counseling and Guidance Department. Her area of expertise includes Cognitive Behavioral Therapy and research interests include cognitive flexibility and positive psychology topics such as mental well-being, hope and optimism.

**Ahmet Kara.** The author completed his undergraduate education at Celal Bayar University, Department of Basic Education. He received his Master's and Ph.D. degree in Psychological Counseling and Guidance Program at Eskişehir Osmangazi University. He is currently working as an assistant professor at Kastamonu University, Psychology Department. His research interests include career adaptability, career decision, unemployment anxiety, internet addiction and emotion regulation strategies.

### **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.

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### **Ethical Statement**

This study was completed in accordance with the Helsinki Declaration. In line with this, the study was permitted by Alanya Alaaddin Keykubat University, Human Research Ethics Committee.

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## RESEARCH

## Open Access

## ARAŞTIRMA

## Açık Erişim

## Nomophobia in University Students: The Roles of Digital Addiction, Social Connectedness, and Life Satisfaction

*Üniversite Öğrencilerinde Mobil Telefon Yoksunluğu Korkusu (Nomofobi): Dijital Bağımlılık, Sosyal Bağlılık ve Yaşam Doyumunun Rolü*

Müfide Çırak , Meliha Tuzgöl Dost 

### Authors Information

#### Müfide Çırak

Psychological Counseling, Ministry of Education, İstanbul, Turkey  
[mufidecirak@gmail.com](mailto:mufidecirak@gmail.com)

#### Meliha Tuzgöl Dost

Associate Professor, Hacettepe University, Ankara, Turkey  
[mtuzgol@hacettepe.edu.tr](mailto:mtuzgol@hacettepe.edu.tr)

### ABSTRACT

This study examines the predictive power of digital addiction, social connectedness and life satisfaction on the nomophobia levels of university students. Participants consisted of 451 university students studying in various departments at three state universities in Ankara. The Nomophobia Questionnaire, Digital Addiction Scale, Social Connectedness Scale-Revised, The Satisfaction with Life Scale, and Personal Information Form were used to collect the data. The data were analyzed through t-test, one-way analysis of variance, and multiple linear regression analysis. Results indicated that while students' nomophobia level differs significantly according to gender, daily usage time, and the number of daily checks, it does not differ according to the duration of having a smartphone. Moreover, social media addiction significantly predicted the level of nomophobia, while game addiction, impact on daily life, social connectedness, or life satisfaction did not significantly predict nomophobia levels. The findings are discussed in comparison to the existing literature and suggestions are subsequently made.

### Article Information

#### Keywords

Nomophobia  
Digital Addiction  
Social Connectedness  
Life Satisfaction  
University Students

#### Anahtar Kelimeler

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### ÖZET

Bu araştırmada dijital bağımlılık, sosyal bağlılık ve yaşam doyumunun üniversite öğrencilerinin mobil telefon yoksunluğu korkusu düzeyini yordama gücü araştırılmıştır. Araştırma grubu, Ankara'da bulunan üç devlet üniversitesinin çeşitli bölümlerinde okumakta olan 451 üniversite öğrencisinden oluşmaktadır. Araştırmada Nomofobi Ölçeği, Dijital Bağımlılık Ölçeği, Revize Edilmiş Sosyal Bağlılık Ölçeği, Yaşam Doyumu Ölçeği ve Kişisel Bilgi Formu kullanılmıştır. Toplanan veriler t testi, tek yönlü varyans analizi ve regresyon analizi ile incelenmiştir. Sonuçlara göre, öğrencilerin mobil telefon yoksunluğu korkusu düzeyleri cinsiyete, akıllı telefonu günlük kullanma süresi ve günlük kontrol etme sayısına göre anlamlı farklılık gösterirken akıllı telefona sahip olma süresine göre farklılık göstermemektedir. Sosyal medya bağımlılığının mobil telefon yoksunluğu korkusu düzeyini anlamlı olarak yordadığı; oyun bağımlılığı, günlük hayata etki, sosyal bağlılık ve yaşam doyumunun ise mobil telefon yoksunluğu korkusu düzeyini anlamlı olarak yordamadığı saptanmıştır. Elde edilen bulgular alanyazına dayalı olarak tartışılmıştır ve bazı öneriler sunulmuştur.

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## INTRODUCTION

Today, smartphones are one of the most essential devices making human life easier and more convenient. According to the Turkey Statistical Institute (TUIK, 2020), the use of mobile phones/smartphones in households has risen to 99.4%. According to the We Are Social report, the average daily time spent on the internet in Turkey was 7 hours 29 minutes in 2020. With the increase in the importance of smartphones in daily life, addictions such as smartphone addiction, digital game addiction, social media addiction, Facebook addiction, and Instagram addiction (Błachnio et al., 2018; Bragazzi & Del Puente, 2014; Chen et al., 2016; Choi et al., 2015; Savcı & Aysan, 2017) have now become a critical issue. Another problem that has arisen with the increasing use of smartphones recently is nomophobia. Nomophobia is defined as the unrealistic fear and anxiety felt when a person is unable to reach or communicate via his/her smartphone (Yıldırım & Correia, 2015). King, Valença, and Nardi conducted a pioneering study in 2010 and defined nomophobia as a 21st-century disorder that results from the excessive use of the latest technology. In fact, Bragazzi and Del Puente (2014) stated that nomophobia should be added to DSM-5 due to the anxiety, stress, and worry it causes in individuals and because of its rapid spread.

In recent years, many studies have been conducted on this problem. In studies that have been conducted to date, nomophobia has often been examined in terms of its relation to gender and duration of smartphone use. While some studies have indicated that women have higher levels of nomophobia (Arpacı, 2020; Gezgin & Çakır, 2016; Leon et al., 2021; Schwaiger & Tahir, 2020), some have shown that men experience it at higher levels, (Özdemir et al., 2018; Nagpal & Kaur, 2016). Other studies have found no difference in nomophobia according to gender (Adnan & Gezgin, 2016; Dixit et al., 2010; Özdemir et al., 2018). Those who have owned a smartphone for a long period (Güllüce et al., 2019; Sırakaya, 2018; Yıldırım et al., 2016), those who have a high daily usage time (Gonçalves et al., 2020; Pavithra et al., 2015; Schwaiger & Tahir, 2020), and those with a higher number of daily checks of their smartphone (Abraham et al., 2014; Schwaiger & Tahir, 2020) were found to have higher levels of nomophobia. These variables have been included in this study as they are considered primary characteristics of nomophobia (Bragazzi & Del Puente, 2014).

Findings in the literature indicate that the frequent use of smartphones causes problems in the educational, professional, and private lives of individuals; excessive use of these devices has also been found to negatively affect interpersonal relationships (Bragazzi et al., 2019; Erdem et al., 2016; Mengi et al., 2020; Prasad et al., 2017). Nomophobia has been found to be linked to loneliness, anxiety, depression, social phobia, impulsivity, and personality disorder (Arpacı, 2020; Argumosa-Villar et al., 2017; Büyükçolpan, 2019; Çevik Durmaz et al., 2020; Kuşçu et al., 2020; McIntyre et al., 2015; Nagpal & Kaur, 2016; Notara et al., 2021; Spitzer, 2015; Yıldız-Durak, 2018). In addition, self-esteem, extroversion, conscientiousness, and neuroticism were found to be predictors of nomophobia (Argumosa-Villar et al., 2017). Finally, research has indicated that there are moderately positive significant relationships between nomophobia and psychopathological symptoms (Gonçalves et al., 2020). Therefore, it can be stated that nomophobia is closely related to many personality and mental health variables.

It can be said that smartphone use is also associated with types of digital addiction. Digital addiction is a behavioral addiction that manifests itself in the form of careless, impulsive, and excessive contact with the latest technology and digital devices. Some addiction types include social network addiction, online/offline game addictions, and internet addiction (Jiang et al., 2015; Yengin, 2019; Arslan et al., 2015; Cover, 2004). Research has revealed that there are significant positive relationships between online gaming and smartphone addiction (Gezgin et al., 2018), between nomophobia and social media addiction (Gezgin &

Parlak, 2018; Yıldız-Durak, 2018), and between nomophobia and internet addiction (Kaviani et al., 2020). Digital addictions increase the time people spend with smartphones and can negatively affect their daily routines and social relationships (Kaviani et al., 2020; Mesch, 2001; Savcı & Aysan, 2017). Digital addictions, which can trigger the formation of new problems for humans, may increase nomophobia levels. According to the Deloitte Global Mobile User Survey Report (2019), the increase in the number of individuals who access social media via smartphones (86%) and of those who prefer to play games on their smartphones (55%) is emblematic of the relationship between nomophobia and social media and game addictions.

As the time spent with smartphones increases, people's face-to-face interaction with their social environment decreases. This decrease in close and meaningful relationships with the increase in smartphone use may bring about feelings of loneliness (Aktaş & Yılmaz, 2017; McIntyre et al., 2015; Lei et al., 2017). From the moment they are born, humans require social relations and interactions, and the need for these types of bonding mechanisms continues in later stages of life, as well (Baumeister & Leary, 1995). Social connectedness is defined as the sense of belonging and closeness felt by the individual towards the environment he/she lives in, a lack of which may cause loneliness (Lee & Robbins, 1998). The fact that individuals have transferred their social relations spontaneously or compulsively to the virtual environment might be related to their level of social connectedness. A study conducted on students' levels of uncontrolled internet use showed that those who had high levels of uncontrolled internet use had low levels of social connectedness (McIntyre et al., 2015). Findings from another study revealed that students with higher social connectedness had higher levels of internet addiction (Hırlak et al., 2016). These contradicting research results have increased curiosity about the relationship between social connectedness and nomophobia.

The relationship between smartphone use and life satisfaction and happiness has also begun to arouse interest. Life satisfaction is a cognitive assessment of one's life by comparing what she/he wants to achieve in his/her life in line with the criteria s/he has set (Diener et al., 1985). There are studies in the literature indicating a negative relationship between smartphone use and nomophobia and life satisfaction (Güllüce et al., 2019) Other studies have found that there is a positive relationship (Blachnio et al., 2018) between them. Since life satisfaction is thought to be an important element of mental health, the relationship between university students' life satisfaction and nomophobia has also increasingly been considered worth examining.

Although the research is not vast, studies that aim to understand nomophobia more deeply and explore its effects on human life are on the rise. With the increasing popularity of smartphones among university students (Yıldırım, 2014), the number of research studies concerning the issue in Turkey and around the world has also increased. There are research results (Adnan & Gezgin, 2016; Jena, 2015) indicating that the level of nomophobia is high among university students in the country. In a relatively recent study conducted on university students in Turkey, it was found that 46% have high levels of nomophobia (Yıldırım et al., 2016). Elsewhere, a study conducted on 600 medical faculty students—in order to examine the prevalence of nomophobia and the effect of nomophobia on sleep quality and academic success in India—revealed that approximately two-fifths of the students were nomophobic (Mengi et al., 2020). Again, in this study, it was found that academic performance indicators such as a decrease in diligence and concentration and class tardiness had significant relationships with nomophobia scores. Therefore, nomophobia seems to be a variable that can affect university students' academic achievement (Erdem et al., 2016) and self-regulation (Argumosa-Villar et al., 2017).

## Current Study

The efficiency of university education, in which in-depth and professional training is obtained in a certain discipline, is extremely important. Therefore, it is crucial to determine the variables associated with nomophobia in university students. Studies that have been conducted on university students' nomophobia have often been about the prevalence of the disorder (Erdem et al., 2017; Explorer et al., 2017) and its relationship with smartphone use (Sırakaya, 2018) and academic achievement (Erdem et al., 2016). Although the relationship between nomophobia and personality variables such as attachment, depression, social support, (Büyükçolpan, 2019), and loneliness (Çevik-Durmaz et al., 2020) has been investigated recently, studies examining the relationship between nomophobia and various personality variables in Turkish university students are limited. In this study, the aim is to examine the relationship between nomophobia and digital addiction, social connectedness, and life satisfaction in order to better understand nomophobia behavior in Turkish university students. In addition, it was designed in order to find out whether nomophobia levels of university students differ significantly according to gender, duration of having a smartphone, daily usage time, and the number of daily checks. The research questions in the study are as follows: "What is the predictive power of social media addiction, game addiction, impact on daily life, social connectedness and life satisfaction on the nomophobia level of university students?" and "Does the nomophobia level of university students differ significantly according to gender, duration of having a smartphone, daily usage time, and the number of daily checks?"

## METHOD

### Participants

The participants included in the study consisted of 451 university students studying in various faculties at three state universities in Ankara during the spring term of the 2019-2020 academic year. Three hundred two (302) of the participants were female (67%), while 109 were male (33%). Their age ranged from 17 to 28 with an average of  $\bar{X}$ : 20.34 (Sd: 1.63). One hundred ninety-seven (197) of the students (43.7%) were freshmen, 157 (34.8%) were sophomores, 15 (3.3%) were juniors, and 82 (18.2%) were seniors.

### Ethical Statement

Permissions were obtained from the Hacettepe University Senate Ethics Committee (26 December 2019; 35853172-300) in order to conduct the research and to initiate the data collection process.

### Measures

The Nomophobia Questionnaire, Digital Addiction Scale, Social Connectedness Scale-Revised, and The Satisfaction with Life Scale were used in the study. In addition, a personal information form was employed. The personal information form was created by the researchers and included questions that gathered information on the participants' gender, age, smartphone-type ownership, duration of having a smartphone, daily usage time, and the number of daily checks.

***The Nomophobia Questionnaire.*** The 20-item scale, developed by Yıldırım and Correia (2015), was translated into Turkish by Yıldırım et al. (2016). It is a 7-point Likert-type scale. The scores that can be obtained from the scale are between 20 and 140. Twenty (20) total points indicates that the person is not nomophobic at all, while a score between 21 and 59 shows that s/he is mildly nomophobic; a score between 60 and 99 means that the respondent is moderately nomophobic, and a score ranging from 100 and 140 indicate extreme nomophobia. While the Cronbach's alpha reliability coefficient of the original form was

.95, the reliability coefficients of the subscales were found to be .83, .87, .94, and .81, respectively. The reliability coefficient of the Turkish form of the scale was .92 for the overall scale and .90, .74, .94, and .91 for the subscales, respectively. Fit indices verified the four-factor model of the Turkish scale according to confirmatory factor analysis (CFI = .92; RMSEA = .08). In the current study, Cronbach's alpha reliability coefficient was found to be .92 for the overall scale and .85, .77, .94, and .86 for the subscales, respectively.

**Digital Addiction Scale.** Developed by Arslan et al. (2015) to determine the level of digital addiction in high school and university students, this scale is a 5-point Likert-type scale. It has a three-factor structure with 29-items. Factor 1 (item 1-item 11) is named 'game', factor 2 (item 12-item 23) 'social media', and factor 3 (item 24-item 29) 'impact on daily life'. While Cronbach's alpha reliability coefficient for the entire scale was found to be .89, the reliability coefficients of the subscales of 'play', 'social media', and 'impact on daily life' were .88, .89, and .90, respectively (Arslan et al., 2015). In this study, Cronbach's alpha reliability coefficient for the total score of the scale was found to be .89, while the reliability coefficients for its subscales were .82, .85, and .86, respectively.

**Social Connectedness Scale-Revised.** The revised form of the original scale was developed by Lee and Robbins (2000). This one-dimensional scale consisting of twenty items is a 6-point Likert-type scale. The internal consistency reliability coefficient of the scale was found to be .92. CFA goodness of fit values were  $\chi^2(sd = 160) = 299.54, p < .0001, RMSEA = .07, CFI = .91, RMSR = .08, and RMSR = .08$ . The scale was adapted to Turkish by Sarçam and Deveci (2017). According to the findings of the exploratory factor analysis of the Turkish scale, the Bartlett sphericity test value ( $\chi^2 = 3320.697, sd = 190$ ) and the KMO value of sample adequacy (.92) met the criteria set in the literature. According to the confirmatory factor analysis results, the fit index values of the scale ( $\chi^2 (sd = 160) = 299.54, p < .0001, RMSEA = .07, CFI = .91, RMSR = .08$ ) were adequate. In the criterion-related validity study of the scale, its relationship with the UCLA Loneliness Scale and the Social Provision Scale were examined, and relationships were found to be at a level of -.69 and .68, respectively. Cronbach's alpha reliability coefficient of the scale was found to be .89. In this study, Cronbach's alpha reliability coefficient of the scale was .93.

**The Satisfaction with Life Scale.** Developed by Diener et al. (1985), this scale was adapted into Turkish by Köker (1991). Consisting of five items, it is 7-point Likert-type scale. Scores between 5-35 can be obtained from the scale, and this gives a total score. The internal consistency reliability coefficient of the original scale was .87, and the test-retest reliability performed two weeks apart was found to be .82. Köker (1991), who conducted the validity study for the Turkish form, found the test-retest reliability coefficient of the scale to be .85. In another study, Yetim (1993) found the Cronbach's alpha reliability coefficient of the scale to be .86 and the test-retest reliability coefficient to be .73. In this study, the Cronbach alpha reliability coefficient of the scale was .85.

## Procedures

Data collection was carried out by the first researcher during the fall semester of the 2019-2020 academic year. Professors from different departments at three different universities were contacted and appointments were made for the most convenient days and hours to collect data. Students were first informed about the research and their rights; then, they were asked to sign the consent form; subsequently, the instruments were implemented. Applications took around 20 minutes.



## Data Analysis

First of all, normality, which is an important assumption for parametric tests, was checked. Looking at the skewness and kurtosis values, it was concluded that the distributions of each group for each research problem were normal since values ranged between  $-2$  and  $+2$  (Field, 2009; George & Mallery, 2010). By performing extreme and multivariate extreme controls, a total of 54 observations were deleted and analyses were performed with the remaining 451 observations. Whether there is a difference in the level of nomophobia according to gender and duration of having a smartphone was tested by an independent samples t-test; whether there was a difference in nomophobia level according to daily usage time and the number of daily checks was tested with one-way analysis of variance (ANOVA). The predictive power of social media addiction, game addiction, impact on daily life, and social connectedness and life satisfaction on the nomophobia level of university students was analyzed by multiple linear regression analysis. According to the Levene test, which was examined for the homogeneity of variances, this assumption was not violated for any of the groups. The multicollinearity assumption, which is an essential assumption for multiple linear regression analysis, was examined by looking at the tolerance and variance growth rate (VIF), and it was found that there was no multicollinearity problem. In addition, the scatter plot was examined for the assumptions of normality and covariance of residuals, and it revealed that the assumptions were met.

## RESULTS

After determining the suitability of the data for analysis, descriptive statistics values were examined in order to interpret the data in accordance with the purpose of the research. Table 1 presents descriptive statistical findings regarding the variables of the study.

Variables	n	Lowest	Highest	$\bar{X}$	Sd	Skewness	Kurtosis
Nomophobia	451	21	133	79.25	21.424	-0.107	-0.213
Digital Addiction	451	33	123	74.70	16.484	0.093	-0.423
Game Addiction	451	11	43	20.57	7.346	0.677	-0.247
Social Media Addiction	451	15	60	39.98	8.634	-0.176	-0.207
Effect on Daily Life	451	6	30	14.15	5.460	0.428	-0.354
Social Connectedness	451	28	120	89.08	16.774	-0.574	0.199
Life Satisfaction	451	5	25	14.86	4.093	-0.088	-0.194

Table 1 shows the lowest and highest values gathered from the scales and the average scores. The distribution of the scales and their subscales are normal since the skewness and kurtosis values of the scales are between  $-2$  and  $+2$ . In addition, as a result of the analysis made in parallel with the Nomophobia Scale level norm, 63.9% of the participants were found to be moderately nomophobic, 19% mildly nomophobic, and 17.1% were considered highly nomophobic. The nomophobia mean score, which was found to be 79.25, is parallel to the finding that the majority of the group is moderately nomophobic. An independent samples t-test was conducted to determine whether the mean scores of nomophobia differed according to gender and duration of having a smartphone (Table 2).

**Table 2. Independent t-test results showing the relationship of nomophobia with gender and duration of having a smartphone**

Group	n	$\bar{X}$	Ss	t	Sd	p	$\eta^2$
Female	302	81.91	20.228	3.823	449	.000	0.032
Male	149	73.84	22.791				
5 years or less	111	78.04	21.230	-0.682	449	0.496	-
More than 5 years	340	79.64	21.504				

As Table 2 indicates, it was found that the mean nomophobia score of males is lower than that of females. This difference is statistically significant ( $t(449) = 3.823, p = .000, p < .05$ ). The effect size for the difference is 0.032, which is a small effect. According to this finding, women’s level of nomophobia is significantly higher than that of men. No statistically significant difference was found between the mean scores of nomophobia according to the duration of having a smartphone ( $t(449) = -0.682, p = .496, p > .05$ ). In other words, the nomophobia mean scores of those who have used a smartphone for more than 5 years and those who have used one for 5 years or less are not significantly different. One-way analysis of variance (Table 3) was conducted to determine whether the mean scores of nomophobia differed according to the daily usage time of the students.

**Table 3. ANOVA results showing the difference among nomophobia levels according to daily usage time**

Source of Variation	Sum of Squares	Sd	Mean Squares	F	p	$\eta^2$
Among Groups	14813.245	3	4937.748	11.511	.000	0.072
Within Groups	191736.431	447	428.941			
Total	206549.676	450				

According to the results of one-way analysis of variance, the group with the highest average score of nomophobia was the group that used smartphones for 7 hours or more per day ( $\bar{X} = 87.53$ ). A statistically significant difference was found between the nomophobia mean scores of the groups according to daily usage time ( $F(3,447) = 11.511, p = .000, p < .05$ ). The effect size for the difference was 0.072, which is a moderate effect. The Scheffe test was used to explore among which groups significant differences were obtained. According to these test results, the nomophobia mean scores of the groups with 1-2 hours of daily smartphone use and 5-6 hours and 7 and more hours of use are statistically significant ( $p < .05$ ). The average score for nomophobia of those who use their smartphone for 5-6 hours and 7 hours or more is higher than those who use it for 1-2 hours. There is no statistically significant difference between the nomophobia mean scores of those who use a smartphone for 1-2 hours and those who use one for 3-4 hours ( $p > .05$ ). The nomophobia mean scores of those who use a smartphone for 3-4 hours and those who use one for 7 hours or more are statistically significant ( $p < .05$ ). The nomophobia level of those who use a device for 7 hours or more per day is significantly higher than those who use one for 3-4 hours. Those who have a daily smartphone usage time of 3-4 hours and 5-6 hours were not significantly different from each other ( $p > .05$ ). One-way analysis of variance was conducted to determine whether the mean scores of nomophobia differed according to the number daily checks (Table 4).

**Table 4. ANOVA results showing the difference among nomophobia levels according to daily checks of the smartphone**

Source of Variation	Sum of Squares	Sd	Mean Squares	F	p	$\eta^2$
Among Groups	7436.038	2	3718.019	8.365	.000	0.036
Within Groups	199113.638	448	444.450			
Total	206549.676	450				

The results of one-way analysis of variance revealed that the group with the highest nomophobia score average was the group with a daily check number of 21 and above ( $X = 81.37$ ). In addition, it was observed that as the number of checks decreases, the nomophobia mean score also decreases. A statistically significant difference was found between the mean scores of nomophobia among the groups according to the number of daily checks ( $F(2,448) = 8.365, p = .000, p < .05$ ). The effect size for the difference was 0.036, which was a small effect. The nature of the significant difference obtained among the groups was analyzed with the Scheffe method, one of the multiple comparison tests. According to the Scheffe test results, the difference between the nomophobia mean scores of the groups that check their smartphones 1-10 times a day and 11 or more times a day are statistically significant ( $p < .05$ ). The nomophobia score average of those who check their smartphones 11-20 times and 21 or more times a day is higher than those who check their smartphones 1-10 times a day. There is no statistically significant difference between the nomophobia means scores of the groups that check their smartphones 11-20 times a day and those checking them 21 times or more ( $p > .05$ ). Multiple linear regression analysis was utilized to determine whether subscales of social media addiction, namely game addiction and its impact on daily life, as well as social connectedness and life satisfaction, significantly predicted students' nomophobia levels (Table 5).

**Table 5. Results of the multiple regression analysis regarding the predictors of nomophobia**

Variables	B	Standard Error	$\beta$	T	p	R Square	Partial R Square
Constant (Nomophobia)	21.094	6.97		3.026	0.003		
Game Addiction	-0.067	0.126	-0.023	-0.532	0.595	0.146	-.021
Social Media addiction	1.426	0.114	0.574	12.556	.000	0.579	.484
Effect on Daily Life	0.128	0.19	0.033	0.673	0.501	0.316	.026
Social Connectedness	-0.036	0.058	-0.028	-0.629	0.529	-.067	-.024
Life Satisfaction	0.266	0.227	0.051	1.173	0.241	-.066	.045
R = 0.581	R <sup>2</sup> = 0.338	Adjusted R <sup>2</sup> = 0.330					
F <sub>(5,445)</sub> = 45.401	p = .000						

As presented in Table 5, nomophobia had a moderate positive correlation ( $r = 0.579$ ) with social media addiction, a moderate positive correlation ( $r = 0.316$ ) with impact on daily life, and a low positive correlation with game addiction ( $r = 0.146$ ) ( $p < .01$ ) (Köklü et al., 2006). The relationships between social connectedness and life satisfaction scores and nomophobia levels are not significant ( $p > .05$ ). However, taken together, independent variables have a significant moderate relationship with nomophobia ( $R = 0.581, p < .01$ ). The regression model is statistically significant ( $F(5,445) = 45.401, p = .000, p < .05$ ). According to the adjusted R-square value, which indicates how much of the dependent variable is explained by the independent variables, 33% of the variance in students' nomophobia levels is explained by subscales of digital addiction, social connectedness, and life satisfaction variables. Among the independent variables, social media addiction had a significant effect on the level of students' nomophobia levels ( $t = 12.556, p < .05$ ), while game addiction ( $t = -0.532, p > .05$ ), its effect on daily life ( $t = 0.673, p > .05$ ), social

connectedness ( $t = -0.629$ ,  $p > .05$ ), and life satisfaction ( $t = 1.173$ ,  $p > .05$ ) had no statistically significant effect on students' nomophobia levels. The regression model established is as follows: Nomophobia Scores =  $21.094 + 0.574 * \text{Social Media Addiction}$ .

## DISCUSSION

This study investigated whether the prevalence and level of nomophobia in university students differ according to their gender, duration of having a smartphone, daily usage time, and the number of daily checks of the smartphone. Also, the predictive power of three subscales of digital addiction, which are social media addiction, game addiction, and impact on daily life, as well as social connectedness and life satisfaction on the nomophobia levels of university students, was investigated. According to the findings, the nomophobia level of female university students is significantly higher than that of men, there is no significant relationship between nomophobia and the duration of having a smartphone, and those who had longer daily usage times and more daily checks had higher levels of nomophobia. Among the digital addiction subscales and social connectedness and life satisfaction variables, only social media addiction was found to be a significant predictor of nomophobia. The variance explained by the variables was found to be 33%.

In this study, as a result of the analysis made in parallel with the Nomophobia Scale level norm, 63.9% of the participants were moderately nomophobic, 19% were mildly nomophobic, and 17.1% were found to be highly nomophobic. In previous studies investigating nomophobia among Turkish university students in the literature, the prevalence of nomophobia among respondents was found to be 42.6% (Yıldırım et al., 2016), 54% (Erdem et al., 2017) and 40% (Mengi et al., 2020). The nomophobia rate was determined as 18.5% (Dixit et al., 2010) in a study conducted on Indian university students. In a second study conducted on Indian university students, the rate was 24.12% for those who were nomophobic and 40.97% for those who were at risk of becoming nomophobic (Prasad et al., 2015). The rate in yet another study was 6% for those who were nomophobic and 79% for those who were at risk of becoming nomophobic (Kaur et al., 2015). In a more recent study, 17.5% of university students were found severely nomophobic, 56.3% moderately nomophobic, and 25.3% moderately nomophobic (Anusuya et al., 2021). Although the levels vary, as can be seen, the rates of nomophobia or the risk of developing nomophobia among university students are alarmingly high.

There are studies in the literature that show that women have higher levels of nomophobia than men (Arpacı, 2020; Erdem et al., 2017; Gezgin & Çakır, 2016; Güllüce et al., 2019; Leon et al., 2021; Schwaiger & Tahir, 2020). Unlike these findings, there are studies indicating that nomophobia does not differ according to gender (Adnan & Gezgin, 2016; Dixit et al., 2010) and that men have higher levels of nomophobia than women (Özdemir et al., 2018; Nagpal & Kaur, 2016). However, studies showing that women have higher nomophobia levels than men are more numerous in the literature. The findings of the current study support these results. Andone et al. (2016) stated that the daily usage time of women is longer than for men and that women use their phones for social media and communication purposes, while men use it more for playing games. Jenaro et al. (2007) found that women use their phones more to chat and maintain social relations. One study found that women's fear of losing connection and not being able to communicate was higher than for men (Güllüce et al., 2019). The reason why women have higher nomophobia levels could be explained by their being more relational than men (Sun et al., 2010). It is possible that women care more about being in a relationship and may use their smartphones more for this reason. However, this situation may also lead to an increase in women's nomophobia levels.

In the current study, no significant difference was observed in the nomophobia levels of students according to the duration of having a smartphone. In the literature, studies that have not found a relationship between the duration of having a smartphone and nomophobia (Adnan & Gezgin, 2016; Gezgin et al., 2017) exist, as well as those that reveal that students with a longer duration of smartphone ownership have a higher level of nomophobia (Güllüce et al., Sırakaya, 2018; Yıldırım et al., 2016). Since smartphones, which can provide increased convenience in daily life, can answer the needs of their users immediately, both new and old users may prefer to use them intensively. For this reason, having a smartphone for a longer time may not have caused a significant difference on nomophobia levels.

A significant difference was found in the nomophobia levels of the participants according to their daily smartphone usage time. The strength of this relationship is moderate according to the eta squared coefficient. Those who use their smartphones for 5-6 hours a day and 7 hours and above have significantly higher levels of nomophobia than those with 1-2 hours of daily usage; those who use their smartphones for more than 7 hours showed significantly higher nomophobia levels than those who use them for 3-4 hours. The fact that the increase in daily use is associated with an increase in nomophobia is consistent with the results of previous research (Dağlı et al., 2017; Erdem et al., 2017). Jilisha et al. (2019) stated that the duration of smartphone use is one of the main predictors of nomophobia in university students and that students use smartphones for reasons such as avoiding stressful situations, staying up-to-date, and maintaining communication. In addition to this explanation, it can be argued that as the number of undertakings that can be done via smart phones increases, the time spent with them also increases; later, the level of nomophobia rises as the connection established with the phone is strengthened. Looking at the issue from the framework of expanded self-theory, individuals can be told to see smartphones as an extension of their selves and attribute various meanings to these devices (Han et al., 2017). The strong connection between a person and his/her smartphone established after spending long periods of time together can cause intense feelings of deprivation when the person cannot have access to his/her smartphone. Therefore, it can be said that the increase in the duration of use brings about an increase in the level of nomophobia.

It was found in the current study that there is a significant difference in the nomophobia levels of the participants according to their daily smartphone checks. The nomophobia level of those who check their smartphones 11-20 times a day and 21 times or more is higher than in those who check their smartphones 1-10 times a day. In other words, those who check their phones more often have higher levels of nomophobia. This finding is consistent with previous research findings (Abraham et al., 2014; Güllüce et al., 2019). Walsh et al. (2010) found that young people frequently check incoming text messages and calls through notifications. Gezgin et al. (2017) explained this occurrence with the addiction-enhancing effect of repetitive behaviors and stated that frequent checks of a phone may lead to nomophobia. In addition, encountering a new stimulus every time a user checks his/her smartphone may increase motivation to control themselves. Each new item they encounter when they check their phone may act as a reinforcement for users.

According to the findings of this study, social media addiction, which is one of the subscales of digital addiction, has a moderate positive relationship with nomophobia, and it significantly predicts students' nomophobia levels. This result is parallel to the results of previous research in the literature (Ayar et al. 2018; Dağlı et al., 2017; Yıldız-Durak, 2018). Polat (2017) observing that the number of people who use their smartphones in order not to miss out on social media events is larger than the number of those who use it for communication purposes. Yılmaz (2019) found that social media is a means to suppress fears of



exclusion and dislike; it also satisfies feelings of belonging to a group and being affirmed, as well as a way to express identity. The fact that social media offers individuals opportunities such as starting a relationship, maintaining a relationship, creating events, participating in activities, and being aware of their surroundings might explain its intensive use. Especially recently, the fact that social media offers young adults new business alternatives or enables them to advertise their products inexpensively may also be what makes the use of social media more attractive. The idea of being away or distancing one's self from these opportunities may also lead to occurrences of nomophobia.

Although game addiction was found to have a low level of positive relationship with nomophobia, it was concluded that this relationship was not statistically significant. While there are studies in the literature that have not found a relationship between game addiction and nomophobia (Aktaş & Yılmaz, 2017; Eren et al., 2020), there are also some indicating that students with a high rate of online game playing also have high smartphone addiction levels (Gezgin et al., 2018; Çelik, 2019). Andone et al. (2016) concluded that younger participants use phones more for entertainment and social interaction and that this use becomes a more need-oriented one as age increases. Similarly, Arslan et al. (2015) concluded that high school students' level of game addiction is significantly higher than that of university students. It can be said that the use of smartphones for gaming is more popular among high school students than university students. University students, who are generally in a period of isolation versus intimacy, (Erikson, 1993) may tend to use their phones to access social media rather than play games. In other words, social media may serve more to the intimacy needs of university students.

Even though the effect on daily life subscale of digital addiction was found to have a moderately positive relationship with nomophobia, it was not found as a significant predictor of nomophobia. Studies have found that nomophobia has a positive relationship with low sleep quality, low academic achievement, attention problems, and social phobia (Arpacı, 2020; Kuşçu et al., 2020; Mengi et al., 2020, Prasad et al., 2017). It is an unexpected finding that no such significant relationship was found in this study. On the other hand, it is possible that university students do not negatively perceive the effect of smartphone use on their lives and therefore may have answered the items of the relevant scale based on this perception. The observation that university students do not have complaints about spending a long time on their smartphones brings this explanation to mind.

Another finding of the current study indicated that the social connectedness variable did not predict nomophobia. There are no studies dealing with the relationship between social connectedness and nomophobia in the literature. According to previous studies on similar issues, there is a positive relationship between social connectedness and internet addiction (Hırlak et al., 2016) and a negative relationship between social connectedness and problematic internet use (McIntyre et al., 2015; Yalçınkaya, 2019). Similarly, there is a negative relationship between a sense of belonging and nomophobia (Akşit-Aşık, 2018) and a positive relationship between belonging and smartphone addiction (Lei et al., 2017). As can be seen, the findings of the research dealing with the relationship between similar concepts differ from one another. Smart phones may be meeting the different social-emotional needs of individuals with low and high levels of social connectedness.

In this study, it was found that life satisfaction did not predict nomophobia. There are studies on the positive relationship between nomophobia and life satisfaction (Blachnio et al., 2018), the negative relationship between the two (Güllüce et al., 2019; Şengör, 2020), and also about how the two have no relationship at all (Özarıslan, 2019; Samaha & Hawi, 2016; Sezer & Atılgan, 2019). Thus, it is possible to say that research

findings on nomophobia and life satisfaction are not consistent. Different features of smartphones may meet the needs of individuals with low, medium, or high levels of life satisfaction. Smartphones may have features that appeal to individuals with all and every level of life satisfaction. This might be why the life satisfaction level may not cause a significant difference in the level of nomophobia.

### **Conclusions and Limitations**

For the current generation, who were born into technology and who have no internet-free memory, the internet has ceased to be one-sided and has become a place in which consumers can also produce and present products. Thus, social media has become especially important with regard to smartphone use. It is thought that the increase in the level and rates of nomophobia will continue due to the effect of the decrease in the age of being introduced to and owning a smart device, the increase in the prevalence of smartphones, and the increase in screen exposure during the epidemic period. For this reason, it has become even more necessary to conduct studies to reduce the level of nomophobia or to prevent nomophobia, in addition to the studies exploring the disorder's numerous negative effects. According to the results of the current study, nomophobia increases as the duration of daily use and the number of daily checks increase. It is therefore important to conduct studies on what smartphones mean to young people and which social and emotional needs they are related to. In this respect, qualitative research can provide new perspectives and insight. In addition, it is essential to scrutinize which needs of university students social media responds to. It is of great importance to determine which individual needs are related to the use of smartphones to the extent that they prevent living in the moment, seeing and feeling what is happening around them, and establishing real and face-to-face relationships. Determining the reasons why there is a failure to follow up on how social media increases nomophobia can also be understood by qualitative research studies. Furthermore, intervention programs that will reduce the nomophobia levels of university students are necessary. Psychological counseling and guidance centers in universities can conduct informative and preventive psycho-educational activities on smartphone use and nomophobia.

As in all academic works, this study has some limitations. The generalizability of the results is limited to similar student groups as the data were obtained from volunteers in pre-determined classes through convenient sampling. The digital addiction variable has been handled within the framework of the dimensions found in the scale selected within the scope of this research. In new studies, measurement tools that include other types of digital addiction can be used to see the effect of different digital addictions on nomophobia. In this study, it was determined that the percentage of social media addiction explaining nomophobia was relatively high. Which qualities of social media increase the level of nomophobia can be handled with qualitative research methods. The data were obtained from three different universities in a single province. Similar studies could later be conducted on students studying at different universities or on individuals of different age groups and different socio-cultural backgrounds.

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### **About Authors**

**Meliha Tuzgöl Dost.** She completed her undergraduate education at Hacettepe University, Faculty of Education, Department of Psychological Counseling and Guidance. She also received her master's and doctorate degree in Hacettepe University Graduate School of Social Sciences, Psychological Counseling and Guidance Program. Currently she is working in Hacettepe University Faculty of Education, Department of Psychological Counseling and Guidance as a associate professor. She is interested in psychodynamic psychotherapy, schema therapy, emotion-focused therapy, integration in psychological counseling and psychotherapy, personality development and counselor education.

**Müfide Çırak.** Müfide Çırak graduated from Hacettepe University Psychological Counseling and Guidance undergraduate program in 2014. She completed her master's degree in the same department of the same university in 2021. She is currently continuing her doctorate education at Istanbul University Psychological Counseling and Guidance Program. She has also been working as a school counselor since 2014.

### **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.

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## RESEARCH

Open Access

## ARAŞTIRMA

Açık Erişim

## The Turkish Adaptation of the Stress-Related Growth Scale Short Form: A Validity and Reliability Study

*Strese Bağlı Büyüme Ölçeği Kısa Formunun Türkçe Uyarlaması: Geçerlik ve Güvenirlik Çalışması*

Sema Yazıcı-Kabadayı , Kemal Öztemel

### Authors Information

#### Sema Yazıcı-Kabadayı

Research Assistant, Recep Tayyip Erdoğan University, Rize, Turkey  
[sema.yazici92@gmail.com](mailto:sema.yazici92@gmail.com)

#### Kemal Öztemel

Professor, Gazi University, Ankara, Turkey  
[oztemel@gazi.edu.tr](mailto:oztemel@gazi.edu.tr)

### ABSTRACT

The present study aimed to adapt the Stress-Related Growth Scale Short Form into Turkish and to examine the psychometric properties of the Turkish form. The research was performed with three separate study groups consisting of a total of 631 university students. Linguistic equivalence studies of the scale have shown that the original and Turkish forms are equivalent. Item analyses and confirmatory factor analysis findings showed that the original factor structure of the scale with 15 items and one dimension was confirmed in Turkish university students, and the fit values of the model were within acceptable limits. In criterion validity, significant correlations were found between the Stress-Related Growth Scale Short Form and other variables. Research findings have shown that the Stress-Related Growth Scale Short Form was a valid and reliable measurement instrument.

### Article Information

#### Keywords

Stress-Related Growth  
Adaptation  
Validity  
Reliability

#### Anahtar Kelimeler

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### ÖZET

Bu çalışmanın amacı Strese Bağlı Büyüme Ölçeği Kısa Formunu Türkçeye uyarlamak ve Türkçe formun psikometrik özelliklerini incelemektir. Araştırma toplamda 631 üniversite öğrencisinden oluşan üç ayrı çalışma grubuyla yürütülmüştür. Ölçeğin dilsel eş değerlik çalışmaları orijinal ve Türkçe formun eş değer olduğunu göstermiştir. Madde analizleri ve doğrulayıcı faktör analizi bulguları ölçeğin 15 maddeli ve tek boyutlu orijinal faktör yapısının Türk üniversite öğrencilerinde doğrulandığını ve modelin uyum değerlerinin kabul edilebilir sınırlar içinde olduğunu göstermiştir. Ölçüt geçerliği kapsamında Strese Bağlı Büyüme Ölçeği Kısa Formu ile diğer değişkenler arasında anlamlı ilişkiler bulunmuştur. Araştırma bulguları Strese Bağlı Büyüme Ölçeği Kısa Formunun geçerli ve güvenilir bir veri toplama aracı olduğunu göstermiştir.

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## INTRODUCTION

Increasing social and technological changes and developments have brought some problems as well as the benefits they provide. Change and development are processes that require adaptation, and all situations that require adaptation are potentially stressful (Butcher et al., 2013). Stress is a situation that occurs when the physical and mental limits of the organism are threatened in the face of the stimulus that affects the organism as it is perceived (Yılmaz, 1991). Definitions of stress, which is an inevitable phenomenon, focus on the process between the stimulus situations that affect the individual and the individual's possible reactions to these situations (Houston, 1987). Stress, which expresses the physiological responses of the individual who is worried about a perceived threat, together with mental processes, is the effort of the organism to return to the equilibrium state to fight threats or to protect oneself from harm (Selye, 1956).

When we experience stress, we experience physical and mental problems (Butcher et al., 2013). Stress, which paves the way for the development of chronic diseases (Baltaş & Baltaş, 2013), appears to be associated with physical ailments such as the emergence and progression of cancer (Zhao et al., 2015), as well as cardiovascular disorders (Dimsdale, 2008; Lagrauw et al., 2015; Steptoe & Kivimäki, 2012). In addition, stress causes mental health problems (Garbarino et al., 2013) and is associated with variables such as depression (Crawford & Henry, 2003; Hammen, 2005; Rehman et al., 2021), anxiety (Crawford & Henry, 2003; Rehman et al., 2021), insomnia severity (Masoudi et al., 2021), and obesity (Tomiyama, 2019).

At every stage of life, individuals may face different stressful situations. During the university years, which corresponds to the beginning of young adulthood, individuals encounter several environments and situations that have the potential to increase stress, such as family environment, educational environment, work environment, changing relationships, socio-economic problems, and sexuality-related issues (Geldard & Geldard, 2013). In general, we know that the main stressors for university students are academic, financial/work, personal, familial, relational, social support, university/life balance, and starting university (Pit et al., 2018; Thawabieh & Qaisy, 2012). This indicates that the university period is in the risk group in terms of stress and related problems. Abouserie (2006) revealed that 77.6% of university students experienced moderate stress and 10.4% experienced severe stress. Pesen and Mayda (2020) found that university students experience high levels of stress, depression, and anxiety in their current study. Stress, which has become a part of university students' lives due to various internal and external expectations, is a problem that negatively affects students' mental health and well-being (Reddy et al., 2018). Studies revealing high rates of anxiety and depression among university students (Regehr et al., 2013) indicate that there is a need for the development of adequate and appropriate support services and prevention measures (Bayram & Bilgel, 2008).

The literature on stress is extensive and mostly focuses on the negative aspects of stress (Aldwin, 2007). It is important to address the negative consequences of stress, but it is important to understand the characteristics of individuals who face stress and successfully overcome the situation and reveal the transformative power of stress (Park, 1998). The stress and coping literature (Park, 1998), which focuses on the negative effects of stressful situations, has undergone a paradigm shift in the deficient perspective focusing on psychopathology (Dürü, 2006) with the realization that not everyone exposed to stressful life events develops psychological problems (Ssenyonga et al., 2013). Rudland et al. (2009) state that the negative consequences of stress should not be focused on, and they state that stress should not be seen



as a phenomenon that should be avoided. Because stress has a learning-promoting aspect. In addition to the research findings showing the negative effects of stress, the findings of the studies showing the positive gains caused by stress and the emotional and physical harmony of these gains (Tennen & Affleck, 2002) have made the concept of growth due to stress gain importance.

Stress-related growth is when a stressful event causes positive changes in a person's philosophy of life, personality, social relations, and coping behaviors over time (Park et al., 1996). Although there are many negative consequences caused by stress, it is seen that confronting stress provides a broader perspective on life, gains new coping skills, improves social relations and personal resources (Park & Fenster, 2004). Stress-related growth provides support for the formation of schemas that will support coping skills; it has been seen that it increases self-confidence, self-control resources, and psychological resilience, and also contributes to the development of personal resources such as self-esteem and competence by positively affecting interpersonal relationships (Aldwin, 2007; Calhoun et al., 2010; Cassidy et al., 2014; Sobol & Ben-Shlomo, 2019). The psychological and social resources provided by stress-related growth prepare individuals to be stronger in the face of stressful situations. Considering the relationship between stress-related growth and positive health outcomes, we think that it is more functional to turn to resources related to the concept of stress-related growth (Cassidy et al., 2014). Understanding the mechanisms associated with positive transformations caused by stressful situations can be considered as an extremely functional resource for preventive and therapeutic approaches to be developed for individuals who have to face stressful situations. Because it is known that stress-related growth has an important effect on the responses to stress and reducing the negative effects of stress (Park & Helgeson, 2006).

Although distress is often referred to when describing stress, it is important to have adequate resources to cope with stress in our increasingly complex and damaging world (Selye, 1956). Considering that it is not possible to escape from stress, which is a part of life, and that stress negatively affects mental health (Yılmaz, 1991), the importance of the concept of stress-related growth emerges. When studies on stress-related growth are examined, it is understood that stress-related growth is important for individuals' positive mental health and personal resources (Park & Fenster, 2004). Psychological resources such as resilience (Salim, Wadey & Diss, 2016), resilience and self-esteem (Dolbier et al., 2010), and optimism and positive affect (Park et al., 1996) are closely related to stress-related growth. The coronavirus epidemic, which has been going on for the last two years, has emerged as an important stress factor and has shown that the psychological and emotional wounds caused by the pandemic are as worrying as the treatment of the physical symptoms of the stressful situation (Gonda & Tarazi, 2021). With the pandemic, it has emerged that it is necessary to focus on the resources that enable people to cope and the factors that contribute to increasing the health and well-being of individuals in the face of stressful situations (Kalaitzaki & Tamiolaki, 2020). The distress caused by the pandemic has once again shown that it is valuable to focus on strengths and to explore the strengths that can be a source for us in crises (Waters et al., 2021). It is known that there is a need for studies aiming to increase human potential in the national and international literature (Kararımak & Siviş, 2008). It is a priority for mental health professionals to recognize and strengthen the factors that support mental health, such as stress-related growth (Solcova & Tavel, 2017), which expresses the positive changes and psychological benefits that occur as a result of stressful experiences. As the negative effects of the pandemic on mental health in the last two years have once again shown, it is extremely important to reveal and strengthen protective factors for mental health. Accordingly, this study, it is aimed to adapt a scale to measure stress-related growth, which is considered as a source of protective and preventive mental health.

There are some studies in the literature to measure the concept of stress-related growth. One of them is the long form of the Stress-Related Growth Scale (SRGS) adapted to Turkish by Güneş (2001). This scale consists of 50 items and is considered impractical in terms of application. Adaptation studies of the scale were carried out with earthquake victims. Considering the possibility that stress-related growth, which should be considered as a process, can also occur as a result of daily life difficulties (Cassidy et al., 2014), It is thought that the scale should also be tested in non-clinical populations with daily life problems. Another scale is Posttraumatic Growth Inventory adapted by Kağan et al. (2012). The adaptation studies of the Posttraumatic Growth Inventory were then carried out by Aydın and Kabukçuoğlu (2019) in a study group consisting of cancer patients. The Post Traumatic Growth Inventory is in a 5-point Likert type.

These scales are long in terms of the number of items. It seems that there is a need for a more useful, short, practical, and user-friendly measurement instrument. Erkuş and Selvi (2019) state that the margin of error of inconsistent answers and statistical analyzes increases when there are more than 4 categories. In this respect, the fact that the Stress-Related Growth Scale Short Form is answered in a 3-point Likert type is thought to have advantages in terms of ease of use. From this point of view, the present study aims to perform the validity and reliability studies of the 15-item short version of the SRGS on university students. The present study will contribute to the examination of stress-related growth and will pave the way for more studies on this subject.

## METHOD

This study aims to adapt the Stress-Related Growth Scale Short Form (SRG-SF) developed by Park et al. (1996) into Turkish. In this section, the participants, data collection procedure, data collection instruments, and the data analysis were described.

### Study Groups

To adapt the SRGS-SF to Turkish, the convenience sampling method was used to determine the study group. Convenience sampling is based on the selection of items that are quick and easy to reach from all participants (Baltacı, 2018). This sampling method was preferred due to problems related to accessibility and speed during the pandemic period. This study was based on three samples of university students.

### Linguistic Equivalence Group

The first group in which linguistic equivalence of the scale was tested had 30 students (23 women, 7 men). The mean age was 23.1 years (SD = 4.91). All of the participants were students in the English Language and Literature department of a state university.

### Construct Validity Group

The second group in which we examined the factor structure of the scale consisted of 261 university students (160 women, 99 men, 2 other). Their mean age was 20.96 years (SD = 2.61). The majority of the group consisted of perceives the socio-economic level as medium (n = 224, 85.8%) and consisted of the students of the Faculty of Education (n = 79, 30.3%). In the last 12 months, the participants experienced future anxiety (n = 179, %19.93), family problems (n = 138, %15,38), economic problems (n = 130, %14.48), academic problems (n = 126, %14,03) and social/interpersonal problems (n = 102, %11.36).

## Criterion Validity Group

The third group, in which the criterion validity of the scale was tested, consisted of 340 participants (260 women, 79 men, 1 other). The mean age of the study group was found to be 20.63 years. The majority of the participants consisted of perceived their socio-economic level as medium (n = 287, 84.4%) and the majority of the group consisted of the students of the Faculty of Education (n = 157, 46.2%). In the last 12 months, it was observed that the participants experienced future anxiety (n = 257, 24.02%), economic problems (n = 166, 15.51%), family problems (n = 155, 14.5%), academic problems (n = 136, 12.71%) and social/interpersonal problems (n = 97, 9.06%).

## Ethical Statement

In this study, all the rules stated in the "Higher Education Institutions Scientific Research and Publication Ethics Directive" were followed. Accordingly, the research was reviewed by Gazi University Ethics Committee, and permission was given (REF: 2020-695). In addition, the participants participated in the study voluntarily.

## Data Collection Instruments

The data was provided using a Personal Information Form, SRGS-SF (Park et al., 1996), Cognitive Appraisal Scale (Işık, 2009), Coping Attitudes Assessment Scale (Dicle & Ersanlı, 2015), and Brief Resilience Scale (Doğan, 2015).

**Personal Information Form.** To determine the demographic information of the participants, a personal information form was created by the researcher. This form contains information about the students' gender, faculty, socio-economic level, and stressful situations they have experienced/experienced.

**Stress-Related Growth Scale Short Form (SRGS-SF).** To determine the stress-related growth tendency of university students in the research, the Turkish culture-adapted form of the SRGS was developed by Park et al. (1996). Park et al. (1996) developed the SRGS, which consists of 50 items and one dimension, to measure stress-related growth. Park et al. (1996) examined item-total correlations for the SRGS. They selected the 15 items with the highest correlation with the total score. Hettler and Cohen (1996) performed a similar procedure. The comparison of the findings revealed good agreement on the SRGS items that were most associated with the total score. SRGS-SF was created from this study. The Cronbach's alpha coefficient of the 50-item scale form in university students was found to be .94 (Park et al., 1996). Hettler and Cohen (1996) found the Cronbach's alpha coefficient as .96 in their study. The Turkish version of the scale consists of 15 items in its original form. The scale is one-dimensional and 3-point Likert type (0 = Not at all suitable, 1 = Somewhat appropriate, 2 = Very appropriate). The Cronbach alpha internal consistency coefficient of the scale adapted to Turkish culture was .85 in linguistic validity studies, .83 in CFA studies, and .76 in criterion validity studies.

**Cognitive Appraisal Scale.** The scale was developed by Lazarus and Folkman (1984) to determine the cognitive assessment levels of university students. The adaptation of the scale to the Turkish language was carried out by Işık (2009). The scale, which consists of 14 items and has a two-factor structure, is in the 5-point Likert type. Scale items are scored between (0) Not at all appropriate and (4) Completely appropriate for each statement. The internal consistency coefficient of the scale was found to be .90 for the primary appraisal sub-dimension and .87 for the secondary appraisal sub-dimension (Işık, 2009). In

this study, the Cronbach's alpha internal consistency coefficient for the primary assessment sub-dimension of the scale was found to be .90.

**Coping Attitudes Assessment Scale.** Developed by Carver et al. (1989) and revised by Zuckerman and Gagne (2003), the scale was adapted into Turkish by Dicle and Ersanlı (2015). The scale consists of 32 items and has a 5-factor structure. The scale is in 4-point Likert type. The items of the scale are answered as "I Never Do This (1)", "I Do That A Little Bit (2)", "I Do That Like This (3)", "I Do This Mostly (4)". The internal consistency coefficients of the scale were .96 for the self-help sub-dimension, .98 for the approach sub-dimension, .98 for the accommodation sub-dimension, .98 for the avoidance sub-dimension, and .98 for the self-punishment sub-dimension (Dicle & Ersanlı 2015). In this study, the Cronbach's alpha coefficients of the scale were .81 in the self-help sub-dimension; .84 in the approach sub-dimension; .80 in the adaptation sub-dimension; It was found to be .64 in the avoidance sub-dimension and .87 in the self-punishment sub-dimension.

**Brief Resilience Scale.** The scale was developed by Doğan (2015) to measure the psychological resilience levels of individuals. The scale consists of 6 items and one dimension. The 5-point Likert-type scale is answered as "Not at all appropriate" (1), "Not suitable" (2), "Slightly appropriate" (3), "Appropriate" (4), "Totally Appropriate" (5). The internal consistency coefficient of the scale was found to be .83 (Doğan, 2015). In this study, the Cronbach alpha internal consistency coefficient of the scale was found to be .80.

## Process

For the adaptation of the scale, first permission was obtained from Park et al. (1996) who developed the scale. After obtaining the permissions, the SRGS was independently translated into Turkish by 5 academicians who have at least a doctorate in Counseling and Guidance, have sufficient English and Turkish language skills, and have participated in studies related to the context of the scale. Then, the translated versions of the scale were evaluated by 4 psychological counselors and 1 English teacher who had sufficient English and Turkish language skills and had at least an expert degree. As a result of the evaluations, the most suitable translations were determined in terms of language structure, cultural factors, and intelligibility. A draft Turkish form was created by the researchers in the direction with the expert opinions. Then, the items translated into Turkish were translated into their original language by an expert English Linguist and the back translation was presented to the developers of the scale. After the necessary adjustments were made in line with the suggestions of the developers regarding the semantic features of the translations, the scale was given its final form. The final version of the scale was evaluated by 2 Turkish language experts in terms of language and expression. The scale form, which was determined to be suitable for Turkish translation, was prepared for linguistic equivalence study.

The data collection process was initiated after the approval of the ethics committee. Data were collected through online forms. The scale, whose translation into Turkish was completed, was applied to a group of students studying at the English Language and Literature Department of a state university and having a command of both languages. In this study, in which linguistic equivalence was tested, the Turkish and English forms of the scale were administered to the participants with an interval of 14 days. After proof of linguistic equivalence, data were collected from two different study groups via online forms to test the validity, reliability, and item statistics of the scale.

## Data Analysis

We used SPSS and LISREL programs for linguistic equivalence, validity, and reliability analysis in the study. In the adaptation study, we analyzed the correlation coefficients between the two measures and dependent groups' t-test results with SPSS to demonstrate that the original English version of the scale and the translated Turkish version were equivalents. Before performing the validity and reliability analyzes of the scale, we examined the data sets in terms of missing data, outliers, and normality (Tabachnick & Fidell 2007). We found that there was no missing data in the data sets, and we detected the outliers by examining Box-Plot plots. We removed the detected outliers from the datasets. We examined the skewness and kurtosis values to determine whether the datasets fit the normal distribution. In the second study group, skewness and kurtosis values were found to be -.64 and -.11, respectively. In the third study group, the skewness and kurtosis values were found to be -.51 and -.45, respectively. Tabachnick and Fidell (2007) state that skewness and kurtosis values between -1.5 and +1.5 indicate a normal distribution. Accordingly, we determined that the data sets have a normal distribution. After determining that the data were suitable for the analysis, we tested the factor structure of the scale with confirmatory factor analysis (CFA). To test the construct validity of the scale, we applied first-level CFA using the LISREL program. Item analysis was performed to control the SRGS-SF items. For the criterion-related validity of the scale, we examined the relationship between Coping Attitudes Assessment Scale (Dicle & Ersanlı, 2015), Brief Psychological Resilience Scale (Doğan, 2015) and Cognitive Assessment Scale (Işık, 2009). In the criterion-related validity study, we examined the relationship of the SRGS with other scales using the Pearson correlation coefficient. To determine the internal consistency of the scale, we examined the Cronbach's alpha coefficient in the data obtained from 3 different study groups reached during the study.

## RESULTS

### Linguistic Validity

To determine whether the equivalence between the Turkish form of SRGS and the original form could be achieved, applications were made with students who are fluent in English and Turkish languages at 14-day intervals. Students from 30 English Language and Literature departments from a state university participated. Majority of the participants are female students ( $n = 23, 76.7\%$ ). In this context, the correlations between the original and Turkish forms of the scale and the mean scores between the groups were examined. Average scores and correlation findings for Turkish and English forms are given in Table 1 (See Table 1).

**Table 1. Correlation findings**

Scale	Mean	SD	r
Turkish Form	20.87	5.79	.77*
English Form	21.70	5.55	

\* $p < .01, n = 30$

When Table 1 was examined, it was determined that there was a positive and highly significant relationship between the Turkish version of SRGS-SF and its original version ( $r = .77, p < .01$ ). Accordingly, the high correlation value between both applications is seen as important evidence for linguistic equivalence (Öner, 1987). Seçer (2015) states that a correlation of .70 and above will be sufficient for linguistic equivalence. Accordingly, correlation results showed that both scale forms can be considered as proof that they are equivalent. Within the scope of linguistic validity, it was examined



whether there was a significant difference between the total scores of the participants in Turkish and the original scale form, and it is given in Table 2 below.

**Table 2. Dependent groups t-test results between Turkish and English forms**

Scale	Mean	SD	t	p
Turkish Form	20.87	5.80	-1.19	.24
English Form	21.70	5.56		

\* p < .05, n = 30

When Table 2 was examined, it was seen that there was no significant difference between the scores of the participants in the Turkish version of SRGS-SF and the original version ( $t(30) = -1.19, p > .05$ ). Accordingly, the findings provided that both scale forms are similar to each other in terms of language. In addition, at this stage, the Cronbach Alpha internal consistency coefficient was calculated for both scales. The Cronbach Alpha internal consistency coefficient for the Turkish and English forms of the scale was found to be .85.

### Item Analysis and Construct Validity

Within the scope of item analyses and validity and reliability studies of the Turkish form of SRGS, firstly, the averages, standard deviations, skewness, and kurtosis values of the items related to the scale were examined (See Table 3).

**Table 3. Item statistics**

Item	Mean	Sd	Skewness	Kurtosis	Item-Total Correlation	Cronbach's Alfa if item deleted
M1	1.27	.694	-.415	-.880	.483**	.825
M2	1.30	.735	-.527	-.989	.519**	.823
M3	1.38	.661	-.608	-.652	.507**	.823
M4	1.63	.652	-1.547	1.053	.561**	.819
M5	1.52	.605	-.885	-.210	.584**	.818
M6	1.38	.721	-.704	-.783	.571**	.819
M7	1.36	.680	-.592	-.726	.601**	.817
M8	1.43	.673	-.755	-.549	.632**	.814
M9	1.46	.647	-.807	-.405	.597**	.817
M10	1.68	.506	-1.227	.425	.519**	.822
M11	1.52	.671	-1.063	-.093	.576**	.818
M12	1.26	.781	-.501	-1.194	.443**	.830
M13	1.21	.768	-.380	-1.214	.585**	.819
M14	1.54	.629	-1.025	-.018	.593**	.817
M15	1.03	.774	-.053	-1.325	.469**	.828
SRGS-SF	20.96	5.58	-.642	-.111	-	.831

\*\*p < .01

In this context, it was determined that the skewness values of the items ranged between -.053 and -1.547, and the kurtosis values between 1.053 and -1.325. Moreover, item-total correlations were found to vary between .443 and .632. In addition, according to the Cronbach's Alpha, if item deleted operation, it was determined that all values were lower than the internal consistency coefficient for the whole scale.

### Construct Validity

To test the construct validity of the Turkish version of SRGS, CFA was used through the LISREL package program. CFA results showed that the initial fit values of the scale were below acceptable limits. Then, the modifications suggested by the model were carried out. The first modification was made

between item-1 and item-9, and the second modification was made between item-10 and item-11. As a result of the modification processes, it was understood that the fit values were at the least acceptable level. The obtained results are given in Table 4.

**Table 4. Model fit statistics**

Fit Criteria	0– Modification	1– Modification	2– Modification	Criterion	Conclusion
$\chi^2 / sd$	3.26	2.85	2.49	< 3	Perfect Fit
RMSEA	.09	.08	.07	< .08	Good Fit
GFI	.87	.88	.90	> .90	Good Fit
SRMR	.07	.06	.06	< .08	Good Fit
NNFI	.88	.90	.91	> .90	Good Fit
CFI	.90	.91	.92	> .90	Good Fit

When the fit values in Table 4 were examined, it was concluded that the fit values obtained as a result of 2-Modification showed good and perfect fit.

### Criterion Validity

At this stage, it is aimed to compare the Turkish version of SRGS-SF with other measurement instruments in the literature. Correlations with other measurement instruments used in the literature are used for criterion-related validity (Seçer, 2015). In this context, the theoretical structure of the concept to be measured and the measurement instruments used in the development of the original form were taken into consideration. Therefore, the Coping Attitudes Assessment Scale (Dicle & Ersanlı, 2015), the Brief Psychological Resilience Scale (Doğan, 2015) and the Cognitive Assessment Scale (Işık, 2009) were preferred in this study.

**Table 5. Descriptive statistics and correlations**

Variable	1	2	3	4	5	6	7	8
Stress-Related Growth (1)	–							
Brief Resilience (2)	.15**	–						
Self-Help (3)	.25**	.05	–					
Approach (4)	.31**	.30**	.15**	–				
Accommodation (5)	.34**	.20**	.27**	.48**	–			
Avoidance (6)	-.16**	-.28**	.03	-.18**	-.08	–		
Self-Punishment (7)	-.22**	-.40**	.00	-.18**	-.09	.33**	–	
Primary Appraisal (8)	-.13*	-.16**	.02	-.04	-.05	.04	.27**	–
Mean	22.16	18.31	15.02	21.80	20.01	10.58	14.73	16.76
SD	4.61	4.71	4.13	4.13	4.20	3.12	4.86	12.29

\*p < .05, \*\*p < .01, N = 340

Table 5 is examined, psychological resilience with SRG ( $r = .15$ ,  $p < .01$ ), self-help ( $r = .25$ ,  $p < .01$ ), approach ( $r = .31$ ,  $p < .01$ ), adjustment ( $r = .34$ ,  $p < .01$ ), avoidance-avoidance ( $r = -.16$ ,  $p < .01$ ), self-punishment ( $r = -.22$ ,  $p < .01$ ), primary assessment ( $r = -.13$ ,  $p < .05$ ) were found to have significant negative correlations.

## DISCUSSION

In this study, we examined the psychometric properties of the Stress-Related Growth Scale Short Form (Park et al., 1996) in a study group consisting of Turkish university students. To test whether linguistic equivalence was achieved after the translation studies of the scale, we looked at the correlation between the Turkish and English forms. We found a high level of correlation between the Turkish and English forms ( $r = .773$ ,  $p < .01$ ). Seçer (2015) states that the scales are linguistically equivalent when the

correlation between the two applications is .70 and above. The fact that the correlation coefficient obtained in this study was over .70 was considered as important evidence for the linguistic equivalence of the SRGS-SF. We also applied the dependent groups' t-test on the relevant data. We found that there was no significant difference in the scores between the two applications ( $t(30) = -1,191, p > .05$ ). We considered the lack of significant difference between the means as evidence for the equivalence of the two scales. In line with these findings, we can state that there is no linguistic difference between the two forms of the scale and that linguistic validity is ensured.

CFA was performed to confirm the single-factor structure of the scale in Turkish. As a result of the CFA, it was seen that the fit values of the model were below the acceptable limits. The suggested modification values were evaluated by considering the theoretical structure of the items. Then, the error variances of items 1 and 9 and items 10 and 11 were matched. According to the CFA results after the modifications, we found that the fit indices were  $\chi^2 / df = 2.49$ , GFI = .90, CFI = .92, NNFI = .91, GFI = .90 and RMSEA = .076. Sun (2005) states that values greater than .90 indicate acceptable fit. In this direction, we have seen that the values obtained as a result of CFA are within the minimum acceptable limits. These results show that the single-factor structure of the scale is approved in Turkish culture.

As part of the reliability studies of the scale, Cronbach's Alpha coefficient and item-total correlation methods were used. Accordingly, the Cronbach Alpha reliability coefficient calculated for the SRGS-SF was .85 in linguistic validity studies; We found it to be .83 in CFA studies and .76 in criterion validity studies. Kline (2005) and Cronbach state that the alpha reliability coefficient should be at least .70. This result shows that the scale offers reliable measurements in analyzes made in different study groups. When the item-total correlation values of the scale were examined, we saw that the item-total correlation scores of the scale ranged from .44 to .63. Özdamar (2016) states that item-total correlations should be between .30 and .90. All these findings confirm that the scale is a reliable measurement instrument.

In order to determine the criterion validity of the scale, we examined the relationships between the SRGS-SF and the Coping Attitudes Assessment Scale (Dicle & Eranlı, 2015), Brief Resilience Scale (Doğan, 2015) and Cognitive Appraisal Scale (Işık, 2009) scales with Pearson Correlation analysis. We found moderately significant positive correlations between stress-related growth and approach ( $r = .305, p < .01$ ) and accommodation ( $r = .343, p < .01$ ). Moreover, we found that there were negative low-level significant correlations between stress-related growth and avoid-avoidance ( $r = -.16, p < .01$ ), self-punishment ( $r = -.22, p < .01$ ), primary appraisal ( $r = -.13, p < .01$ ).

This study has some limitations. The first of these limitations is related to the gender distribution of the participant group. 69% ( $n=443$ ) of the total number of participants in the three groups in which we collected the data of the study were women. Second, test-retest validity could not be assessed. Another limitation is that we did not determine the cutoff score. Increasing test scores indicate more stress-related growth.

In line with these limitations, it is recommended that researchers ensure a balanced distribution in terms of gender in the selection of the sample for future validity and reliability studies. In addition, as part of the reliability studies, it is recommended that researchers use the test-retest method to determine whether the measurement results based on the SRGS-SF are consistent over time. Investigating mechanisms that may be associated with stress-related growth is an important goal for future research. Considering that stress is extremely common, research on protective mental health variables associated with stress-related

growth will provide significant support to studies to increase positive stress-related outcomes. Finally, researchers are advised to examine stress-related growth in terms of various developmental stages and clinical and non-clinical groups. Considering that stress may differ developmentally, and stress-related growth levels will vary in clinical populations compared to non-clinical populations, we think that these studies will make important contributions.

In summary, despite all the limitations, the findings obtained from this adaptation study revealed that the SRGS-SF is a valid and reliable scale that can be considered in studies to measure the improvement experienced by individuals who experience stressful situations in various fields in Turkey. Researchers may prefer the SRGS-SF for studies investigating different variables related to stress-related growth. These studies can help expand the literature on preventive mental health and resources to help cope with stress. This situation can provide some preventive and improving contributions to the literature on stress. By using these instruments in individual counseling and group counseling practices, mental health professionals can follow the development of the clients as a result of the stress-related processes of the therapy.

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### **About Authors**

**Sema Yazıcı-Kabadayı.** She completed her undergraduate education in the field of Guidance and Psychological Counseling at Gazi University in 2014. Afterward, she completed her master's degree in 2017 at Karadeniz Technical University. The author, who is still pursuing her doctorate at Gazi University, has been working as a research assistant at Recep Tayyip Erdogan University since 2018.

**Kemal Öztemel.** He completed his undergraduate education at Gazi University, Psychological Counseling and Guidance Department in 1991. He received his Master's degree at 2000 at Hacettepe University and his doctorate degree at 2009 in the field of Psychological Counseling and Guidance at Gazi University. He is still working as a professor at Gazi University, Faculty of Gazi Education, Psychological Counseling and Guidance Department. Dr. Öztemel works in the field of career counseling. In this context, he works on career construction model, career indecisiveness, career adaptability, career decision-making difficulties and conception of work. In addition, the author has studies dealing with various psychosocial variables.

### **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.

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### **Ethical Statement**

This study was completed in accordance with the Helsinki Declaration. In line with this, the study was permitted by Gazi University Ethics Committee.

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## RESEARCH

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## ARAŞTIRMA

Açık Erişim

## Investigation of Deadly and Caring Habits in Romantic Relationships

*Romantik İlişkilerde Ölümcül ve Besleyici Alışkanlıklar*Dilek Gençtanırım Kurt , Ziya Demir , Tunahan Kargı 

## Authors Information

**Dilek Gençtanırım Kurt**

Associate Professor, Kırşehir Ahi Evran University, Kırşehir, Turkey  
[digenc@gmail.com](mailto:digenc@gmail.com)

**Ziya Demir**

Psychological Counselor, Ministry of Education, İstanbul, Turkey  
[ziyademir03@gmail.com](mailto:ziyademir03@gmail.com)

**Tunahan Kargı**

Psychological Counselor, Ministry of Education, Gaziantep, Turkey  
[tunahankargi@yandex.com](mailto:tunahankargi@yandex.com)

## ABSTRACT

In this study, the aim was to determine which deadly and caring habits, as stated in reality therapy, individuals in the young adult period use in romantic relationships and how they display these habits. The study was completed with 10 couples continuing in a romantic relationship for at least one year. The study with qualitative research pattern used an interview form developed by the researchers as a data collection tool and interviews were performed by the researchers. Interviews were separately held with each member of the couple, for a total of 20 interviews. Interviews were decoded and the closed approach was used in the content analysis process for these codes. Accordingly, two main themes of deadly and caring habits with each containing seven habits in these two categories were identified. This study revealed couples' caring and deadly habits and how they experience these habits within their relationships.

## Article Information

## Keywords

Reality Therapy  
Caring Habits  
Deadly Habits  
Romantic Relationships

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## ÖZET

Bu çalışmada genç yetişkinlik döneminde olan bireylerin romantik ilişkilerinde gerçeklik terapisinde belirtilen ölümcül ve besleyici alışkanlıklarından hangilerini kullandıklarını ve bunlar nasıl sergilediklerini ortaya koymak amaçlanmaktadır. Çalışma en az bir yıl süreyle romantik ilişkisi devam etmiş olan 10 çift ile yürütülmüştür. Nitel araştırma deseninde olan çalışmada veri toplama aracı olarak araştırmacılar tarafından geliştirilen görüşme formu kullanılmış ve görüşmeler araştırmacılar tarafından yapılmıştır. Görüşmeler her bir çiftteki katılımcılar ile ayrı ayrı yapılmış ve toplamda 20 görüşme gerçekleştirilmiştir. Görüşmeler transkript edildi ve bu transkriptlerin analizinde içerik analizi sürecinde kapalı yaklaşım kullanılmıştır. Buna göre, iki ölümcül ve besleyici alışkanlıklar olmak üzere iki ana temanın her birinde bulunan yedişer alışkanlık için ikişer kategori belirlenmiştir. Bu çalışma ile çiftlerin ilişkilerinde sergiledikleri ve maruz kaldıkları besleyici ve ölümcül alışkanlıkların, ilişki sürecinde nasıl yaşandığı ortaya konulmuştur.

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## INTRODUCTION

The focus of human life includes relationships with others. Many approaches advocate that people can direct their relationships, shape their relationships with their behavior and create and sustain healthy relationships. One of the best-known approaches advocating for this view is “reality therapy”. Reality therapy, presented by William Glasser, is based on choice theory (Glasser & Wubbolding, 1997). The choice theory states that from birth to death everything a person does is behavior and is shaped according to their own choices, not due to external forces (Glasser, 2001). Behavior is displayed in order to meet needs basically; in other words, behavior is targeted and comes from within (Corey, 2015). All behavior, both positive and negative, is the choice of a healthy or unhealthy individual and the aim is to meet needs. In reality therapy, the five basic needs at the heart of individuals are “survival or self-protection, love and belonging, self-worth/power, freedom or independence, and fun” and all behavior, in the end, aims to fulfill one or more of these needs (Wubbolding et al., 2004). Peterson (2000) stated that love and belonging were the most important among these needs. These needs are met by relationships created with family, friends, and other people close to and intimate with the individual. In this context, the behavior of individuals about forming relationships with others and sustaining these relationships is basically about meeting the need for love and belonging, or occasionally an attempt is made to meet a different need through a close relationship. In situations where problems occur in these relationships, the individual becomes unhappy and may use different, destructive behavior forms to control people in their relationships, rather than work themselves to resolve the problem and their unhappiness (Glasser, 1999).

In reality therapy in addition to stating that the sources of many psychological problems exist in close relationships, it is also stated that healthy relationships are required for a satisfying life (Cameron, 2011). Glasser (1999) stated that the basic problem of unhappy people is that they cannot get along with the people they want to get on with better. Accordingly, when people experience problems with others who are important to them, they frequently use behavior patterns called external control to solve these problems. External control is defined as all behavior by an individual about controlling a person or people other than themselves. Glasser (2004) stated that though external control is an approach most frequently used by individuals to solve problems in their lives, this approach does not solve problems but inversely makes problems more complicated. According to Glasser (2000b), external control is destructive for relationships and is suppressive, controlling, and punitive (cited Murdock, 2014). Nearly all people from different societies, different political opinions, sexes, or socioeconomic levels frequently use external control. According to Glasser (2003), external control includes habits described as the seven deadly habits. These habits are criticizing, blaming, complaining, nagging, threatening, punishing, and rewarding to control. All these habits appear to be obstacles to individuals developing healthy relationships and being happy. As these habits lead to very destructive outcomes in the individual’s relationships, Glasser defined them as deadly habits. According to Glasser (1999, 2003), for an individual to form good relationships with other people and to protect these relationships, they must abandon external control and use internal control. People using internal control respect other people’s desire to direct their lives when making decisions about their own lives and do not believe that they know best for others (Glasser, 2003). Internal control is the exact opposite of external control. For example, equivalent to the seven deadly habits of external control, the seven caring habits of supporting, encouraging, listening, trusting, respecting, negotiating differences, and accepting are frequently used by those with internal control. In this approach, instead of the individual trying to control others, they attempt to live in harmony with them.



Among relationships with others, romantic relationships become more important in a developmental context in the young adult period beginning at the end of the teens and beginning of the 20s until the 30s (Santrock, 2015). Erikson (1968) stated that individuals clarify their identities through love relationships, partner choice, marriage, and creating a family in this period characterized by the 'isolation versus intimacy' developmental crisis (Arnett, 2000; Dryfoos, 1990; Levinson, 2011; Santrock, 2015). For these reasons, it is possible to say the love and belonging need is more pronounced in this period among the basic needs.

Women and men display many different behaviors to begin and sustain a romantic relationship; additionally, over time a range of habits emerge within the dynamics of the relationship. Glasser (2001) emphasized these habits in work with couples especially and mentioned that constructive and destructive behaviors and habits exist in all close relationships. These may be defined as the seven caring and seven deadly habits in relationships. The seven deadly habits and then the seven caring habits are given below.

*Seven deadly habits in intimate relationships may be defined as follows* (Nelson, 2002; Rapport, 2007; Sohm, 2004):

1. Criticizing: This habit, qualified by Glasser as the deadliest, is defined as judging a person or thing by finding fault and communicating this judgement.
2. Blaming: The second deadly habit increasing the destructive nature of relationships is blaming and is defined as communicating a person's flaws in completing or not completing a thing in a demeaning way.
3. Complaining: The third deadly habit of complaining is defined as communicating displeasure or disappointment with a person or thing by whining.
4. Grumbling (nagging): The fourth deadly habit of nagging is defined as all talk involving repetitive complaints, accusations, criticisms, and threats to cause permanent discomfort and harassment.
5. Threatening: The fifth in terms of deadliness, threatening is defined as expressing a desire to cause physical or emotional harm to a person and forcing them to do or not do something.
6. Punishing: In sixth place among deadly habits, punishing is defined as causing pain by deliberately harming or putting the person at a disadvantage to control the person.
7. Rewarding to control, bribing: This habit is mentioned by Glasser as "rewarding to control a person". Here, a person is offered something they desire if they do or don't do something. The rewarded person may like the reward; however, most of the time they are angry at the person giving the reward and there is an effort to control the person by creating a dependency-based relationship.

*The seven caring habits are as follows* (Rapport, 2007; Sohm; 2004):

1. Listening: This involves communicating without using any of the seven deadly habits.
2. Supporting: This involves doing and saying things that assist a person to achieve their goal, by showing belief in a person's ability to develop their strong aspects.
3. Encouraging: This involves emphasizing a person's strong points, and inspiring the person through hope for them to achieve success and meet their own needs.
4. Respecting: This is believing others are valuable and showing true interest in them.
5. Negotiating differences: This involves discussing and finding satisfactory solutions in a relationship with a win-win approach to differences and disagreements.
6. Trusting: This involves believing in a person and trusting his/her character, abilities, and power with the aim of assisting, not hurting the person, and communicating this situation.

7. **Accepting:** This means approaching a person in a friendly way so they feel valued.

With the limited number of studies in the literature, it has been found that couples use both caring and deadly habits in romantic relationships and that caring habits increase satisfaction in the relationship. Additionally, researchers concluded that the caring habits of listening and trusting are most used by people and are the habits people most desire in their partners. Findings from the perspective of deadly habits show that criticizing, complaining, and nagging are frequently used by people, punishing is not used by anyone and the choice of these habits is caused by the conflict in the relationship due to the partners not changing (Dabo et al., 2015).

A qualitative study about the abusive behavior university students experience in romantic relationships found they were exposed to abusive behavior like ‘punishing’, ‘threatening’ and ‘judgement’ (a subdimension encompassing the ‘criticizing’ and ‘blaming’ habits within the scope of the study) (Seçim, 2019). In light of the findings of this research, inferences may be made about deadly habits in relationships causing conflict and having an abusive aspect. Qualitative research on topics that university students wanted training about in relationships before marriage questioned problems experienced by university students in romantic relationships. The five main themes obtained in this research were communication (126; 34.05%), conflict resolution (92; 24.86%), accepting differences (74; 20%), romance-sexuality (44; 11.90%), and social support (34; 9.19%) (Haskan Avcı, 2014). When these themes and the research findings are investigated, the communication theme emphasizes the deadly habits of criticizing and blaming and the caring habits of listening and trusting. The conflict resolution and accepting differences themes, comprising nearly 45% of the research, can be considered to be connected to the caring habits of listening, accepting, and negotiating differences, while the social support theme emphasizes the caring habits of supporting and encouraging. Again, couples dealing with accepting differences in their relationship before marriage will ensure couples can deal more healthily with resolving differences that emerge in the first years of marriage (Gladding, 2012).

The time when individuals step into the young adult period coincides with the university years. Intimacy, becoming an important developmental task in this period, plays a role in developing skills necessary to create healthy adult romantic relationships (Etchevery et al., 2008). Romantic relationships formed in the university years increase the individual’s participation in social activities and positively affect social and personal development (Hamamcı & Esen-Çoban, 2010; Moss & Schwebel, 1993; Saraç et al., 2015). With experiences acquired in romantic relationships, individuals develop a perspective about the qualities of romantic relationships they will experience in the adult period and this period acts as a rehearsal for married life (Furman, 2002; Furman & Shaffer, 1999; Stabelli, 1988).

In this study, planned in light of this information, the aim was to determine which deadly and caring habits were used by individuals in the young adult period in romantic relationships lasting at least one year and how these habits are displayed. The question sought to be answered in this research: “How do individuals who have romantic relationships during young adulthood use deadly and caring habits in their relationships?” Additionally, in the study, individuals revealed which of these behaviors their partners displayed and how they experienced them. This study contributes to knowledge about the deadly and caring habits in close relationships as expressed in reality therapy and aims to guide future studies. Additionally, it is considered that the study will provide support in terms of practice for psychological counselors working with couples and clients experiencing problems with relationships in the young adult period.

## METHOD

### Pattern

The qualitative research pattern was used to ensure the ability to organize and investigate opinions emerging in line with the experiences and lives of people in the research or planned research (Ekiz, 2003). The study was completed within the framework of case studies (phenomenology), one of the qualitative research patterns described as “focus on cases we are aware of but which lack in-depth and detailed understanding’ (Yıldırım & Şimşek, 2011). Everything in our surroundings, in short, the world, is our perception, and our existing knowledge through which we create meaning is broadly affected by our perceptions. The case study approach accepts that individual meaning emerges in a broader social context (Patton, 2002: 104).

### Research Group

The targeted sampling method was used to determine the study group. In line with the aim of the research, participants were chosen according to certain criteria related to the problem (at least one-year relationship, being a young adult, the relationships of the participants include the expectation of marriage). For this reason, in the context of the study, one of the targeted sampling methods of criterion sampling was used to choose the sample to access rich situations in terms of knowledge and perform deep research. Criterion sampling means the sample is created of people, events, objects, or situations with qualities determined related to the problem (Büyüköztürk, Kılıç Çakmak, Akgün, Karadeniz & Demirel, 2012).

The study group for the research comprised a total of 10 women and 10 men, comprising 10 couples, with a romantic relationship lasting at least one year, attending a university or newly graduated. For samples in qualitative research, the depth of qualitative data, knowledge load related to the situation, and the observation ability and analytical skills of the researcher come to the forefront rather than size (Baltacı, 2018; Sandelowski, 1986). For targeted sampling, information saturation should be reached rather than a particular sample size; in other words, the size is determined when no new information is obtained from a new sample unit, and information begins to repeat (Baltacı, 2018; Polat, 2014). When responses related to similar statements and themes began to be given to questions after interviews with 10 couples in the research sample, the researcher assumed data saturation was reached.

The mean duration of the relationship of couples was more than two years. One participant in the research was an associate degree student, the others were undergraduate students or new graduates. Participants were attending the psychotherapy and rehabilitation, guidance and psychological counseling, nutrition and dietetics, class teaching, science and technology teaching, business, engineering, psychology, and civil aviation and transport departments or had graduated from one of these departments. The mean age of participants was 22.1 years. Considering the future expectations of participants that they would continue their relationships and their development period, they planned to continue their relationship with marriage. One of the couples participating in the research was engaged.

### Ethical Statement

The authors declare that they continue to work in this study in accordance with scientific work ethics and Helenski declaration. In addition, the participants participated in the research voluntarily. Accordingly, the research was reviewed and approved by the Social and Human Sciences Scientific Research and Publication Ethics Committee of Kırşehir Ahi Evran University (04.03.2021-2021/1).

## Data Collection Tools and Procedure

A structured interview form developed by the researchers was used as a data collection tool. After developing the research form, it was sent to five experts who were requested to examine it for suitability of language and meaning, and necessary feedback was obtained. One of these experts is a Ph.D. student in the guidance and psychological counseling program and he studied reality therapy in his doctoral thesis, another one has Ph. D. degree in measurement and evaluation program, and the others have Ph. D. degree in guidance and psychological counseling program. The expert investigation, in other words, peer checking, is one of the precautions taken to increase quality in this type of research (Yıldırım, 2010). In line with opinions, the structured form was revised and a pilot application was performed. The final form was created in line with the opinions of participants in the pilot application and experts. Interviews were completed using online video conference applications with different interviewers so that couples did not affect each other and the interviewer not be affected by the couples. Consent was obtained from participants and the interviews were recorded.

## Analysis of Data

Data obtained from the structured interview form and recorded with the voice recording device were later transcribed. The data analysis process used the 'content analysis' method in qualitative research. Content analysis is a scientific approach allowing the objective and systematic investigation of verbal, written, and other material (Tavşancıl & Aslan, 2001). The basic aim of content analysis is to reach the concepts and relationships that can explain the collected data. According to Yıldırım and Şimşek (2006), first, the collected data is conceptualized, then the concepts are organized logically, and then it is necessary to identify the themes explaining the data.

There are generally two separate approaches to categorization in the content analysis process. The first approach is to group the recorded units according to an existing categoric system in a certain field. In the second approach, categories are not identified ahead of time. Categories become apparent as the message elements are considered and reviewed. These approaches are called the 'closed approach' for the first and the 'open approach' for the second (Henry & Moscovici, 1968; cited Bilgin, 2006).

In this research, content analysis was completed using the 'closed approach'. When data were analyzed by decoding and transcription, the content was first individually assessed by the three researchers and then assessed together based on criteria. Then the concepts included in participant statements were obtained in line with deadly habits and caring habits. These concepts were grouped within the framework of the existing categories related to Glasser's habits concept.

## RESULTS

In this research about how university students use deadly and caring habits in romantic relationships, according to Glasser and dealt with in reality therapy, the findings obtained about deadly habits in the first stage are given in Table 1.

1. **Deadly Habits:** As seen in the table, it is clear the theme of deadly habits includes the subthemes of criticizing, blaming, complaining, nagging, threatening, rewarding to control, and punishing.

**Table 1. Subthemes for deadly habits**

Subthemes for deadly habits						
Criticizing	Blaming	Complaining	Nagging	Threatening	Rewarding to Control	Punishing
Personality Habits	Choices Disinterest	Character-behavior Habits	Disinterest Attitude	End the relationship Emotional withdrawal	Financial Emotional	Limited communication Opposite reaction

**1.1. Criticizing:** This subtheme includes two codes identified by the researchers as ‘personal criticism’ and ‘criticism of habits.’ **Personality Criticism:** Participants criticized each other’s personalities in relationships and used the following statements about the criticizing deadly habit. Third couple female participant (3rdCFP): “*I criticize my boyfriend about being a realist. My boyfriend criticizes me due to being an emotional person.*” Fourth couple male participant (4thCMP): “*My girlfriend has an unbreakable stubbornness; I criticize her about that.*” 9thCFP: “*My boyfriend is very coldblooded, doesn’t get excited about anything. Just stands like an idol. I express my criticism of this by saying ‘Get a bit excited, don’t be so cold.’*” 9thCMP: “*I get criticized by my girlfriend due to getting annoyed suddenly at small things.*” **Criticism of Habits:** Participants criticized each other’s habits in relationships and used the following statements about criticizing deadly habits. 8thCMP: “*My girlfriend is someone who loses the run of herself about spending money. I criticize that. At the same time, I have criticisms about her spending most of her time on the telephone.*” 10thCFP: “*I talk very fast, I rattle on when explaining what I experienced. The other day we talked about this topic, he said ‘you talk very fast.’ He criticized my fast talking. He speaks excessively slowly. I criticize him about that.*” 7thCMP: “*When some friends ask her for something she can’t do, she can’t say no. I criticize that situation.*”

**1.2. Blaming:** This subtheme was identified to have two codes of ‘blaming choices’ and ‘blaming about disinterest’ by the researchers. **Blame for choices:** The participants made statements about using the blaming deadly habit by blaming one another for their choices in relationships. 9thCFP: “*When I was preparing for the university exam, I wanted to teach. He was a year above me and got into the business. He wanted me to join him a lot. Because I believed we would walk together through life, I chose that department and joined him. But I saw that it would be difficult to get a job at the end of this degree and blamed him a lot saying ‘you did this if I’d studied teaching, if you hadn’t told me to come here, maybe I would have been employed more easily’. He blamed me saying ‘you shouldn’t have come then, you should have used your head.’*” 4thCFP: “*When universities went to distance education due to the pandemic, instead of returning to our hometown to prepare for the KPSS exam, we stayed in the city we were studying in. He didn’t want this situation. We experienced economic problems. He saw me as being to blame for this.*” **Blame for disinterest:** Participants made statements about using the blaming deadly habit by blaming each other for disinterest in their relationship. 8thCFP: “*I think he allocates less time for me and as a result, I blame him by saying he doesn’t care about me.*” 5thCMP: “*When I meet my friends, she perceives it as being like I don’t show interest in her and blames me for disinterest. When she plays with her phone a lot, I blame her for not showing interest in me.*” 5thCFP: “*I blame him with statements like ‘you didn’t listen to me then, you didn’t understand, you ask me the same thing again and I’ve already explained it before as he generally doesn’t listen.’*”

**1.3. Complaining:** In this subtheme, two codes were identified by the researchers as ‘character-behavior complaints’ and ‘complaints about habits.’ **Character-Behavior complaints:** Participants made statements about the complaining deadly habit by complaining about each other’s character behavior in their relationships. 3rdCFP: “*I get complaints because I can’t put a distance between me and other people, I can’t say no to people.*” 6thCFP: “*I complain due to my boyfriend acting like a child. When I was in the hospital, he called 3-4*



times and my friends said 'look how much he calls!' I told him that jokingly, look what they are saying. He got offended by this and didn't call me at all one day, I complained about him being offended by this." 9thCMP: "I complain about my girlfriend being excited." 10thCMP: "The point I complain about my girlfriend is her jealousy. Sometimes I complain about her being too jealous." **Habit Complaints:** Participants used statements about using the complaining deadly habit about each other's habits in relationships. 4thCFP: "He gives out about my time to get ready; he has to wait for me as it takes a long time. I complain about him getting ready quickly, he just makes a plan and expects me to adapt to it." 2ndCMP: "She complains about me not being punctual and about being late." 4thCMP: "The point she complains about me is my damaging habit of smoking, she complains about this a lot. She nearly doesn't want me to do it at all." 8thCFP: "I don't want unhealthy food, I interfere with what he eats. I don't want him to eat pastries. I go out continuously and spend money. He complains about my unnecessary spending." 1stCMP: "My girlfriend complains about me pestering her due to problems we experienced with communication. I complain about my girlfriend acting without telling me."

**1.4. Nagging:** In this subtheme, two codes were identified by the researchers as 'nagging about disinterest' and 'nagging about attitude'. **Nagging about disinterest:** Participants made statements about using the nagging deadly habit about a lack of interest in each other in their relationships. 2ndCFP: "Sometimes when we sit, he focuses on the phone. There's a card game, he focuses on the game and doesn't hear what I say. I've said 'that's enough, leave it.' In other words, I nag about this game problem." 3rdCMP: "I hear a lot of nagging when I play online games. It's like 'you're not paying attention to me.'" 4thCMP: "When I sit with my male friends or go to play a game, she won't leave me alone. She continuously asks questions like 'Where are you? What are you doing? When will you be home?'" 8thCFP: "We make a plan to meet up, but his friends call and he goes to the indoor football pitch. I nag about this situation. I think he spends more time with his male friends, so I continuously nag for this reason." **Nagging about Attitude:** The participants made statements about using the nagging deadly habit about each other's attitudes in their relationship. 5thCFP: "I'm very friendly, talkative, attempt to help people regardless of whether men or women and a person who tries to act happily and smile when I can. My boyfriend tells me I need to act more clearly and put more distance rather than smiling at the opposite sex. He continuously warns me." 5thCMP: "As I find my girlfriend's behavior childish, I continuously tell her 'don't be a kid.'" 6thCFP: "My sudden anger is always on the agenda. I tell him not to be childish." 6thCMP: "I stay quiet during arguments, I can't do anything, I can't act. She nags at those times."

**1.5. Threatening:** This subtheme was determined by the researchers to have two codes of 'ending the relationship' and 'emotional withdrawal'. **Ending the relationship:** Participants made statements about using the deadly habit of threatening by threatening to end the relationship and separate. 1stCFP: "During a fight, to test him, I said 'enough, I'm so bored of these fights, I don't want to stay with you, I will go.'" 10thCFP: "I threatened him by saying 'you lied to me twice, lie a third time and see the outcome'. I told him 'if there is another woman while I'm in your life, if you cheat on me, even if I love you, even if I'd die for you, I'll leave.'" 5thCFP: "I said 'if you can't do this, I'll leave.' As he gets angry at everything so quickly, that doesn't scare me much, even if there's this irritability between lovers, in situations where we move forward, like marriage, this thing scares me. I said to him 'if this thing isn't solved, let's break up.'" 4thCFP: "Our family doesn't want us to marry without preparing well for the KPSS and beginning our careers. For this reason, we threaten each other that if we don't succeed in the exam and if there's a problem, we won't be able to marry." **Emotional Withdrawal:** Participants made statements about using the threatening deadly habit with threats about emotionally withdrawing from each other in the relationship. 9thCFP: "I say things like 'if you don't do this, I won't talk to you, I'll ignore you, I won't walk beside you, I won't hold your hand, I won't say nice things.'" 9thCMP: "I say 'if you don't do this, I won't talk.'"

**1.6. Rewarding to Control:** This subtheme was determined by the researchers to have two codes of ‘financial reward’ and ‘emotional reward’. **Financial Reward:** Participants made statements about using the rewarding to control deadly habit by giving each other financial bribes in their relationships. 2ndCMP: “*When I don’t want to go down to the garden, she promises to get me something from the corner shop if I go to the garden.*” 3rdCMP: “*If we’re meeting in a café, I say ‘I’ll come on the condition you buy the cake I want.’ She orders the cake so there’s no coldness in front of her friends. I wanted to stay at home and play games at the weekend. Because there was a tournament and that tournament was very important to me. She likes pens and notebooks a lot. I’ve bought her a pen as a bribe.*” **Emotional Reward:** Participants made statements about using the rewarding to control habit by giving emotional bribes to each other in their relationships. 5thCMP: “*My girlfriend wants to get married later. She doesn’t want to get married immediately when the university is finished. I want to get married immediately. As she doesn’t want us to be separate when I enter the police force, she says ‘Look, if you continue to study in this department together, we’ll get married earlier.’*” 5thCFP: “*My boyfriend is someone who likes talking to other girls in the class. I said to him ‘If you pay more attention when speaking with other girls, I’ll do the things you want me to do better.’ Like, if you don’t do it, I won’t do it.*” 10thCMP: “*When she wants to meet with her friends she says ‘If I meet with my friends, you can go meet with your friends.’*”

**1.7. Punishing:** Two codes were determined within this subtheme as ‘limiting communication’ and ‘opposite reactions.’ **Limited Communication:** Participants made statements about using the punishing habit of limiting communication with each other in their relationships. 2ndCMP: “*When we have a momentary flare of anger, she blocks me on social media and I block her. I don’t meet with her when we’re arguing.*” 3rdCMP: “*The form of punishment is not talking to me.*” 6thCFP: “*He punishes me by choosing not to speak to me.*” 7thCFP: “*We message each other, but I punish by not speaking when I’m annoyed.*” **Opposite Reaction:** Participants made statements about using the punishing deadly habit of giving opposite reactions to make each other uncomfortable in their relationships. 5thCMP: “*I say don’t hug me when she behaves in ways I don’t like.*” 6thCFP: “*I say annoying things to him to punish him. I talk to make him angry.*” 2ndCMP: “*My way of punishing her is to do all the things that annoy and irritate her. This way she gets even more annoyed and really I get some satisfaction from her annoyance in that moment.*”

**2. Caring Habits:** As seen in Table 2, within the theme of caring habits, the subthemes of ‘supporting, encouraging, listening, accepting, trusting, negotiating, and respecting’ were determined within the framework of reality therapy.

**Table 2. Subthemes for caring habits**

Subthemes for caring habits						
Supporting	Encouraging	Listening	Accepting	Trusting	Negotiating	Respecting
Emotional	Academic	Listening	with Personality traits	Being	Open	to For personal traits
Academic	Personal development	interest	Adoption	reachable	cooperation	For choices
		Empathy		Loyalty	Solution-focused behavior	

**2.1. Supporting:** In this subtheme, the researchers determined two codes of ‘emotional support’ and ‘academic support’. **Emotional Support:** The participants made statements about using supporting caring habits in terms of emotionally supporting each other in their relationships. G5FP: “*His grandfather died. His grandfather looked after him and it affected him a lot. I tried to be with him and support him as much as I could.*” G7FP: “*We support each other about our decisions. We ask each other’s ideas, we make our own decisions. For example, I thought about education abroad, I asked him and he said ‘you should do whatever you want, I still don’t want*

you to go as you'll be far away, but if you want to go, it's not a problem for me." G7MP: "When my girlfriend experiences problems with her friend relationships, I am with her and support her." **Academic Support:** The participants made statements about using supporting caring habits in terms of academic supporting each other in their relationships. G4FP: "He helps me in my lessons where I can't. He even tells the lessons." G2FP: "He came to me from another city when I was both preparing for exams and was stressed, motivating me, spending time with me, trying to be good, etc. These were very important to me." G7MP: "I am preparing for KPSS and my biggest focus is the exam right now. In this case, he is my biggest supporter. In this case, whenever I fall into pessimism, it wakes me up. He stands by me in my indecisiveness in every matter, he is my supporter."

**2.2. Encouraging:** In this subtheme, the researchers determined two codes of 'academic encouragement' and 'encouraging personal development'. **Academic Encouragement:** The participants made statements about using encouraging caring habits by motivating each other in academic terms in their relationships. G2FP: "I may have problems with my family, with my friends, there are other problems, including exams, assignments. At times when I feel I can't overcome a task, I see his support. Like 'you can do it, you can succeed.' I see the concept of encouragement clearly." G7MP: "She encourages me about working at my lessons. I encourage her by giving pep talks when she thinks she's going to fail." **Encouragement of Personal Development:** The participants made statements about using encouraging caring habits when motivating each other about personal development in their relationships. G1MP: "When she is undecided and doesn't think she can do some things, I say that she can do it, she can succeed." G8MP: "I think my girlfriend can obtain anything she wants and I do as much as I can for this. She sometimes retreats from things she wants to complete, wants to do, and I try to encourage her to do the things she wants." G4FP: "When my boyfriend has fears about finding a job, I encourage him about this topic." G8FP: "I'm afraid of traffic, I was afraid of getting my driver's license. He encouraged me about this."

**2.3. Listening:** In this subtheme, the researchers determined two codes of 'listening with interest' and 'empathy'. **Listening with interest:** Participants made statements about using the listening caring habit by listening to each other with interest in their relationships. G2MP: "Sometimes I say very small things. Even I don't remember them. Then a week passes and she says 'you did this, you thought like that.'" G10MP: "For example, when I share a topic I've argued with my family about with her, I can feel that she gives me all her attention with her words" G6MP: "When I talk with her, I give one-hundred percent to her. If I'm dealing with something at that moment, I leave it and focus on her." G9MP: "When I'm explaining a problem, I can feel I'm listened to when she's searching for a solution. If it was a person she didn't listen to, she wouldn't care, would appear to listen but not understand." **Empathy:** Participants made statements about using the listening caring habit by reacting to what they explain to one another and by trying to be empathic. G6FP: "When he gives verbal reactions to what I explain, I feel I'm being listened to." G10FP: "When he has a problem, I think about putting myself in his place. He puts himself in my place because I want him to. So 'when you lied to me when you hide something from me, how would I feel? How would you feel if I did it to you?' When I explain a problem, I feel I am listened to when he looks for a solution to my problem." G6MP: "When she explains problems related to work, I try to answer by paying attention to her feelings. When I'm explaining a problem, I feel heard when she looks for a solution to my problem." G10MP: "When I explain a problem to my girlfriend, I feel she is listening to me when she talks in a way that will solve my problem."

**2.4. Accepting:** The researchers determined two codes within this subtheme of 'personality traits' and 'adoption.' **Personality Traits:** Participants made statements about using the accepting caring habit by accepting each other's personality traits in relationships. G5FP: "I'm a very smiley person and despite him continuously warning me that this will be misunderstood by others, he has accepted me in this way as I didn't change this; at least I think so. For me too, he can get angry at everything in a very impulsive way. Whether he wants or not, he gets

annoyed at even the smallest event and I realized that no matter how much I warn him it didn't work and I've accepted him in this way." G9FP: "At first he couldn't accept my excitedness, it was odd to him as he was cold-blooded. Similarly, his coldness was very odd to me. Later after experiencing some events within the relationship, I thought these aspects of ourselves led to these results. I couldn't accept this mood when we were first sweethearts but I began to accept this as we experienced these events." G6FP: "He's not a very ambitious person. Generally, he thinks about things that will be a problem for him. He thinks that I accept these characteristics in him." **Adoption:** The participants made statements about valuing each other, including each other in their environments, and adopting each other as accepting caring habits. G10FP: "He loves me for who I am. He was a friend to me. I love that aspect of him, I accepted that aspect." G8FP: "I think accepted him because he was thoughtful and understanding toward me. I feel accepted as he loves and respects me." G3FP: "I feel fully accepted when I talk and chat with my boyfriend. When my boyfriend sees that my attention is on him in crowded environments, he feels accepted." G7MP: "When I mention my relationship to my family, my girlfriend feels she is accepted by me."

**2.5. Trusting:** Within this subtheme, the researchers determined two codes of 'being reachable' and 'loyalty.' **Being Reachable:** Participants showed they used the trusting caring habit with statements about being able to reach each other when needed in their relationships. G2FP: "He's beside me for even the smallest problem, which gives me confidence. He never says 'that's your problem, what's it to me.' That gives me confidence, I know he'll always stand behind me." G3FP: "As this is a small place, I get stressed when I see someone I know on the road. In this situation him being beside me calms me down and gives me confidence." **Loyalty:** The participants made statements about the trusting caring habit in their relationship by expressing their commitment to each other and their relationship. G3MP: "When I leave her someplace to go out, I don't worry about her. I know very well that she won't betray me, won't talk to others. If she does talk to someone, it's just like a friend. I really don't know how I gained this trust. Her stance when she's beside me, the way she looks or communicates with others shows this in some way, even if I don't pay special attention." G4MP: "The words 'whatever happens I'll be with you' have definitely been said by each couple to each other in relationships. But I understood that 'whatever happens I'll be with you' in my relationship from her actions. I trust her about this." G5MP: "I feel confidence because I think she'll never leave me or break up with me." G6MP: "Cheating comes to mind. I see, I know, I feel she won't cheat. She feels that I won't cheat. There's no chance of it, so I don't give it a chance either. Because I'm committed, and she's committed to the relationship. I think we're loyal."

**2.6. Negotiating:** Within this subtheme, the researchers determined two codes of 'being open to cooperation' and 'solution-focused.' **Open to Cooperation:** The participants made statements about using the negotiating caring habit by openly discussing cooperation during conflicts they experienced in their relationships. G1FP: "Generally we end conflicts with resolution. We don't delay when we fight, we immediately talk about it. We talk about the causes, the process." G2FP: "Generally we calmly sit and talk. He's not someone who shows his feelings much, I couldn't show at first, but we understand each other if something isn't going right. For example, a while ago he said something I didn't like in front of our friends. Later he noticed I didn't like it and said we couldn't talk about it. We sat after that and talked, we sorted it out." G9FP: "In our fights, our opinions are different from each other. I say 'I want to do that', he says 'I want to do this.' Then we sit and talk. We think about the results of what I want, we imagine what will happen as a result of what he wants. We choose whichever appears more reasonable for both of us. Otherwise, if we resist and say 'no, what I want' we'll never solve our problems." **Being Solution-focused:** The participants made statements about solution-focused discussions about conflicts experienced in their relationships, by taking the path of least resistance before the conflict expands. G2MP: "Both of us try to stay calm during conflicts, when we get annoyed with each other, the other just takes it. Even if I'm one hundred percent right, I won't extend the topic if it will upset my girlfriend." G5FP: "Initially our conflicts are one-sided. But after we calm



down, either he or I will find the common path. Generally, he finds the common path. In the end, there are discussions where we both leave happy.”

**2.7. Respecting:** Within this subtheme, the researchers identified two codes of ‘personality traits’ and ‘choices.’ **Personality Traits:** Participants made statements about using this caring habit by respecting each other’s personality traits in the relationship. G2FP: “His calmness, they say thinks three times, speaks once, he’s that kind of logical person. I respect his success, his developing himself, I appreciate it.” G2FP: “I think we are honest with each other, I am all the time like I don’t question what he says. At the same time, I don’t like telling lies and he knows that when I say something I won’t lie, I won’t deceive. I respect his honesty, his trustworthiness.” G4MP: “She is an individual who can achieve whatever she wants, and she can go the path she wants without paying attention to obstacles. I appreciate that a lot, I feel a lot of respect for her. She respects my hardworking traits.” **Choices:** The participants made statements about using this caring habit by respecting each other’s choices in the relationship. G7MP: “If my girlfriend wanted to go outside the province with her friends, I would respect that.” G7FP: “Whenever I make any decision, he respects my ideas, my thoughts. He doesn’t say you’re wrong.” G6FP: “Whatever my decisions, I think he feels respect when he approves. He doesn’t interfere with me much, so for that reason, I think he respects me.” G3FP: “Both of us know each other’s red lines, we pay attention to them in situations where we will experience the smallest lack of respect.”

## DISCUSSION

Within the main theme of deadly habits in intimate relationships, the research results found criticizing personality and habits codes within the criticizing subtheme; choices and disinterest codes in the blaming subtheme; character-behavior and habits codes in the complaining subtheme; disinterest and attitude codes in the nagging subtheme; ending the relationship and emotional withdrawal codes in the threatening subtheme; financial and emotional codes in the rewarding to control subtheme; and limited communication and opposite reactions codes in the punishing subtheme. Under the caring habits the main theme, the seven subthemes included emotional and academic codes in the supporting subtheme; academic and personal development codes in the encouraging subtheme; listening with interest and empathy codes in the listening subtheme; personality traits and adoption codes in the accepting subtheme; being reachable and loyalty codes in the trusting subtheme; being open to communication and solution-focused behavior codes in the negotiating subtheme; and personal traits and choices codes in the respecting subtheme.

Couples participating in the research assessed habits they displayed and were exposed to in their relationships. In the context of deadly habits, when couples were asked about how they criticized and were criticized, two codes were obtained of personality criticism and habits criticism. According to choice theory, the only person an individual can control is themselves and everything they do is their own choice (Glasser, 1998). As individuals distance themselves from the choice theory and move toward external control psychology, they begin to use deadly habits. In this study, the criticisms of couples in the context of each other’s personality traits and habits may be given as an example. In studies based on different theories, criticism is assessed as a negative communication behavior and frequent use is stated to be effective in ending the relationship, as with other deadly habits (Driver, Tabares, Shapiro & Gottman, 2003). In explanations related to marital satisfaction in the context of intimate relationships, Feeney (2002) stated that blaming, criticism and pressure were among the most pronounced behaviors lowering marriage satisfaction. In this context, criticism, especially qualified as most deadly by Glasser, is defined as judging a thing or person by finding errors in their intention and communicating this judgement



(Nelson, 2002; Rapport, 2007; Sohm, 2004). Negative effects on the relationship are unavoidable, especially when criticism between couples is directed toward traits representing the direct self like personality or habits. Additionally, considering Glasser (2005) stated that relationship problems are the basis of all psychological problems, and with the crisis of isolation versus intimacy of individuals in the young adult period (Erikson, 1968), these destructive habits in intimate romantic relationships may have negative effects.

One of the other habits used by couples in relationships is blaming, defined as attributing flaws in something that occurs or does not occur to a person and communicating them by demeaning that person (Nelson, 2002; Rapport, 2007; Sohm, 2004). Couples displayed this habit by blaming each other for decisions and disinterest. According to choice theory, individuals are responsible for everything they do (Glasser, 1998), and considering this responsibility, couples who blame each other for their individual decisions are again moving away from choice theory and orienting toward external control psychology. Love and belonging are the most important needs (Murdock, 2014) and individuals may use deadly habits due to the tendency to seek love and act according to external control psychology (Glasser, 1998). Couples can be said to blame each other for disinterest to meet this need. Again, while couples blame each other about disinterest, complaints about disinterest in the form of nagging cause permanent discomfort and may be included within the nagging habit defined as all speech involving repeated complaints, blame, criticism and threats with the aim of harassment (Nelson, 2002; Rapport, 2007; Sohm, 2004). According to Lehmann (1998), one of the behaviors classified within the range of control behaviors is blaming (cited Simmons and Lehmann, 2007). Again, in explanations about marriage satisfaction within the context of intimate relationships, Feeney (2002) found that blaming was among the most pronounced behaviors lowering marriage satisfaction. Individuals may blame their partner for lack of loyalty in an attempt to control the other within the relationship (Follingstad et al., 1990) and this control may be displayed by blaming for disinterest among the blaming habits. Nagging behavior has negative effects on communication and interaction between individuals due to its repetitive nature (Dunleavy et al., 2008) and people who are nagged are uncomfortable due to this situation (Tannen, 1991). In this context, the blaming and nagging subthemes may be said to have negative and destructive effects on both the need for intimacy (Erikson, 1968) and the basic need for love and belonging (Glasser, 1998) for individuals in the young adult period within intimate relationships.

Couples made statements about using the complaining habit in their relationships. They complained about each other in relation to character behavior and habits and received complaints about these topics. Complaining may be defined as communicating discontent or disappointment about someone or something by whining (Nelson, 2002; Rapport, 2007; Sohm, 2004). Additionally, if this discontent or disappointment about character behavior and habits becomes continuous, it will be displayed as nagging about attitudes within the relationship. Again, as the only person who can control someone is the individual themselves according to choice theory (Glasser, 1998) when they move away from this idea and focus on external control psychology, they may complain about character-behavior and habits and nag about each other's attitudes. Couples who display complaining and nagging behavior that will cause conflict and maladjustment instead of asking for support in their marriage (Çağ, 2011; Gardner & Cutrona, 2004) can be said to harm the nature of the relationship. According to Young and Gluhoski (1997), complaining about emotional needs not being met in marriage may lead to divorce (cited Kargın Güner, 2014). This complaining may be an indicator that the need for love and belonging is not being met within the relationship. Identification of codes about character behavior and habits within the

complaining subtheme along with the blaming about disinterest code in the blaming subtheme and nagging about disinterest code in the nagging subtheme show that these deadly habits may be associated with each other.

Within the threatening subtheme among deadly habits in relationships of couples participating in the research, the codes of threatening to end the relationship and emotional withdrawal were observed. Threatening is defined as expressing an intention to cause physical or emotional harm to a person to force them to do, or not do, something (Nelson, 2002; Rapport, 2007; Sohm, 2004). If an individual feels threatened, they begin to worry about freedom (Glasser, 1998). Within the punishing subtheme, couples used this deadly habit by limiting communication with each other or giving opposite reactions. Punishing may be defined as causing a person to feel pain by harming the person or placing the person in a disadvantaged position to intentionally control them (Nelson, 2002; Rapport, 2007; Sohm, 2004). When these two deadly habits are considered together, they may be assessed as a behavior pattern that has both a dimension of psychological violence and abuse and involves a range of controlling behavior (Follingstad et al., 1990; Lehmann, 1998; cited Simmons and Lehmann, 2007). In conclusion, threatening and punishing negatively affect relationships in this context and may be assessed as habits with relationship-harming qualities.

The final subtheme in the deadly habits main theme of rewarding to control may be defined as offering another person something they want if they do, or don't do, something. The basis of this habit involves the aim of controlling a person with rewards. In the research, the rewarding to control subtheme encompassed the codes of financial rewards and emotional rewards and couples used statements about attempting to control each other. Though this reward may have satisfying features for the rewarded person, it may also cause this person to feel angry. Additionally, rewarding to control may be based on dependence in the relationship (Nelson, 2002; Rapport, 2007; Sohm, 2004). According to Peterson (2000), a person's need for freedom is met when they feel in control of their own lives. Between couples in a relationship, this habit may limit the other's need for freedom when used for controlling purposes and may prevent individuals from achieving the closeness they need in developmental terms.

Couples assessed their caring habits along with deadly habits in relationships. One of these caring habits was supporting, involving showing belief in a person's ability to develop their strong aspects, and doing and saying things to help them achieve their goal (Rapport, 2007; Sohm, 2004). Couples participating in the research were found to use statements included in two codes of academic support and emotional support within the supporting subtheme. Another caring habit is encouraging, defined as emphasizing a person's strong aspects for them to be able to succeed and meet their own needs, and inspiring hope in that person (Rapport, 2007; Sohm, 2004). Couples stated they displayed this habit within the codes of academic encouragement and encouragement about personal development in their relationships. Research stated that individuals choose to form relationships with people who are tolerant, have developed communication skills, are friendly and supportive (Ondaş, 2007; Yıldırım, 2007). Couples receiving the support of the type they choose and in amounts they need from each other increases satisfaction in relationships and positively affects relationships (Lorenzo et al., 2018). Cramer (2004) stated that support was a variable explaining relationship satisfaction. Additionally, encouragement was assessed as a type of support (Barrera and Ainley, 1983; Cohen and Wills, 1985). In this research, it may be said that the supporting and encouraging habits of couples had complementary qualities (the presence of the 'academic' code within both supporting and encouraging caring habits).

Another caring habit chosen by couples in relationships is listening. Listening is expressed as paying attention to communication without using any of the seven deadly habits (Rapport, 2007; Sohm, 2004). The listening caring habit was explained by two codes of listening with interest and empathy. Effective listening causes trust to form in the interaction by contributing to the feeling of value being given to the person talking and making sharing satisfactory (Cüceloğlu, 2015). Additionally, couples acquiring effective listening skills supports the development of a healthier interaction pattern in relationships (Stanley et al., 2000).

Another caring habit was acceptance, involving a person approaching another in a friendly way that makes them feel valued (Rapport, 2007; Sohm, 2004). Acceptance was explained by two codes of accepting personality traits and adoption. Again, respect was encountered as another caring habit and this habit is explained as believing others are valuable and approaching them with true interest (Rapport, 2007; Sohm, 2004). An individual's acceptance of the other in relationships is an expression of respect and this expression corresponds to the individual respecting the essence of the other person and accepting them as they are (Keitner et al., 2010). According to Özkan (1989), individuals who do not accept their differences from each other or accept people as they are and partners not giving each other the required importance is an important cause of divorce. The lack of ability to accept and respect individual differences in relationships forces couples to try to make the other more like themselves and this situation may cause conflict and disappointment (Keitner et al., 2010).

A successful relationship is a relationship where the individuals mutually meet each other's needs and couples ensure this by mutual discussion and negotiation in relationships (Murdock, 2014). Negotiation is defined as finding solutions by discussion in a satisfactory way within the relationship using a win-win approach to differences and disagreements (Rapport, 2007; Sohm, 2004). Based on this definition, the negotiating caring habit may be said to be similar to a constructive conflict resolution strategy. In constructive conflict, both partners achieve their goals, and conflicts are resolved with respect and trust (Johnson and Johnson, 1995; cited Varol, 2019). Couples displayed the negotiating caring habit in their relationships with statements collected in the codes of being open to cooperation and being solution-focused. Research by Grenager and Holmes (2013) concluded that cooperative negotiation styles were positively correlated with relationship satisfaction.

The final caring habit of trusting is represented by believing that the person exists to help, not to hurt, and conveying this situation, together with confidence in their character, abilities, and power (Rapport, 2007; Sohm, 2004). In the research, couples used expressions within the context of being accessible and loyalty codes and chose to trust caring habits in their relationship. Simpson (2007) stated that trust is an important component of a happy, good and functional relationship and is the strongest determinant of satisfaction along with relationship stability. In research by Terzi (2014), participants stated that one of the events disrupting committed relationships among romantic relationships was not being trusted by their partner.

Considering the deadly and caring habits within the framework of similar themes in couple relationships in parallel with the research findings, the codes determined may be used by professional members employed in the field of mental health when working with couples. Additionally, programs prepared for university students, the sample of this study, especially premarital preparation programs, may aim to develop caring habits and the findings of the research may be used in developing such a program. Again, more attention may be given to caring habits within available programs for groups. Additionally, similar

research may be repeated for samples with different marital statuses (married, divorced, widowed, etc.) and experimental programs may be completed to investigate the effect on relationships of available or newly-prepared psychoeducational programs about these habits.

Finally, the study has some limitations. The qualitative data in the study were only obtained from university students, which may be considered a limitation and it may be important to diversify the data with individuals in the young adult period not continuing their educational life or working. The research may be repeated with different groups in the same developmental period (not university students, employed in any job, graduated from university, etc.). Additionally, participants were only interviewed once during the data collection process and the sincerity of responses to the researchers by the participants, who were asked about their close relationships, was limited by this relationship being established in a short time.

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## About Authors

**Dilek Gençtanırım Kurt** received her bachelor's, master's and Ph.D. degrees from Hacettepe University Guidance and Psychological Counseling program. Between 2002-2011, she worked as a Research Assistant at Hacettepe University, Faculty of Education, Department of Educational Sciences, Guidance and Psychological Counseling Department. She has been a faculty member at Ahi Evran University, Faculty of Education, Department of Educational Sciences, Guidance and Psychological Counseling since 2011, and received the title of associate professor in the field of Guidance and Psychological Counseling in February 2017. Her research interests include risky behaviors, personality psychology, school counseling and reality therapy.

**Ziya Demir** received his bachelor's degree from the Department of Guidance and Psychological Counseling at Kırşehir Ahi Evran University and continues his education as a master's student in the same program. He is currently working as a School Psychological Counselor in a public school affiliated to the Ministry of Education in Istanbul. His research interests include marriage and family counseling and career counseling.

**Tunahan Kargı** received his bachelor's degree from the Department of Guidance and Psychological Counseling at Kırşehir Ahi Evran University and continues his education as a master's student in the same program. He is currently working as a School Psychological Counselor in a public school affiliated to the Ministry of Education in Gaziantep. His research interests include parent-adolescent relationships and cyberbullying.

## 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.

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## Ethical Statement

The authors declare that they continue to work in this study in accordance with scientific work ethics and Helenski declaration. In addition, the participants participated in the research voluntarily. Accordingly, the research was reviewed and approved by the Social and Human Sciences Scientific Research and Publication Ethics Committee of Kırşehir Ahi Evran University.

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## RESEARCH

## Open Access

## ARAŞTIRMA

## Açık Erişim

## Validity and Reliability of Turkish Version of Skills Confidence Inventory

*Becerilere Güven Mesleki İlgi Envanteri: Türkçe Formu Geçerlik ve Güvenirlik Çalışmaları*

Ahmet Salih Şimşek , Ezel Tavşancıl 

### Authors Information

**Ahmet Salih Şimşek**

Assistant Professor, Kırşehir Ahi  
Evran University, Kırşehir, Turkey  
[asalihsimsek@gmail.com](mailto:asalihsimsek@gmail.com)

**Ezel Tavşancıl**

Professor, Ankara University,  
Ankara, Turkey  
[etavsancil@gmail.com](mailto:etavsancil@gmail.com)

### ABSTRACT

The Vocational Interest Inventory is one of the most commonly used instruments in career counselling in the past and present. The aim of this study is to adapt the Skills Confidence Inventory (SCI) and obtain validity and reliability evidence for its Turkish version. The SCI Turkish version is called BGMIE (Becerilere Güven Mesleki İlgi Envanteri) and is a list of vocational interests consisting of 164 items measuring 17 different areas of vocational interests. In the study, data were collected from 32 university students for the linguistic equivalence test, from 765 high school students for the pretest, and from 1449 high school students for the final test. The validity of the BGMIE was examined using the bilingual group, linguistic equivalence, and CFA (Confirmatory Factor Analysis) scores. The results of the CFA analyses indicate a perfect fit for nine factors (Creative Production, Cultural Sensitivity, Data Management, Helping, Leadership, Office Services, Public Speaking, Science, Teamwork), a good fit for seven factors (Mechanics, Organisational Management, Project Management, Sales, Teaching, Use of Technology, Writing), and an acceptable fit for one factor (Mathematics).

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### ÖZET

Mesleki İlgi Envanteri, geçmişte ve günümüzde kariyer danışmanlığında en sık kullanılan araçlardan biridir. Bu çalışmanın amacı, Strong ilgi envanterinin güncel bir versiyonu olan Skill Confidence Inventory (SCI) için Türkçe versiyonunun geçerlik ve güvenilirlik kanıtlarını elde etmektir. Türkçe versiyonu BGMIE (Becerilere Güven Mesleki İlgi Envanteri) olarak isimlendirilen envanter 17 farklı mesleki ilgi alanını ölçen 164 maddeden oluşmaktadır. Araştırmada, dilsel eşdeğerlik için 32 üniversite öğrencisi, ön test için 765 lise öğrencisi ve son test için 1449 lise öğrencisinden veri toplanmıştır. BGMIE'nin yapı geçerliği faktör analizi teknikleri kullanılarak incelenmiştir. Doğrulayıcı faktör analizi bulguları, dokuz faktörün (Yaratıcı Üretim, Kültürel Duyarlılık, Veri Yönetimi, Yardım, Liderlik, Büro Hizmetleri, Topluluk Önünde Konuşma, Bilim, Takım Çalışması) mükemmel uyum, yedi faktörün (Mekanik, Örgütsel Yönetim, Proje Yönetimi, Satış, Öğretim, Teknoloji Kullanımı, Yazma) iyi uyum ve tek faktör (Matematik) için kabul edilebilir uyumun olduğunu göstermiştir. Ortaöğretim öğrencileri için BGMIE'nin geçerliğinin ve güvenilirliğinin yüksek olduğu değerlendirilmiştir.

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## INTRODUCTION

The choice of a profession is one of the most important decisions that a person makes in his or her life. According to Parson (1909), job satisfaction and productivity rise for individuals who choose a profession that corresponds to their professional interests. Therefore, one of the success factors in business is that people turn to a profession that matches their characteristics. In this stage, career counselling activities, which are carried out from the time the individual's professional interests emerge, are very important. Career counseling refers to the counseling services provided to individuals in the process of choosing a career and selecting an occupation from that career (Özoğlu, 2007). The principal aim of these counselling services is to assist individuals in identifying their interests, skills, personality, etc. and guide them to the professions appropriate to those characteristics.

Parson (1909) suggests that choosing the right profession is based on three fundamental/basic factors:

1. being aware of one's own abilities, skills, interests, desires, resources, and limitations
2. knowing the requirements of the occupation to be chosen, the conditions for success, the advantages and disadvantages, the prices to be paid, and the opportunities.
3. to argue properly in relation to/with regard the phenomena of these two factors/both these factors.

Career guidance/occupational guidance, pioneered/launched by Parsons, was initially confined to introducing the professions to individuals. (Brown et al., 2002). One of the major reasons for this is that measurement instruments/tools of the 20. century were linked/tied to their early development. However, it is known that occupational choice is not independent of the individual's characteristics. Consequently, the characteristics of the individual must be taken into account. Kuzgun (2000) stated that career choice is a process and that factors that influence one's preferences should be considered in the career development process.

Vocational interest inventories are one of the most commonly used tools in career counselling (Harrington & Long, 2013). Judge et al. (2001) stated that an individual's job performance is related to his/her skills and whether or not he/she continues to work depends on whether or not he/she enjoys the job. Following the theory of vocational development developed by Parsons (1909), developments in vocational guidance moved into the application phase with the development of the Student Vocational Self Analysis (SVSA) instrument by Davis (1914) to measure the vocational interests of high school students. The first standardised interest inventory was developed by CIT (Carnegie Institute of Technology) in 1920. Following these developments, many vocational interest inventories have been developed to date (Harrington & Long, 2013).

Interest inventories are objective measurement tools that provide information about individuals' vocational interests. Vocational interest inventories may become outdated due to the emergence of new occupations, changes in existing occupations, or the disappearance of existing occupations. This has prompted the updating of existing instruments or the development of new vocational interest inventories. Vocational interest inventories widely used in international literature and research are listed in Table 1.



**Table 1. Vocational interest inventories widely used in the international literature**

Developer	Year	Measurement Instrument	Number of Items	Source
Strong	1934	Strong Interest Inventory	291	(Strong, 1934)
Thurstone	1947	Thurstone Vocational Interest Schedule	80	(Harrington & Long, 2013)
Lee ve Thorpe	1946	The Occupational Interest Inventory	240	(Bridge & Morson, 1953)
Kuder	1948	Kuder Preference Record – Form C	504	(Walsh & Osipow, 1986)
Holland	1965	Vocational Preference Inventory	305	(Harrington & Long, 2013)
Campbell	1974	Strong-Campbell Interest Inventory	325	(Brown et al. 2002)
Jackson	1977	Jackson Vocational Interest Survey	289	(Walsh & Osipow, 1986)
Holland	1979	Self-Directed Search	72	(Campbell & Borgen, 1999)
Kuzgun	1988	Kendini Değerlendirme Envanteri	230	(Kuzgun, 2000)
Betz, Borgen ve Harmon	1996	Skills Confidence Inventory	186	(Betz, Borgen, Kaplan & Harmon, 1998)

As can be seen in Table 1, vocational interest inventories generally contain many items. Kuzgun (2000) noted that vocational interests become consistent over time, so the results of interest inventories should be followed up through repeated applications. From this perspective, vocational interest inventories should be both useful and have high validity and reliability. For this reason, there is a need for useful measurement instruments that examine a broad domain with few items rather than vocational interest inventories with many items. It is very important for the validity of the results that the vocational interest inventories used in the career counselling process are up-to-date. The most commonly used instruments in Turkish literature in the past and present are the "Kuder Interests Preference Inventory" adapted into Turkish by Özoğlu (1977) and the "Self-Assessment Inventory" developed by Kuzgun (1988). If these instruments, which were created considering the occupational fields of the time they were developed, are not updated, the effectiveness of individuals in determining their vocational interests decreases. In assessing validity, it is very important to update the content of existing measurement instruments or develop/adapt new measurement instruments. The inventories of vocational interests developed or adapted in Turkish in the last 10 years are listed in Table 2.

**Table 2. Developed/adapted vocational interest inventories in Turkish version (2010-2020).**

Theory	Study	Sample	Number of Factors	Number of Items	Source
Holland	Development	Adults	6	60	(Yılmaz, 2011)
Original*	Development	Secondary and higher education students	14	156	(Deniz, 2013)
Original*	Development	Secondary education students	11	71	(Otrar & Canel, 2015)
Holland	Development	Students of higher education	6	55	(Perkmen & Tezci, 2015)
Jackson	Adaptation	Students of higher education	34	578	(Kaya, 2017)
Holland	Development	Secondary education students	6	30	(Atli & Keldal, 2017)
Holland	Development	Students of the 2nd level of primary education	6	36	(Demir, 2020)

\*Measurement of the vocationals chosen by the researchers

Examining Table 2, it was found that there was one adaptation study, while the number of developed interest inventories was six. Most of the developed studies were based on Holland's typology theory. The development of structurally similar scales limited the variety of vocational interest instruments in the literature. For career counselling studies, it is important to introduce instruments with different structural characteristics into the literature and enrich the instruments that can be used to measure career interests. Yeşilyaprak (2012) states that new measurement instruments should be introduced into Turkish literature so that they can be used in career counselling.

Considering the need for current measurement tools in determining professional interests, adaptation and development studies are very important. Reviewing the literature, it was found that 23 instruments (9 adaptation studies, 14 development studies) were included in the Turkish literature between 1956 and 2020. However, it was found that the most commonly used instrument in the literature is the Self-Assessment Inventory developed by Kuzgun (1988). It was considered that it would be very useful to introduce new occupational interest inventories into the literature that could be a current alternative to the scale that was developed considering the occupations of 30 years ago. The purpose of this study is to obtain a new measurement instrument that can be used in career counselling. For this purpose, the Skills Confidence Inventory, the current version of the Strong interest inventory, was adapted into Turkish. The widespread use of the Strong interest inventory in the international literature and the fact that it has not yet been adapted to the Turkish literature played a role in the selection of this inventory.

## METHOD

This research is an applied research because it is a measurement instrument adaptation study. Applied research is the research that is conducted to evaluate the information obtained for the actual solution of the problem (Karasar, 2009).

### Study Participants

In the research, data were collected from 32 university students for the linguistic equivalence study, from 765 high school students for the pretest, and from 1449 high school students for the final test. The university students were selected from among students in the Department of English Education at a state university. The high school students were selected from the 10th, 11th, and 12th grade students studying in public secondary schools in Sivas province in 2015-2016. Progressive random sampling method was used as the sampling method. In the first phase, 10 educational institutions were randomly selected from 29 secondary educational institutions. In the second phase, the students of the schools who voluntarily participated in the study were included in the study. The distribution of the study groups, consisting of high school students, by school type and gender is shown in Table 3.

**Table 3. Distribution of study group by type of school and gender.**

Study Group	School Type	Male		Female		Total
		f	Row %	f	Row %	
Pretest 1	Anatolian High School	222	%55	182	%45	404
Pretest 2	Anatolian High School	162	%45	199	%55	361
Final Test	Anatolian High School	486	%56	381	%44	867
	Science High School	85	%46	101	%54	186
	Vocational High School	120	%64	68	%36	188
	İmam-Hatip	105	%50	103	%50	208
Total		1180	%53	1034	%47	2214

The study group has a balanced distribution by gender (53% male). For the final test, the study group consists of 60% students from Anatolian High School, 14% students from Imam Hatip High School, 13% students from Science High School, and 13% students from Vocational High School, each by school type.

### **Ethical Statement**

By letter from the Ministry of National Education dated 26/02/2015 and number 81576613/605/2144292, the necessary ethical approval and application permission for this research were obtained.

### **Data and Collection**

In the study, SCI (Skill Confidence Inventory), Betz et al. (2003) and the Turkish version of SCI, BGMIE (Confidence in Skills Vocational Interest Inventory) were used as data collection tools. Official permission was obtained before data collection process. It took approximately 30 minutes to complete the form. Responses were collected in the classroom and under supervision.

**SCI: Skills Confidence Inventory (Original Version).** The Skills Confidence Inventory is an vocational interest inventory consisting of 164 items measuring 17 different vocational interests. The vocational interests measured by the SCI were briefly defined by researchers as follows (Betz et al., 2003);

- Science (Sc): Conducting scientific research and understanding popular science.
- Public speaking (PS): Speaking and presenting information to an audience.
- Cultural sensitivity (CS): Interacting with and understanding people from different cultural backgrounds.
- Leadership (LE): Confidence in your ability to motivate others by being persuasive, confident, and inspiring.
- Mathematics (Ma): Application of mathematics in daily life and success in a mathematics-related course.
- Mechanics (Me): Use common tools and equipment to perform repairs and simple installations of electrical, plumbing, office and home furniture.
- Office Services (OS): Performing clerical tasks such as organizing organizational calendars and preparing reports on business operations for others.
- Organizational Management (OM): The ability to manage people, policies, and workflows in an organization.
- Teaching (Te): Teaching a new subject area and training others.
- Project Management (PM): Leading a project involving activities such as planning, coordinating, and monitoring processes.
- Sales (Sa): Convince others to buy services or products.
- Teamwork (TW): Working effectively and cooperatively with others in a team or work group.
- Use of Technology (UT): The ability to install hardware and software applications and use personal computers to accomplish specific goals.

- Data Management (DM): Analyze and effectively present numerical information for decision making.
- Creative Production (CS): Innovation and creativity in business, technology, science, or the arts.
- Helping (HE): Helping others in activities such as empathy, personal support, counseling.
- Writing (Wr): Proofreading and writing in fields such as journalism and writing.

In the study conducted with university students, it was found that the rate of agreement between the courses in which the students were enrolled and the classification made with the SCI was 69% (Betz et al., 2003). It was found that the Cronbach's Alpha internal consistency coefficients calculated for the 17 factors of the SCI ranged from .84 to .94 in the study group of university students and from .86 to .94 in the study group of adults. There are also several studies in the literature that examine the validity and reliability of the SCI (Betz & Rottinghaus, 2006; Betz & Wolfe, 2005; Larson et al., 2010; Robinson & Betz, 2004; Rottinghaus et al, 2003).

**BGMIE: Becerilere Güven Mesleki İlgi Envanteri (The SCI Turkish Version).** The SCI was translated into Turkish under the name BGMIE (Becerilere Güven Mesleki İlgi Envanteri). Sample items for the original and Turkish versions are given in the appendix (appx. 2). The BGMIE, measured interest domains, and item numbers are listed in Table 4.

**Table 4. BGMIE measured interest areas and item numbers**

The SCI (Original Version)	The BGMIE (Turkish Version)	Number of Items
Creative Production (CS)	Yaratıcı Üretim (YÜ)	10
Cultural Sensivity (CS)	Kültürel Duyarlılık (KD)	10
Data Management (DM)	Veri Yönetimi (VY)	10
Helping (HE)	Yardım Etme (YE)	6
Leadership (LE)	Liderlik (Li)	10
Mathematics (Ma)	Matematik (Ma)	10
Mechanical (Me)	Mekanik (Me)	10
Office Services (OS)	Ofis Hizmetleri (OH)	10
Organizational Management (OM)	Organizasyon Yönetimi (OY)	9
Project Management (PM)	Proje Yönetimi (PY)	10
Public Speaking (PS)	Hitabet (Hi)	9
Sales (Sa)	Satış (Sa)	10
Science (Sc)	Bilim (Bi)	10
Teaching (Te)	Öğretim (Öğ)	10
Teamwork (TW)	Takım Çalışması (TÇ)	10
Using Technology (UT)	Teknoloji Kullanımı (TK)	10
Writing (Wr)	Yazma (Ya)	10

For the adaptation studies, the scale adaptation guide prepared by Hambleton & Patsula (1999) and the International Test Adaptation Guide prepared by the International Test Commission (2005) were considered. The translation process was conducted with a group of six experts, including two experts in foreign language instruction, two experts in assessment and evaluation, and two experts in psychological counseling and guidance. Three main aspects were considered in the translation process (Hambleton & Patsula, 1999);

- The accuracy of the translation and the clarity of the sentence.
- The appropriateness of the translated words to the level of the group
- Cross-cultural equivalence of the experiences expressed.

After the translation process, the first draft version was created. The items in the first draft version were arranged according to the recommendations of the experts in the field of Psychological Counseling and Guidance. The draft version was back-translated and checked for equivalence by foreign language experts by comparison with the original version. The draft version obtained after translation and back-translation was evaluated by the experts from the field of measurement and assessment regarding the suitability of the items and the response options. As a result of the studies, a preliminary version was prepared for pretesting. Evidence of validity and reliability obtained through the adaptation process can be found in the Results section.

### Data Analysis

The packages *mvnShapiroTest* (1.0), *psych* (1.5.8), *lavaan* (0.5), *ltm* (1.0) from the R package program were used to analyze the research data. The statistical analyzes performed during the research are listed in Table 5.

**Table 5. Statistical analysis and R package used**

Purpose	Statistical Analysis	R Package
Assumption Test	Multivariate Normality	<i>mvnShapiroTest</i> (1.0)
Assumption Test	Parallel Anaysis	<i>psych</i> (1.5.8)
Validity	CFA (Confirmatory Factor Analysis)	<i>lavaan</i> (0.5)
Validity	Correlation	<i>psych</i> (1.5.8)
Validity	t-test	<i>psych</i> (1.5.8)
Reliability	Internal Consistency	<i>ltm</i> (1.0)

Because the data did not meet the multivariate normality assumption, the weighed least square (WLS) method was used to estimate the parameters of the CFA model. It is known that the measurement accuracy of the WLS method is higher than that of the ULS, MLE, and DWLS methods when the multivariate normality assumption is violated (Forero et al., 2009; Koğar & Koğar, 2015). The alpha significance value of 0.05 was used for the hypothesis tests performed during the data analysis.

## RESULTS

The results obtained for the BGMIE are presented under the subtitles linguistic equivalence, pretest, final test, and reliability.

### Linguistic Equivalence

A bilingual group design was used to study linguistic equivalence. The linguistic equivalence studies were conducted with a study group consisting of 32 students who voluntarily participated in the research and were among the students who were continuing their undergraduate education in English teaching at Cumhuriyet University. During the implementation phase, the study group was randomly divided into two groups (A and B). In groups A and B, the Turkish and English forms were given in a different order. In the first session, group A took the Turkish form while group B took the English form. In the second session, which took place one week later, the students answered the form that they had not received in the first session. To examine the linguistic equivalence of the items in the adapted form, the correlations between the students' responses to the items in the Turkish and English forms were examined.

The Spearman correlation coefficient was used because the data were on a rank scale. The average of the correlations between the items in the Turkish and English versions is .86, but varies between .80 and .94.



The high correlation coefficients indicate that the linguistic equivalence of the items in the Turkish version is high. To examine the linguistic equivalence of the Turkish version, the significance of the difference between the means of the scores obtained in the two versions was also tested. For this purpose, the scores obtained in the Turkish and English versions were calculated. In order to examine the significance of the difference between the scores obtained in both versions, the paired t-test was performed. The results are shown in Table 6.

**Table 6. The SCI Turkish and English version: paired t-test**

Factors	$\bar{X}_{BGE-SCI}$	$\sigma_{BGE-SCI}$	t	sd	p
Creative Production (CS)	-0.41	1.74	-1.322	31	0.196
Cultural Sensivity (CS)	0.53	1.61	1.871	31	0.071
Data Management (DM)	-0.19	1.42	-0.745	31	0.462
Helping (HE)	0.47	1.44	1.846	31	0.074
Leadership (LE)	-0.06	1.41	-0.250	31	0.804
Mathematics (Ma)	-0.13	1.91	-0.370	31	0.714
Mechanical (Me)	-0.50	1.41	-2.000	31	0.054
Office Services (OS)	0.15	1.27	0.694	31	0.493
Organizational Management (OM)	0.34	1.43	1.362	31	0.183
Project Management (PM)	0.55	1.85	1.625	31	0.114
Public Speaking (PS)	-0.35	1.64	-1.187	31	0.244
Sales (Sa)	0.32	1.26	1.543	31	0.133
Science (Sc)	-0.09	1.12	-0.475	31	0.638
Teaching (Te)	0.44	1.37	1.811	31	0.080
Teamwork (TW)	0.16	1.48	0.596	31	0.556
Using Technology (UT)	-0.41	1.76	-1.308	31	0.201
Writing (Wr)	0.18	1.32	0.668	31	0.509

The small differences between the results of the Turkish and English versions were not statistically significant ( $p > .05$ ). Accordingly, the students' responses in the Turkish and English versions are similar in successive applications. The results show that the language equivalence of the Turkish version of the inventory is high.

### Pretest

The validity of the BGMIE was investigated by pretesting the preliminary version. Data were collected from 404 high school students for the pretest. A CFA analysis was conducted for the prefinal version of the BGMIE using the pretest data and the validity of the test was examined. As a result of the analysis, the expression of nine items (M001, M010, M018, M031, M085, M093, M103, M109, M134) was corrected due to low factor loadings (appx. 3). Data were collected from 361 high school students during the pretest, using the pretest version. CFA results conducted on data obtained after repeated pretest application were examined. The repeated CFA analyzes showed good fit for the BGMIE factors (excluding Creative Production, Mathematics, Science, Instruction) (appx. 4). However, the Cronbach's Alpha internal consistency coefficients calculated for Pretest 1 and Pretest 2 data are shown in Table 6.

**Table 6. The Reliability Coefficients for Pretest 1 and Pretest 2**

The Factors of BGMIE	Number of Items	Pretest 1 (N=404)	Pretest 2 (N=361)
Creative Production (CS)	10	.80	.86
Cultural Sensivity (CS)	10	.82	.88
Data Management (DM)	10	.89	.89
Helping (HE)	6	.89	.90
Leadership (LE)	10	.88	.87
Mathematics (Ma)	10	.91	.82
Mechanical (Me)	10	.90	.89
Office Services (OS)	10	.86	.85
Organizational Management (OM)	9	.85	.78
Project Management (PM)	10	.92	.89
Public Speaking (PS)	9	.91	.88
Sales (Sa)	10	.91	.83
Science (Sc)	10	.92	.87
Teaching (Te)	10	.86	.85
Teamwork (TW)	10	.91	.86
Using Technology (UT)	10	.93	.93
Writing (Wr)	10	.88	.90

When the validity and reliability results obtained in the pretest applications for the BGMIE were evaluated, it was decided to proceed with the final testing phase.

### Final Test

Data collected from 1449 high school students were used for the BGMIE final test. To investigate the construct validity of the BGMIE, the CFA model was defined, which included 17 factors and 164 items. However, the analysis could not be conducted due to a negative variance estimate in the construction of the covariance matrix. Wothke (1993) states that there can be five main reasons for negative estimation of covariance matrices (as cited by Kline, 2015, p.303).

1. the data provide very little information (small sample, fewer than two indicators per factor, etc.)
2. the model is overparameterized (too many free parameters)
3. extreme values in the sample or excessive deviations of the distribution from normality
4. few definitions of factor covariances
5. wrong measurement model.

Examining the structure of the BGMIE used in the study, we find that the main reason for the negative variance estimate is that the measurement model, consisting of 17 factors and 164 items, is overdefined. In such cases, also referred to as model complexity, CFA estimates can be obtained by simplifying the measurement model defined based on the negative variance estimate (Brown, 2015; Thompson, 2004). To this end, confirmatory factor analysis was conducted separately for each factor. First, the multivariate normality assumption was tested to determine which method should be used for the goodness of fit of the model and the parameter estimates for the factors of the BGMIE. To test the multivariate normality assumption, *mvnShapiroTest* (1.0) from the R packages was used for statistical evaluation and the *mvnTest* (1.1) package was used for analytical evaluation using the Mahalanobis distance. The results of the multivariate normality test can be found in Table 7.

**Table 7. The Results of Multivariate Normality Test**

The Factors of BGMIE	Shapiro-Wilk	p	The Factors of BGMIE	Shapiro-Wilk	p
Creative Production (CS)	.986	.000	Project Management (PM)	.992	.000
Cultural Sensivity (CS)	.982	.000	Public Speaking (PS)	.990	.000
Data Management (DM)	.986	.000	Sales (Sa)	.974	.000
Helping (HE)	.980	.000	Science (Sc)	.989	.000
Leadership (LE)	.987	.000	Teaching (Te)	.986	.000
Mathematics (Ma)	.989	.000	Teamwork (TW)	.985	.000
Mechanical (Me)	.977	.000	Using Technology (UT)	.989	.000
Office Services (OS)	.983	.000	Writing (Wr)	.990	.000
Organizational Management (OM)	.982	.000			

The BGMIE final test data were found not to meet the multivariate normality assumption. Due to the violation of the normality assumption, the weighted least squares (WLS) estimation method was used for the CFA. The results of the first-order CFA conducted to investigate the construct validity of the BGMIE are shown in Table 8.

**Table 8. The Results of first-order CFA**

The Factors of BGMIE	Number of Items	Index						Goodness of Fit
		Chi-Square	df	RMSEA	SRMR	TLI	CFI	
<b>CP</b>	10	115.73	35	.04	.04	.99	.99	Perfect
<b>CS</b>	10	133.10	35	.04	.04	.98	.99	Perfect
<b>DM</b>	10	93.31	35	.03	.03	.99	.99	Perfect
<b>He</b>	6	32.76	9	.04	.03	.99	.99	Perfect
<b>Le</b>	10	148.16	35	.05	.04	.99	.99	Perfect
<b>Ma</b>	10	602.92	35	.10	.09	.92	.94	Acceptable
<b>Me</b>	10	389.07	35	.08	.07	.96	.97	Good
<b>OS</b>	10	65.46	27	.03	.03	.99	.99	Perfect
<b>OM</b>	9	267.64	35	.07	.06	.95	.96	Good
<b>PM</b>	10	196.09	35	.06	.05	.98	.99	Good
<b>PS</b>	9	89.84	27	.04	.04	.99	.99	Perfect
<b>Sa</b>	10	201.44	35	.06	.05	.98	.98	Good
<b>Sc</b>	10	144.75	35	.05	.04	.99	.99	Perfect
<b>Te</b>	10	364.87	35	.08	.07	.96	.97	Good
<b>TW</b>	10	149.76	35	.05	.04	.99	.99	Perfect
<b>UT</b>	10	245.36	35	.06	.06	.98	.99	Good
<b>Wr</b>	10	227.88	35	.06	.05	.98	.98	Good

CP: Creative Production, CS: Cultural Sensivity, DM: Data Management, He: Helping, Le: Leadership, Ma: Mathematics, Me: Mechanical, OS: Office Services, OM: Organizational Management, PM: Project Management, PS: Public Speaking, Sa: Sales, Sc: Science, Te: Teaching, TW: Teamwork, UT: Using Technology, Wr: Writing

Although there are different critical values for RMSEA and SRMR values in the literature, the accepted cutoffs are .05 and below for a perfect fit, between .05 and .08 for a good fit, and between .08 and .10 for an acceptable fit (Browne & Cudeck, 1993; Maccallum et al., 1996). On the other hand, Hu & Bentler (1999) found that an RMSEA value of less than .06 and an SRMR value of less than .08 indicated good fit. The critical values for the fit indices TLI and CFI, which are widely used in the literature among the relative fit indices, range from .90 to .95 for a acceptable fit and .95 and above for a good fit (Hooper et al., 2008).

When examining the RMSEA, SRMR, TLI, and CFI fit indices given in Table 8, it is found that the factors Creative Production, Cultural Sensitivity, Data Management, Helping, Leadership, Office

Services, Public Speaking, Science, Teamwork, Mechanics, Organizational Management, Project are perfectly matched. It can be seen that the Management, Sales, Instruction, Use of Technology, Writing factors have a good fit, while the Mathematics factor has an acceptable fit. For the DFA models with perfect fit, the RMSEA values vary between .03 and .05, the SRMR values vary between .03 and .04, and the TLI and CFI values vary between .98 and .99. For the DFA models with good fit, the RMSEA values range between .06 and .08, the SRMR values range between .05 and .07, while the TLI and CFI values range between .95 and .99. Of the 17 factors in the BGMIE, the goodness-of-fit values for the CFA model created for the mathematics factor only show acceptable fit.

### Reliability

To investigate the reliability of the BGMIE, the Cronbach's Alpha internal consistency coefficient was calculated using the final test data. The reliability coefficients obtained for the 17 factors of the BGMIE are shown in Table 9.

**Table 9. The Reliability coefficient for BGMIE**

The Factors of BGMIE	Number of Items	Cronbach's Alpha
Creative Production (CS)	10	.86
Cultural Sensivity (CS)	10	.81
Data Management (DM)	10	.87
Helping (HE)	6	.81
Leadership (LE)	10	.87
Mathematics (Ma)	10	.85
Mechanical (Me)	10	.86
Office Services (OS)	10	.84
Organizational Management (OM)	9	.80
Project Management (PM)	10	.87
Public Speaking (PS)	9	.86
Sales (Sa)	10	.85
Science (Sc)	10	.87
Teaching (Te)	10	.86
Teamwork (TW)	10	.87
Using Technology (UT)	10	.91
Writing (Wr)	10	.88

Examination of Table 9 shows that the internal consistency coefficients calculated for the factors of the BGMIE range from .80 to .91. The lowest internal consistency coefficient ( $r=.80$ ) was obtained for the Organization Management factor, while the highest internal consistency coefficient was obtained for the Technology Use ( $r=.91$ ). The median value of the internal consistency coefficients for the 17 factors of the BGMIE was calculated to be .86.

### DISCUSSION

With the development of industry and technology, it is a fact that many professions have been replaced by machines and algorithms. For this reason, the importance of career choice and vocational guidance activities is increasing. Longitudinal studies show that career interests begin to stabilize during secondary education (Low et al., 2005). Therefore, it is very important to identify individuals' interests and abilities, especially in career counseling activities at the secondary level. In this context, there is a need for measurement instruments with high validity, reliability, and usefulness that can be used in measuring interests and abilities.

As in the past, vocational interest inventories are one of the most commonly used instruments in the career counseling process today (Zickar & Min, 2019). However, there is no vocational interest inventory that remains unchanged after it has been developed. When examining the literature on the measurement of vocational interests, one can see the changes in the instruments and methods used. Both the changes in existing professions and the characteristics of the new generation have led to changes in the inventories of vocational interests.

The international literature contains many inventories of vocational interests developed for different languages and cultures. The only way to introduce a new tool into the literature of a language is not to develop that tool from scratch. Developing a vocational interest inventory from scratch is a difficult process. In contrast, adopting an already developed instrument into a new language and culture saves a lot of time and effort. Therefore, If there is an already developed instrument in the literature with high validity and reliability, it makes more sense to adapt it. In addition, adapting a vocational interest inventory also provides the basis for comparative studies between different languages and cultures.

In this study, the Turkish version of the SCI, which is a derivative of the Strong Interest Inventory and measures 17 vocational interests, was introduced into the literature. The responses of students aged 15-18 years attending secondary school in the Turkish education system were used for the adaptation. In the Turkish education system, the choice of a undergraduate major is very important for secondary school students. Although many factors are effective in the preference stage, in the studies conducted in Turkey, it is known that the most effective factor in students' career choice is interest in the profession (Atli & Gür, 2019; Şeker & Çapri, 2020). In this context, the Turkish version of SCI will help in the career counseling process to identify students' vocational interests. The obtained results show that the validity and reliability of the Turkish version of SCI are high.

In this study, a new vocational interest inventory, different from the existing instruments in the literature, was introduced into the Turkish literature. When examining the Turkish vocational interest inventories that have been developed or adapted in the last 10 years, one finds that most of them are based on Holland's theory (Yılmaz, 2011; Perkmen & Tezci, 2015; Atli & Keldal, 2017; Demir, 2020). In this context, the Turkish version of SCI has increased the variety of instruments in the Turkish literature. The small number of items in the Turkish version of SCI (164 items) makes it a more useful alternative to the instruments (Kaya, 2017) in the literature.

Vocational interest inventories are useful instruments to describe a person's interests in the career counseling process. The inclusion of these tools in the literature is valuable, but not sufficient. These studies should be considered by official policy makers such as the Department of Educational Guidance of the Turkish Ministry of Education, and their use in career guidance in schools should be encouraged. Similar to the international models (Occupational Information Network | [onetonline.org](http://onetonline.org)), a system (National Vocational Information System | [mbs.meb.gov.tr](http://mbs.meb.gov.tr)) was created in 2009 to enable online use of career guidance tools in Turkey. However, upon closer examination, it is found that the instruments of the current system are not updated over time, the Vocational Interest Inventory results are not correlated with occupations, the computerized individualized test application for the measurement instruments has not been developed, and today's technologies such as big data and artificial intelligence are not used. In this context, the suggestions developed at the end of the research are as follows;



- The construct validity and reliability of the BGMIE should be investigated in sample groups consisting of secondary school students.
- In sample groups of college students, the BGMIE should be used to construct vocational interest profiles for undergraduate majors.
- In sample groups of adults working in various occupations, vocational interest profiles should be constructed using the BGMIE.
- Given the developments in the field of measurement technology, a computerized individualized test application for BGMIE should be developed and its usefulness increased.
- The predictive validity of BGMIE should be investigated with longitudinal studies.
- The measurement invariance of the factor structure of the BGMIE as a function of gender should be analyzed.

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### **About Authors**

**Ahmet Salih Şimşek** is a PhD in the Department of Measurement and Evaluation in Education and Psychology. Psychometrics, scale development, computerized individualized testing, individual technology interaction, and technology-based measurement applications are the researcher's main areas of work.

**Ezel Tavşancıl** is a professor in the Department of Measurement and Assessment in Education and Psychology. Researcher conducts research in behavioral sciences, multivariate statistical methods, measurement and assessment in education and psychology.

### **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.

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### **Ethical Statement**

By letter from the Ministry of National Education dated 26/02/2015 and number 81576613/605/2144292, the necessary ethical approval and application permission for this research were obtained.

**Appendix-1. BGMIE Sample Items**

SCI (Factor)	BGMIE (Factor)	SCI (Item)	BGMIE (Item)
Creative Production	Yaratıcı Üretim	Invent a new product.	Yeni bir şeyler tasarlama Kimsesizler evinde (darülacezede) çalışma
Cultural Sensivity	Kültürel Duyarlılık	Work in homeless shelter.	Bütçe oluşturma ve kişisel harcamalarınızı takip etme
Data Management	Veri Yönetimi	Develop and use a personal budget plan.	Şiddetli ağrıları olan bir hastayı rahatlatma
Helping	Yardım Etme	Comfort a patient experiencing severe pain.	Liderlik yaparak başkalarına ilham kaynağı olma
Leadership	Liderlik	Inspire others through your leadership.	Bir ürünün maliyetini/karını hesaplama
Mathematics	Matematik	Calculate the dollar savings for an item on sale.	Bir evin maketini yapma
Mechanical	Mekanik	Build a dollhouse.	Metin, dilekçe, rapor v.b. işler için ofis programlarını kullanma
Office Services	Ofis Hizmetleri	Use a word processing program on a computer.	Bir işi gerçekleştirmek için insanları organize etme
Organizational Management	Organizasyon Yönetimi	Start a business.	Yapılması gereken işler için bir çalışma takvimi oluşturma
Project Management	Proje Yönetimi	Maintain a schedule for jobs that must be done.	Mezunlar toplantısında konuşma yapma
Public Speaking	Hitabet	Speak to your class reunion.	Telefon ile insanlara bir ürün veya hizmet satma
Sales	Hitabet	Call people on the phone to sell them a product or service.	Tıbbi bir buluşun bilimsel temellerini anlama
Science	Bilim	Understand the scientific basis of a medical breakthrough.	İnsanlara yeni şeyler öğretme
Teaching	Öğretim	Train employees in new procedures.	Takım arkadaşlarıyla etkili bir şekilde çalışma
Teamwork	Takım Çalışması	Work effectively with others on a team.	Bilgisayar kullanarak fotoğrafları düzenlemek
Using Technology	Teknoloji Kullanımı	Edit photographs using a computer.	Bir kitap ile ilgili rapor yazma
Writing	Yazma	Write a book report.	



**Appendix-2. The Results of first-order CFA for Pretest 1**

<b>Pretest 1</b>	<b>df</b>	<b>Chi-Square</b>	<b>Chi-Square/df</b>	<b>RMSEA</b>	<b>SRMR</b>	<b>NNFI / TLI</b>	<b>CFI</b>
Creative Production (CS)	35	185,55	5,30	0,104	0,080	0,92	0,94
Cultural Sensivity (CS)	35	112,26	3,21	0,074	0,059	0,96	0,97
Data Management (DM)	35	284,84	8,14	0,133	0,073	0,93	0,95
Helping (HE)	9	59,52	6,61	0,118	0,041	0,97	0,98
Leadership (LE)	35	279,93	8,00	0,132	0,077	0,93	0,94
Mathematics (Ma)	35	356,83	10,20	0,151	0,075	0,91	0,93
Mechanical (Me)	35	452,59	12,93	0,172	0,098	0,90	0,92
Office Services (OS)	35	611,92	17,48	0,203	0,130	0,81	0,85
Organizational Management (OM)	27	149,94	5,55	0,107	0,063	0,95	0,96
Project Management (PM)	35	106,60	3,05	0,714	0,040	0,99	0,99
Public Speaking (PS)	27	198,91	7,37	0,126	0,059	0,96	0,97
Sales (Sa)	35	197,02	5,63	0,107	0,060	0,97	0,97
Science (Sc)	35	181,02	5,17	0,102	0,048	0,97	0,98
Teaching (Te)	35	358,37	10,24	0,152	0,093	0,89	0,91
Teamwork (TW)	35	117,80	3,37	0,077	0,046	0,98	0,99
Using Technology (UT)	35	317,29	9,07	0,142	0,066	0,95	0,96
Writing (Wr)	35	160,46	4,58	0,095	0,056	0,96	0,97

**Appendix-3. The Results of first-order CFA for Pretest 2**

Pretest 2	df	Chi-Square	Chi-Square/df	RMSEA	SRMR	NNFI / TLI	CFI
Creative Production (CS)	35	133,70	3,82	0,16	0,10	0,87	0,90
Cultural Sensivity (CS)	35	53,90	1,54	0,07	0,06	0,98	0,98
Data Management (DM)	35	44,10	1,26	0,05	0,06	0,99	0,99
Helping (HE)	9	14,58	1,62	0,08	0,07	0,98	0,98
Leadership (LE)	35	81,90	2,34	0,11	0,08	0,94	0,96
Mathematics (Ma)	35	141,40	4,04	0,17	0,15	0,84	0,87
Mechanical (Me)	35	61,25	1,75	0,08	0,07	0,97	0,98
Office Services (OS)	27	62,10	2,30	0,11	0,09	0,93	0,95
Organizational Management (OM)	35	68,60	1,96	0,09	0,09	0,92	0,94
Project Management (PM)	35	57,05	1,63	0,08	0,07	0,98	0,98
Public Speaking (PS)	27	44,01	1,63	0,08	0,07	0,97	0,98
Sales (Sa)	35	71,75	2,05	0,10	0,08	0,95	0,96
Science (Sc)	35	85,40	2,44	0,13	0,09	0,93	0,94
Teaching (Te)	35	114,10	3,26	0,15	0,10	0,88	0,91
Teamwork (TW)	35	52,15	1,49	0,07	0,07	0,98	0,98
Using Technology (UT)	35	50,05	1,43	0,06	0,04	0,99	0,99
Writing (Wr)	35	73,85	2,11	0,10	0,07	0,97	0,97

## RESEARCH

## Open Access

## ARAŞTIRMA

## Açık Erişim

## Exploring the Effects of Self-Compassion Development Program for Adolescents on Self-Compassion, Fear of Self-Compassion and Subjective Well-Being

*Ergenlere Yönelik Öz-Şefkat Geliştirme Programının Öz-Şefkat, Kendine Şefkat Vermekten Korkma ve Öznel İyi Oluş Üzerindeki Etkisini İncelenmesi*

Musa Yıldırım , Tuğba Sarı 

### Authors Information

#### Musa Yıldırım

Psychological Counselor, Ministry of National Education, Kocaeli, Turkey  
[musayildirim78@gmail.com](mailto:musayildirim78@gmail.com)

#### Tuğba Sarı

Associate Professor, Akdeniz University, Antalya, Turkey  
[saritugba75@gmail.com](mailto:saritugba75@gmail.com)

### ABSTRACT

The aim of this study is to examine the impact of the Self-Compassion Program prepared by the researcher on adolescents' self-compassion, fear of self-compassion, and subjective well-being. An experimental process of 2x3 (experimental group/control group X pre-test /post-test/follow-up test) was designed to examine the impact of the Self-Compassion Program on dependent variables. The research was conducted with 18 Secondary school students. The sample of the study was created by impartially assigning participants who scored below the group average from preliminary test measurements with the Short Form of the Self-Compassion Scale and the Fear of Compassion Scale to the experimental (N= 9) and control (N= 9) groups. A 6-week Self-Compassion Development Program was applied to the participants. The follow-up test was applied 6 weeks after the program ended. According to the results, it was observed that as a result of the 6-week Self-Compassion Program, participants' self-compassion and subjective well-being scores increased while their fear of self-compassion scores decreased. It was found that during this change, the phenomenon of "backdraft" appeared, resulting in an increase in monitoring measurements taken 6 weeks after the end of the Self-Compassion Program.

### Article Information

#### Keywords

Self-Compassion  
Fear of Self-Compassion  
Subjective Well-Being  
Adolescence  
Backdraft

#### Anahtar Kelimeler

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### ÖZET

Bu çalışmanın amacı, araştırmacı tarafından hazırlanan Öz-Şefkat Geliştirme Programının ergenlerin öz-şefkat, öz-şefkat korkusu ve öznel iyi oluşları üzerindeki etkisini incelemektir. Öz-Şefkat Geliştirme Programının bağımlı değişkenler üzerindeki etkisini incelemek için 2x3'lük bir deneysel süreç (deney grubu/kontrol grubu X ön test / son test / izleme testi) tasarlanmıştır. Araştırma 18 ortaokul öğrencisi ile gerçekleştirilmiştir. Çalışma grubu Öz-Şefkat Ölçeği Kısa Formu ve Şefkat Korkusu Ölçeği ile yapılan ön test ölçümlerinden grup ortalamasının altında puan alan katılımcıların deney (n= 9) ve kontrol (n= 9) gruplarına yansız atanması yoluyla oluşturulmuştur. Katılımcılara 6 haftalık Öz-Şefkat Programı uygulanmıştır. İzleme testi program sona erdikten 6 hafta sonra uygulanmıştır. Elde edilen sonuçlara göre 6 haftalık Öz-Şefkat Geliştirme Programı sonucunda katılımcıların öz-şefkat ve öznel iyi oluş puanlarının arttığı, öz-şefkat korkusu puanlarının ise azaldığı görülmüştür. Bu değişim sırasında yangın patlaması (backdraft) fenomeninin ortaya çıktığı ve Öz-Şefkat Geliştirme Programı'nın bitmesinden 6 hafta sonra alınan izleme ölçümlerinde artışın sağlandığı bulunmuştur.

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## INTRODUCTION

Adolescence is a critical period of development between childhood and adulthood, during which a number of adult characteristics are acquired as they pass from childhood to adulthood. The effort to create a unique identity (Erikson, 1956), physical and biological changes (Christie & Viner, 2005; Koç, 2004) intense emotional seesaws (Steinberg, 2004), and emergence of sexual characteristics (Dorn & Biro, 2011) cause a variety of developmental crises to be experienced by the adolescent. Overcoming the crises in a healthy way during this period is important for developing a successful identity (Marcia, 2002). The inability to overcome these developmental crises in a healthy way raises a number of problems. Research shows that there is a broad range of psychological problems experienced during adolescence. Suicide (Andriessen et al., 2017), depression (Mojtabai et al., 2016), exam anxiety (Güler & Çakır, 2016), unhealthy sexual behaviors (Boislard et al., 2016), violent behaviors (Exner-Cortens, et al., 2017), and school discharge (Gubbels et al., 2019) are some of them. At the same time, the inability of adolescents to develop a successful identity negatively affects their subjective well-being (Eryılmaz & Aypay, 2011). Therefore, it can be said that adolescents need a number of emotional-cognitive-behavioral skills to deal with the crises they encounter during their development period in a healthy way (Neff & McGehee, 2010). Self-compassion is one of the skills that will support overcoming adolescence in a healthy and productive way (Bluth et al., 2016). It is noted that self-compassion plays a role in enhancing well-being in adolescents (Bluth & Blanton, 2015; Sun et al., 2016), protecting against psychopathology (Bluth et al., 2015; Lathren, Bluth & Park, 2019; Muris et al., 2015; Neff & McGehee, 2010), and preventing risky behavior (Jiang et al., 2016; Xavier et al., 2016). Indeed, research on adolescents shows that self-compassion is positively associated with concepts that indicate positive mental health, such as psychological well-being (Sun et al., 2016), subjective well-being (Bluth & Blanton, 2015), resilience (Aydın Sünbül, 2016; Bluth et al., 2018, Neff & McGehee, 2010), and negatively associated with concepts that indicate negative mental health, such as depression, anxiety, and stress (Muris et al., 2016). At the same time, adolescents with high levels of self-compassion are satisfied with their bodies and show healthier eating behaviors. (Pullmer et al., 2019).

Self-compassion is a concept closely related to psychological health (Baer et al., 2012; Neff, 2011). Self-compassion is defined as people's being affectionate towards themselves in the face of their inadequacies and failures, showing an understanding perspective instead of being judgmental about themselves, and accepting their inadequacies and failures as a natural part of being human (Neff, 2003a; Raes et al., 2011). In this regard, it can be said that self-compassion allows you to look at the crises encountered in adolescence from a more balanced point of view, know that these crises can be experienced by all people, and evaluate these crises as an opportunity for development (Bluth & Eisenlohr-Moul, 2017). An experimental study aimed at increasing adolescent self-compassion levels showed that participants' self-compassion and mindfulness levels increased after a 6-week Self-Compassion Program, while their stress, anxiety, and depression levels decreased (Bluth et al., 2016). Similarly, in a study conducted by Bluth & Eisenlohr-Moul (2017), it was observed that adolescents' well-being levels increased after the 8-week Self-Compassion Program. Again, in another experimental study with adolescents, it was found that a self-compassion-oriented intervention increases life satisfaction and the level of self-compassion (Bluth, Roberson & Gaylord, 2015).

Based on his clinical observations, Gilbert (2009) noted that compassion had an impact on well-being, but observed that some people were resistant to experiencing a life of compassion, and based on this, he

came up with the concept of fear of compassion. Fear of compassion can be defined as people feeling fear and anxiety about experiencing compassion, and avoiding the experience of compassion (Gilbert et al., 2011). Fear of compassion has been studied in 3 dimensions according to the direction and flow of life. The first is the fear of self-compassion. Some people are fearful, suspicious, and resistant to being affectionate for their inadequacies and failures, being kind to themselves, and being sensitive to their emotional needs. This fear, suspicion and resistance may be related to people's belief in that they do not deserve tolerance and compassion, or it may be related to evaluating the need for tolerance and compassion as a weakness (Gilbert et al., 2011). The roots of fear of self-compassion are based on past experiences of neglect and abuse, lack of adequate care, and frequently being exposed to criticism (Boykin et al., 2018). The mentioned past negative experiences prevent a person from displaying an understanding, caring and affectionate attitude towards himself/herself and lead to the emergence of various psychological problems in adolescence and adulthood. For example, Xavier et al., (2016) examined the relationship between fear of self-compassion and depression, distress, self-hatred, risk-taking, and self-injury in a study they conducted with 782 adolescents aged 12-18 years. According to the findings, it was observed that depression, everyday distress, self-hatred, risk-taking, and self-injury behaviors increased in parallel with the increase in fear of self-compassion. Pauley and McPherson (2010) found that patients with depression find it easier to be cruel and critical of themselves than to be tolerant and caring. But this does not mean that people shall remain prisoners of their past lives and that people who have been subjected to neglect and abuse in their past lives shall remain indifferent, critical, and judgmental towards themselves. Because being caring and helpful to one's own pain and inadequacies is a skill that can be learned. As a matter of fact, at the end of the program, which included elements such as group guidance, meditation and group discussions which aimed to improve the level of compassion, Jazaieri et al. (2013) found that while participants' self-compassion scores increased, their fear of compassion scores decreased.

The fact that adolescents develop a caring, tolerant and compassionate attitude towards themselves also contributes to their subjective well-being (Bluth et al., 2016; Mendes et al., 2022). Subjective well-being can be seen as making an assessment of one's own life (Eryılmaz, 2009). According to Lyubomirsky et al. (2005), determinants of subjective well-being can be considered under three headings. These are genetic factors, living conditions (demographic variables such as age, gender, socioeconomic level, education level), and purposeful activities (creating life goals, building social relationships, gratitude, forgiveness, exercise, etc.) As it will be difficult to change genetic factors and living conditions, it has been stated that studies to increase subjective well-being can be provided through purposeful activities (Lyubomirsky et al., 2005). As a matter of fact, self-compassion is an effort to help oneself in the face of suffering and failures and is a conscious choice (Germer, 2009). Research reveals the strong relationship of self-compassion with subjective well-being (Allen et al., 2012; Neff et al., 2007).

As can be seen, self-compassion plays an important role in maintaining the mental health of adolescents and increasing their well-being. A study on the level of self-compassion among university students has been conducted in Turkey (Sarıcaoğlu & Arslan, 2019). However, no experimental research aimed at increasing the level of self-compassion of adolescents has been encountered in Turkey. Therefore, in this study it was aimed to examine the impact of the Self-Compassion Program on self-compassion, fear of self-compassion, and subjective well-being levels of adolescents. The current study is the first experimental study aimed at increasing the level of self-compassion of Turkish adolescents. It is assumed that the results obtained from the study will allow making an intercultural comparison by comparing



them with the results of research conducted in other countries and will be a source for future research and will contribute to the studies of practitioners working with adolescents.

To conclude, the purpose of this study is to investigate the effectiveness of the Self-Compassion Development Program prepared and implemented for adolescents on self-compassion, fear of self-compassion, and subjective well-being.

Within the scope of the research, answers to the following questions are sought;

1. Is there a significant difference between the self-compassion scores of the adolescents in the experimental group and the control group in terms of pre-test, post-test, and follow-up test?
2. Is there a significant difference between the scores of fear of self-compassion among the adolescents in the experimental group and the control group in terms of pre-test, post-test, and follow-up test?
3. Is there a significant difference between the subjective well-being scores of the adolescents in the experimental group and the control group in terms of pre-test, post-test, and follow-up test?
4. When the self-compassion scores of the adolescents in the experimental and control groups are compared in terms of pretest-posttest, pretest-follow-up test and posttest-follow-up test, is there a statistically significant difference between these measurements?

## METHOD

### Research Design

This research was designed using the 2x3 (experimental group/control groupXpre-test/post-test/follow-up test) mixed pattern method to determine the impact of the Self-Compassion Program developed by the researcher on self-compassion, fear of self-compassion, and subjective well-being scores of participants. Pre-test, post-test, follow-up test control group pattern is one of the frequently used experimental patterns used in research in education and psychology. According to this pattern, participants selected from the population are impartially assigned to experimental and control groups. In the first stage, preliminary measurement is applied to both groups. Here, participants who are in the experimental group participated in the experimental environment prepared by the researcher, while participants who are in the control group are not exposed to any action, and a measurement is made again after the experiment (Karasar, 2016). According to the assumption of this model, the source of the difference that occurs after the experiment and persists in follow-up measurement is the experimental process itself. In this way, the impact of the experimental environment, which is treated as an independent variable, on the feature that is treated as a dependent variable is tried to be tested. Table 1 shows the steps of the experimental process related to the current research. Accordingly, pre-tests were applied to the experimental and control group at the same time. The experimental group participated in the 6-week experimental process, and at the end of 6 weeks, post-test measurements were applied to both the experimental and the control group. Follow-up measurements were conducted 6 weeks after the post-test measurements.

**Table 1. Stages of experimental process**

Group	Process 1	Process 2	Process 3	Process 4	Process 5
Experimental	Pre-Test	Experimental Process (Self-Compassion Program)	Post-Test	6 Week Rest	Follow-Up Test
	Control	Pre-Test	-	Post-Test	6 Week Rest

### Data Collection and Creation of Working Group

The working group formed in order to test the effectiveness of the Self-Compassion Program consists of students in grades 6 and 7 who continue their education in a public school in the 2016-2017 academic year. In order to form a working group of the research, the Short Form of Self-Compassion Scale, Fear of Compassion Scale, and the Subjective Well-Being Scale for Adolescents were applied to 133 students who continued their education at the concerned public school. It was found that there were 33 students who scored below the group average from the Short Form of Self-Compassion Scale and Fear of Compassion Scale. As a result of the interviews, it was observed that 20 students volunteered to participate in the study. 20 volunteers were randomly assigned to the experimental and control groups. But since 1 of the participants in the experimental group did not participate in session 4, 5 and 6, the data obtained from this participant and the data of a participant in the control group with scores equivalent to the participant who did not attend the mentioned sessions were excluded from evaluation in order to ensure equivalence between the groups. Finally, the study was completed with 18 (9 experimental, 9 control) participants. The average age of the experimental group was 12.44 while the average age of the control group was 12.56.

### Ethical Statement

This study was completed in accordance with the Helsinki Declaration. In line with this, the study was permitted by Abant İzzet Baysal University, Social Sciences Human Research Ethics Committee (2017/1).

### Data Collection Tools

Self-Compassion Scale Short Form, Fear of Compassion Scale and the Subjective Well-Being Scale for Adolescents were used as data collection tools in this study. In this section, measurement tools will be introduced in detail.

**Self-Compassion Scale Short Form.** The Short Form of Self-Compassion Scale, prepared by Raes et al., (2011), was adapted to Turkish adolescents by Yıldırım and Sarı (2018). The Turkish form of the scale consists of 11 articles and a single factor. Articles 1, 4, 8, 9, 10 and 11 on the scale are reversed and the total score is received, and high scores indicate a high level of self-compassion. In a study conducted on Turkish adolescents, the factor load of the 10th article remained below .30 and the article was removed from the scale (Yıldırım & Sarı, 2018) Positive articles on the scale were collected into one factor while negative articles into another, and thus the scale had a single-factor structure consisting of two sub-components. The resulting two components were found to account for 44.87% of the total variance. In the CFA, the two-factor structure of the scale was confirmed. In this way, it was understood that CFA confirms the model which occurred as a result of EFA and which is in accordance with the theoretical foundations of self-compassion. Finally, the internal consistency coefficient of the scale was calculated as .75.

***Fear of Compassion Scale.*** The Fear of Compassion Scale was developed by Gilbert et al., (2011) and adapted into Turkish by Necef and Deniz (2018). The scale measures the fear of compassion in three sub-dimensions. These are "Being afraid to show tolerance and compassion to others", "being afraid to welcome the compassion from others" and "being afraid to show tolerance and compassion to ourselves". This scale is a likert-type measuring tool consisting of 35 articles in total. Each subscale is scored in itself. In the current research, only the articles found in the "being afraid to show tolerance and compassion to ourselves" sub-dimension of the scale were used. The internal consistency coefficient was calculated as .93 for the sub-dimension "being afraid to show tolerance and compassion to ourselves", and the relationship between the scores taken from the Fear of Compassion Scale and the scores taken from the Self-Compassion Scale and the Life Satisfaction Scale was examined for the correlation validity of the scale, and it was found that there was a significant relationship between these measurements. The internal consistency coefficient of the sub-dimension "being afraid to show tolerance and compassion to ourselves" used in the current research was calculated as .91. In previous studies, no findings were found indicating that the scale could be used in an adolescent sample. For this reason, the factor structure of the scale was verified with Confirmatory Factor Analysis. Analysis showed that the chi-square value was statistically significant ( $\chi^2=494.49$ ,  $N=800$ ,  $p=0.00$ ). When the fit indices of CFA analysis are examined, the calculations are as follows: RMSEA=0.075, RMSR= 0.070, GFI= 0.92, NFI= 0.97, CFI= 0.97 and NNFI= 0,97. Accordingly, it can be said that the RMSEA, RMSR, and GFI values were acceptably fit, while the NFI, CFI, and NNFI values were perfectly fit. It is observed that the single factor of the sub-dimension "being afraid to show compassion to ourselves" revealed in both the original form (Gilbert et al., 2011) and Turkish adaptation (Necef & Deniz, 2018) of Fear of Self-Compassion Scale has been confirmed and that the factor loads of the scale articles were between .43 and .76. In this way, it can be said that the sub-dimension "being afraid to show compassion to ourselves" of the Fear Self-Compassion Scale, is a valid and reliable measurement tool that can be used in adolescents.

***Subjective Well-Being Scale for Adolescents.*** Subjective Well-Being Scale for Adolescents is a measurement tool developed by Eryılmaz (2009) for use in happiness research conducted with adolescents. The scale is a likert-type measuring instrument consisting of 15 articles and 4 sub-dimensions. These factors were named as "Satisfaction in Family Relationships (4 articles)", "Satisfaction in Relationships with Other Important Persons (4 articles)", "Life Satisfaction (3 articles)", and "Positive Emotions (4 articles)". High scores taken from the scale indicate that the measured feature is observed in excess. This measurement tool can be evaluated according to the subscale scores or can be interpreted based on the total score. As a result of the reliability analysis Cronbach's alpha value was found as 0.83 for Satisfaction in Family Relationships, as 0.73 for Satisfaction in Relationships with Other Important Persons, as 0.81 for Life Satisfaction, and as 0.66 for Positive Emotions.

***Self-Compassion Program.*** The independent variable of this research is the Self-Compassion Program developed by the researchers. The theoretical foundations and content of the Self-Compassion Program are parallel to the Mindfulness-Based Self-Compassion Programs that Kristin Neff has brought to the literature (Arimitsu, 2016; Bluth et al., 2016; Jazaieri et al., 2014; Neff & Germer, 2013; Neff, 2018). When the literature was examined, it was observed that similar programs were implemented in between 3 to 10 sessions, with a number of warm-up games, self-compassion exercises, and meditation studies (Arimitsu, 2016; Bluth et al., 2016; Jazaieri et al., 2014; Neff & Germer, 2013).

In this study, the exercises suggested by Neff (2017) were used to inform adolescents about the concept of self-compassion, to use self-compassion to cope with crises encountered during adolescence, to develop their mindfulness, to notice the self-judgmental attitudes that arise in the face of failures and inadequacies, to develop a self-compassionate attitude in the face of failures and inadequacies, to be able to see failures, and inadequacies as a natural part of being human, to develop self-compassion skills, and to strengthen their self-caring side. In addition, warm-up games and events were used to ensure group dynamics. The general objectives and sub-objectives of the Self-Compassion Program are presented in Table 2.

**Table 2. General objectives and sub-objectives of the Self-Compassion Program**

General Objectives		Sub-objectives
Session 1	Configuring the Group	<ul style="list-style-type: none"> <li>● Introduction</li> <li>● Configuring the group process</li> <li>● Defining group rules</li> <li>● Information about the concept of self-compassion</li> <li>● Information about the characteristics of adolescence</li> </ul>
Session 2	Developing Mindfulness Skill	<ul style="list-style-type: none"> <li>● Establishing trust within the group</li> <li>● Informing the members of the correct breathing methods and relaxation exercises</li> <li>● Increasing the level of mindfulness</li> <li>● Creating a safe place</li> </ul>
Session 3	Developing Awareness of Self-Affection and Common Grounds (Being a Human)	<ul style="list-style-type: none"> <li>● Noticing self-judgmental attitudes that arise in the face of failures and inadequacies</li> <li>● Developing a self-caring attitude in the face of failures and inadequacies</li> <li>● Seeing failures and inadequacies as a natural part of being human</li> </ul>
Session 4	Developing Self-Compassion	<ul style="list-style-type: none"> <li>● Developing self-compassion skills</li> </ul>
Session 5	Developing Self-Compassion	<ul style="list-style-type: none"> <li>● Strengthening the self-compassionate aspect</li> </ul>
Session 6	Termination	<ul style="list-style-type: none"> <li>● Evaluating the group process</li> <li>● Encouraging group members to apply the gains in the group process in real life</li> <li>● Application of post-tests</li> <li>● Farewell</li> </ul>

### Analysis of Data

The SPSS 22.0 package program was used to test the impact of the Self-Compassion Program prepared for adolescents. Distribution characteristics in small samples can be spread from the normal distribution to the right or left (Karasar, 2016: pp. 292). Therefore, it is recommended that the data collected from small samples be analyzed by nonparametric methods. Considering that the working group created for the purpose of testing the Self-Compassion Program was composed of 18 people, it was decided to use nonparametric tests. Thus, while the Mann Whitney U test was used to analyze the differences between the experimental and control groups, the Friedman Test and the Wilcoxon Signed Ranks test were used to examine the change (pre-test, post-test and follow-up test comparison) in data obtained from the experimental and control groups (Kilmen, 2015: pp.127-128).

## RESULTS

### Findings on the Impact of Self-Compassion Program on Adolescent Self-Compassion Levels

The results of the Mann Whitney U test conducted for comparison of self-compassion pre-test, post-test and follow-up test scores of experimental and control groups are presented in Table 3.

Table 3. Results of the comparison of self-compassion pre-test, post-test, and follow-up test scores between the experimental and control group

Score	Groups	N	$\bar{X}_{rank}$	$\sum_{rank}$	U	Z	p
Pre-test	Experimental Group	9	7.56	68.00	23.00	-1.55	0.136
	Control Group	9	11.44	104.50			
Post-Test	Experimental Group	9	11.61	104,0	21.50	-1.68	0.094
	Control Group	9	7.39	65.50			
Follow-up Test	Experimental Group	9	13.44	121.00	5.00	-3.15	0.001
	Control Group	9	5.56	50.00			

$p < 0,05$

As seen in Table 3, there were no statistically significant differences between the self-compassion pre-test scores ( $U = 23.00$ ,  $Z = -1.55$ ,  $p = 0.136$ ) and the post-test scores ( $U = 21.50$ ,  $Z = -1.68$ ,  $p = 0.094$ ) of adolescents in the experimental group and control group. Follow-up test scores differ statistically in favor of the experimental group ( $U = 5.00$ ,  $Z = -3.15$ ,  $p = 0.001$ ). Friedman Test results of the comparison of self-compassion pre-test, post-test, and follow-up test scores between the experimental and control group are presented in Table 4.

Table 4. Results of the comparison of self-compassion pre-test, post-test, and follow-up test scores between the experimental and control group

Groups	Scores	N	$\bar{X}_{rank}$	$\chi^2$	df	p
Experimental	Pre-test	9	1.11	13.41	2	0.001
	Post-test	9	2.11			
	Follow-up Test	9	2.78			
Control	Pre-test	9	2.44	3.56	2	0.168
	Post-test	9	1.61			
	Follow-up Test	9	1.94			

$p < 0.05$

As shown in Table 4, there is a statistically significant difference between the self-compassion pre-test, post-test and follow-up test scores of the experimental group ( $\chi^2 = 13.41$ ,  $p < 0.05$ ). However, there are no statistically significant differences between the self-compassion pre-test, post-test and follow-up test scores of the control group ( $\chi^2 = 3.56$ ,  $p > 0.05$ ). The results of the Wilcoxon test, conducted in order to determine differences between the measurements of the experimental group are presented in Table 5.



**Table 5. Analysis results for comparison of self-compassion pre-test, post-test and follow-up test scores of adolescents in the experimental group**

Compared Scores	Groups	N	$\bar{X}_{rank}$	$\sum_{rank}$	Z	p
Pre-Test- Post- Test	Decreasing	1	3.00	2.00	-2.31	0.021
	Increasing	8	5.25	42.00		
	Equal	0				
Pre-Test- Follow-up Test	Decreasing	0	0.00	0.00	-2.67	0.008
	Increasing	9	5.00	45.00		
	Equal	0				
Post-Test- Follow-up Test	Decreasing	1	2.00	2.00	-2.03	0.043
	Increasing	6	4.33	26.00		
	Equal	2				

p<0,05

Table 5 shows a significant difference between the self-compassion pre-test and post-test ( $z=-2.31$ ,  $p=0.021$ ), pre-test and follow-up test ( $z=-2.67$ ,  $p=0.008$ ) and post-test and follow-up test ( $z=-2.03$ ,  $p=0.042$ ) scores of the experimental group. Accordingly, it is understood that the follow-up test scores are statistically significantly higher than the pre-test and post-test scores, and the post-test scores are statistically significantly higher than the pre-test scores.

#### Findings on the Impact of Self-Compassion Program on Adolescents' Fear of Self-Compassion

The results of the Mann Whitney U test conducted for intergroup comparison of pre-test, post-test and follow-up test scores obtained from experimental and control groups are presented in Table 6.

**Table 6. Results of the comparison of “fear of self-compassion” pre-test, post-test, and follow-up test scores between the experimental and control group**

Score	Groups	N	$\bar{X}_{rank}$	$\sum_{rank}$	U	Z	p
Pre-Test	Experimental Group	9	11.22	101.00	25.00	-1.372	0.170
	Control Group	9	7.78	70.00			
Post-Test	Experimental Group	9	7.50	67.50	22.50	-1.60	0.110
	Control Group	9	11.50	103.50			
Follow-up Test	Experimental Group	9	5.78	52.00	7.00	-2.96	0.003
	Control Group	9	13.22	119.00			

p<0,05

As can be seen in Table 6, there is no significant difference between the fear of self-compassion pre-test ( $U=25.00$ ,  $Z=-1,372$ ,  $p=0.170$ ) and post-test ( $U=22.50$ ,  $Z=-1.60$ ,  $p=0.110$ ) scores of the adolescents in the experimental and control group. Follow-up test scores differ statistically in favor of the experimental group ( $U=7.00$ ,  $Z=-2.96$ ,  $p=0.003$ ). The Friedman test results for comparison of “fear of self-compassion” pre-test, post-test and follow-up test scores of the experimental and control group are presented in Table 7.

**Table 7. Results of comparison of self-compassion pre-test, post-test, and follow-up test scores between the experimental and control group**

Groups	Scores	N	$\bar{X}_{\text{rank}}$	$\chi^2$	sd	p
Experimental	Pre-test	9	2.89	16.22	2	0.000
	Post-test	9	2.11			
	Follow-up Test	9	1.00			
Control	Pre-test	9	1.22	9.25	2	0.010
	Post-test	9	2.33			
	Follow-up Test	9	2.44			

$p < 0,05$

As can be seen in Table 7 there is no statistically significant difference between the fear of self-compassion pre-test, post-test and follow-up test scores of the experimental group ( $x_2 = 16.22$ ,  $p < 0.05$ ) and the control group ( $x_2 = 9.25$ ,  $p < 0.05$ ). The results of the Wilcoxon test, which was conducted to determine the differences between measurements are presented in Table 8.

**Table 8. Analysis results for comparison of fear of self-compassion pre-test, post-test and follow-up test scores of adolescents in the experimental group and control group**

Group	Compared Scores	Groups	N	$\bar{X}_{\text{rank}}$	$\sum_{\text{rank}}$	z	p
Experimental Group	Pre-Test-Post- Test	Decreasing	8	5.50	44.00	-2.55	0.011
		Increasing	1	1.00	1.00		
		Equal	0				
	Pre-Test-Follow-up Test	Decreasing	9	5.00	45.00	-2.66	0.008
		Increasing	0	0.00	0.00		
		Equal	0				
	Post-Test-Follow-up Test	Decreasing	9	5.00	45.00	-2.67	0.008
		Increasing	0	0.00	0.00		
		Equal	0				
Control Group	Pre-Test-Post- Test	Decreasing	1	3.50	3.50	-2.25	0.024
		Increasing	8	5.19	41.50		
		Equal	0				
	Pre-Test-Follow-up Test	Decreasing	1	3.50	3.50	-2.25	0.024
		Increasing	8	5.19	41.50		
		Equal	0				
	Post-Test-Follow-up Test	Decreasing	2	2.75	5.50	-0.54	0.588
		Increasing	3	3.17	9.50		
		Equal	4				

When Table 8 is examined, it is observed that there is a significant difference between the scores of the experimental group's pre-test and post-test ( $z = -2.55$ ,  $p = 0.011$ ), pre-test and follow-up test ( $z = -2.66$ ,  $p = 0.008$ ) and post-test and follow-up test ( $z = -2.67$ ,  $p = 0.008$ ) of the fear of self-compassion scale. According to the table, it is understood that the pre-test scores of the experimental group were significantly higher than the post-test and follow-up test scores, while the post-test scores were significantly higher than the follow-up test scores. When the results of the control group are examined, it is seen that there are significant differences between the pre-test and post-test ( $z = -2.25$ ,  $p = 0.024$ ) and pre-test and follow-up test ( $z = -2.25$ ,  $p = 0.024$ ) scores of fear of self-compassion scale. Accordingly, it is understood that the pre-test scores of the control group are significantly lower than the post-test and follow-up test scores. In addition, no significant differences were found between the scores of post-test and follow-up test ( $z = -0.54$ ,  $p = 0.588$ ).

## Findings on the Impact of Self-Compassion Program on Subjective Well-Being Levels of Adolescents

Results of the Mann Whitney U test for comparison of subjective well-being pre-test, post-test and follow-up test scores obtained from experimental and control groups are presented in Table 9.

**Table 9. Results of the comparison of subjective well-being pre-test, post-test, and follow-up test scores between the experimental and control group**

Score	Groups	N	$\bar{X}_{rank}$	$\sum_{rank}$	U	Z	p
Pre-Test	Experimental Group	9	7.61	68.50	23.50	-1.50	0.133
	Control Group	9	11.39	102.50			
Post-Test	Experimental Group	9	11.89	107.00	19.00	-1.90	0.057
	Control Group	9	7.11	64.00			
Follow-up Test	Experimental Group	9	12.39	111.50	14.50	-2.30	0.021
	Control Group	9	6.61	59.50			

$p < 0.05$

As can be seen in Table 9, there is no statistically significant difference between the scores of the subjective well-being pre-test ( $U=23.50$ ,  $Z=-1.50$ ,  $p=0.133$ ) and post-test ( $u=19.00$ ,  $Z=-1.90$ ,  $p=0.057$ ) scores of adolescents in the experimental group and the control group. Follow-up test scores differ statistically significantly in favor of the experimental group ( $U=14.50$ ,  $Z=-2.30$ ,  $p=0.021$ ). The Friedman test results for comparison of subjective well-being pre-test, post-test and follow-up test scores of the experimental and control group are presented in Table 10.

**Table 10. Analysis results for comparison of subjective well-being pre-test, post-test and follow-up test of scores of adolescents in the experimental group and control group**

Groups	Scores	N	$\bar{X}_{rank}$	$\chi^2$	sd	p
Experimental	Pre-test	9	1.11	14.857	2	0.001
	Post-test	9	2.22			
	Follow-up Test	9	2.67			
Control	Pre-test	9	2.61	5.88	2	0.053
	Post-test	9	1.83			
	Follow-up Test	9	1.56			

$p < 0.05$

As can be seen in Table 10, there is a statistically significant difference between the subjective well-being pre-test, post-test and follow-up test scores of the experimental group ( $\chi^2=14.857$ ,  $p < 0.05$ ). However, there is no statistically significant difference between the subjective well-being pre-test, post-test and follow-up test scores of the control group ( $\chi^2 = 5.88$ ,  $p > 0.05$ ). The results of the Wilcoxon Test with Bonferroni correction, which was applied to determine the differences between scores of the experimental group, are presented in Table 11.

**Table 11. Analysis results for comparison of subjective well-being pre-test, post-test and follow-up test of scores of adolescents in the experimental group and control group**

Compared Scores	Groups	N	$\bar{X}_{rank}$	$\sum_{rank}$	Z	p
Pre-Test- Post- Test	Decreasing	0	0.00	0.00	-2.53	0.012
	Increasing	8	4.50	36.00		
	Equal	1				
Pre-Test- Follow-up Test	Decreasing	0	0.00	0.00	-2.52	0.012
	Increasing	8	4.50	36.00		
	Equal	1				
Post-Test- Follow-up Test	Decreasing	0	0.00	0.00	-1.84	0.066
	Increasing	4	2.50	10.00		
	Equal	5				

p<0,05

When Table 11 is examined, it is seen that there is a significant difference between the subjective well-being pre-test and post-test ( $z=-2.53$ ,  $p=0.012$ ) and pre-test and follow-up test ( $z=-2.52$ ,  $p=0.012$ ) of the experimental group. It is understood that pre-test scores are statistically significantly lower than follow-up test scores and post-test scores. At the same time, there was no significant difference between the post-test and follow-up test scores ( $z=-1.84$ ,  $p=0.066$ ).

## DISCUSSION

When the post-test scores taken at the end of the six-week Self-Compassion Program were examined, no significant differences were found between the experimental and control group scores, but it was observed that the self-compassion scores of the experimental group were significantly higher than those of the control group in the follow-up tests conducted 6 weeks after the experimental procedure. Similarly, when the scores of the experimental group from the pre-test, post-test, and follow-up test were examined, it was found that the follow-up test scores were significantly higher than the pre-test scores, and there were no significant differences between these three tests in the control group. As a result, it was understood that the Self-Compassion Program was effective in increasing the levels of self-compassion of the experimental group.

When the literature was examined, a limited number of experimental studies aimed at increasing the level of self-compassion in adolescents were found. For example, Arimitsu (2016) applied a seven-session Self-Compassion Program to a group with an average age of 19 in Japan. This program consists of meditation studies and exercises aimed at developing self-compassion. As a result of the study conducted with participants with low levels of self-compassion, a significant increase in the level of self-compassion of the experimental group was observed. In addition, there was an increase in self-esteem and positive emotion scores of people participating in the Self-Compassion Program, while there was a decrease in their scores of depression, anxiety, negative emotions, shame and guilt. Based on these findings, Arimitsu (2016) stated that the program can be applied to people with low levels of self-compassion in cultures where self-criticism is high. A similar study was conducted by Bluth et al. (2015). In this study, a mindfulness-based Self-Compassion Program was applied to adolescents aged 10-18 years. It was observed that the self-compassion and mindfulness scores of the participants in the experimental group increased and negative emotions, stress, anxiety and depression scores decreased after the six-session Mindfulness-Based Self-Compassion Program. Boggiss et al., (2020) administered a short-term self-compassion intervention for adolescents with type 1 diabetes. As a result of this intervention, an increase was observed in the self-care behaviors, healthy eating attitudes and self-compassion levels of the

adolescents. In another study, a mobile app was developed that directed the adolescents to perform self-compassion exercises, and 20 adolescents conducted activities aimed at developing self-compassion in accordance with the content of this mobile app for 30 days. According to qualitative data obtained from participants, it was stated that adolescents' self-compassion levels could be increased through mobile applications (Donovan et al., 2016). In a study conducted on adolescents in Turkey, it was found that the program applied to develop self-compassion was effective in reducing risky behaviors (Sargül, 2021).

As can be seen, both studies found in the literature and current study results show that studies aimed at increasing adolescent self-compassion levels are promising. These results show that it is possible to increase the level of self-compassion in adolescents (Arimitsu, 2016; Bluth et al., 2015). Adolescence is a complex period in which emotional, social and physical development continues rapidly (Çelik et al., 2008). While entering adolescence, several problems (body image, addiction, risky behavior...etc.) may occur. Additionally, according to the observations made by the researcher during the implementation of the Self-Compassion Program, it was observed that adolescents face high expectations from their families, friends and teachers, such as being the most popular teenager, being the most successful student, and being the most compatible friend, and experience compelling emotions (such as anger, helplessness, and inability) in the face of these expectations. So, it can be said that adolescents go through a number of difficulties and need to be caring, tolerant and helpful towards themselves as they leave these difficulties behind. Therefore, the development of self-compassion skills can be seen as important for adolescents to establish healthy relationships, to recognize themselves, to reveal their abilities and to deal with problems in a healthy and functional way. In short, an increase in self-compassion levels may have been observed as this program contributed to participants' being more caring, tolerant and helpful towards themselves and responded to the needs of young people in adolescence.

On the other hand, although an increase has been observed in the level of self-compassion of participants because of the Self-Compassion Program, no significant differences have been found between the post-test scores of the experimental and control group. Similarly, while there was no significant difference between the post-test and pre-test scores of the experimental group, the follow-up test scores were significantly higher than the pre-test scores. In other words, while the increase in the level of self-compassion of the experimental group was not reflected in the post-tests, it was reflected in the follow-up tests conducted 6 weeks after the finalization. Kristin Neff (2018) made recommendations to practitioners working on self-compassion. He noted that the level of self-compassion may not increase rapidly after self-compassion meditations/trainings, even in some cases, the level of self-compassion may decrease after self-compassion meditations/trainings. Neff (2018) describes this phenomenon as "backdraft". Accordingly, when some people start to look at themselves in a compassionate and tolerant way, they can see their pain, helplessness, and incompetence that they have not seen/wanted to see before. This is just like opening a door to a burning house. The fire is lighter when the door is closed, but only when the door is opened, the fire can be controlled. The door is opened for controlling the fire and a backdraft happens. In other words, when people start to look at themselves in a compassionate and tolerant way, the scene they encounter may prevent their self-compassion levels from increasing. Because the process of accepting people's own suffering, inadequacies or failures is a difficult process. This can prevent people from looking at themselves in a compassionate and tolerant way, or slow down the development of this point of view. In addition, self-compassion allows people to realize what they need and help themselves to meet this need (Germer, 2009). It can take time for people to recognize their



needs and take behavioral steps to meet those needs. For this reason, self-compassion comes across as an experience that we can live deeper and deeper over time and which we can gradually learn.

When the post-test measurements taken at the end of the 6-week Self-Compassion Program were examined, no significant differences were found between the scores of the experimental and the control group, but the follow-up measurements taken 6 weeks after the experimental procedure showed that the fear of compassion scores of the experimental group were significantly lower than those of the control group. Indeed, when the scores obtained by the experimental group from the pre-test, post-test and follow-up test are examined, it is seen that the post-test scores are significantly lower than the pre-test scores and the follow-up test scores are significantly lower than the post-test scores. But similar declines were not observed in the control group. As a result, it can be said that the Self-Compassion Program has been effective in reducing the levels of fear of compassion in the experimental group.

Fear of compassion can be defined as people's feeling of fear and anxiety about experiencing compassion, and thus avoiding the experience of compassion. A limited number of studies have been found on this concept which was put forward by Gilbert (2009). For example, in a study aimed at increasing participants' levels of compassion, a program with elements such as group guidance, meditation, and group discussions were applied, and eventually it has been observed that participants' self-compassion scores increased, while their fear of compassion scores decreased (Jazaieri et al., 2013). This research finding appears to be consistent with the current research findings. The decrease in fear of compassion scores can be seen as a natural consequence of people participating in activities aimed at increasing their level of self-compassion. Because one of the main factors causing low levels of self-compassion may be that people are afraid and worried about showing compassion to themselves (Joeng & Turner, 2015).

In addition, when the pre-test, post-test and follow-up tests of the experimental group were examined, it was observed that the fear of compassion scores of the participants in the experimental group decreased. But no significant difference was found between post-test scores of the experimental group and the control group. Even if this indicates that the post-test scores of participants in the experimental group for fear of compassion decreased compared to the pre-test scores, this decrease was not enough to create a significant difference between the experimental group and the control group. As a matter of fact, when some people start to look at themselves in a compassionate and tolerant way, they can see their pain, helplessness, and incompetence that they have not seen/wanted to see before (Neff, 2018). Because self-compassion offers people to look at themselves in an unbiased way (Neff, 2003a). For this reason, people who have just begun to experience self-compassion in their lives may have been concerned about dealing with negative emotions that they will be alone with. This fear, suspicion and resistance may be related to people's belief in that they do not deserve tolerance and compassion, or it may be related to evaluating the need for tolerance and compassion as a weakness (Gilbert et al., 2011). Again, people who have just begun to experience self-compassion in their lives may have had difficulty in being compassionate and tolerant of themselves and leaving these judgments behind. As a matter of fact, Neff (2018) stated that self-compassion is a skill that can develop over time.

When the post-test measurements taken at the end of the six-week Self-Compassion Program were examined, no significant differences were found between the experimental and control group scores, but it was observed that the subjective well-being scores of the experimental group were significantly higher than those of the control group in the follow-up measurements taken 6 weeks after the experimental procedure. When the results of the comparison between the groups were examined, it was found that the

post-test scores of the experimental group were significantly higher than the pre-test scores, and there was no significant difference between the follow-up test scores and the post-test scores. No significant differences were found between the subjective well-being pre-test, post-test and follow-up test scores of the control group. As a result, the Self-Compassion Program can be said to be effective in increasing the subjective well-being levels of the experimental group. But this effect is not reflected in the post-test measurements of subjective well-being, as in self-compassion, but is reflected in the follow-up tests. It is thought that this situation may be related to self-compassion and subjective well-being changing together. More clearly, the participants' subjective well-being levels increased in parallel with the increase in self-compassion levels. As a matter of fact, self-compassion and subjective well-being are closely related concepts. In many studies, it has been reported that there is a positive relationship between self-compassion and subjective well-being as well as life satisfaction, which is the cognitive dimension of subjective well-being (Allen et al., 2012; Bluth & Blanton, 2014; Neff, 2003b; Tel & Sarı, 2016; Zessin Dickhäuser and Garbade, 2015).

One of the theoretical foundations for explaining the nature of subjective well-being is the theory of social comparison (Diener et al., 2009). According to this theory, what determines the level of subjective well-being is the comparison between the strengths and weaknesses of a person with his or her social environment. As is known, being aware of common grounds, which is one of the sub-dimensions of self-compassion, means that people's inadequacies, suffering, and failures are a natural consequence of being a human (Neff, 2003a). Therefore, when comparing themselves with others, people with a high level of self-compassion may think that they can have similar pain, sadness, and inadequacies. In this way, a person does not personalize negative situations and knows that they can experience negative emotions because of being a human, and thinks that they may have inadequate sides, pains and failures, just like other people. In this way, people with a high level of self-compassion can contribute to the level of subjective well-being, thinking that they are not alone in the face of problems and negatives, and that others can experience similar problems.

From another point of view, self-compassion can be considered as a healthy and strong method of coping with negative situations (Neff, 2003a). In this way, self-compassion functions as an internal resource (Bluth & Eisenlohr-Moul, 2017). With the presence of this source, adolescents can cope with difficult situations more comfortably. In this way, people can be more active in the face of problems by seeing themselves stronger when they manage to cope with the difficult situations they face. In other words, with an increase in the level of self-compassion, people's level of psychological robustness (Bolat, 2013; Neff & McGehee, 2010) and, based on this, the level of subjective well-being may increase.

In addition, during and after the implementation of the Self-Compassion Program, the researcher had the opportunity to observe the participants. During this process, it was observed that participants shared what they learned during the program with their friends in the school environment and showed them a caring, moderate, and helpful attitude during their difficult times. Therefore, participants attempted to help their social environment by using the knowledge and skills acquired in the Self-Compassion Program. In this way, adolescents may also have improved their self-compassion levels by offering wise help to people who share the same class and school. This may have contributed to the level of subjective well-being by increasing the quality of adolescents' relationships.

## Conclusion and Suggestions

According to the findings, the Self-Compassion Program has been shown to be effective in increasing adolescents' levels of self-compassion and subjective well-being and reducing their fear of self-compassion. Another important finding of the research is that adolescents' self-compassion levels do not develop linearly. When people start looking at themselves in a caring and compassionate way after a long time, the first thing they will see will be how much they have neglected their own needs by this time. This can lead to some compelling emotions, such as anger and sadness. Neff (2017) called it backdraft. This phenomenon refers to the process of responding to a fire in a confined space. The fire is lighter when the door is closed but the fire can be controlled only when the door is opened. The door is opened to control the fire and a backdraft can occur when oxygen suddenly enters inside.

This is one of the first studies aimed at increasing the level of self-compassion of adolescents in Turkish culture. In this regard, new studies are needed to reach more in-depth findings on the subject. Repeating the similar research with different dependent variables (e.g., perfectionism, psychological well-being, empathy, shame, guilt, etc.) can produce important results in terms of determining the areas in which the Self-Compassion Program is more effective. At the same time, conducting the research in larger samples can contribute to examining the impact of the program with more valid results. In the international literature, it is seen that online self-compassion development interventions are applied (Donovan et al., 2016; Mitchell et al., 2018). Since online interventions are both less costly and more accessible, the effectiveness of the interventions to develop self-compassion on online platforms can be examined in our country. In addition, trainings for mental health professionals can be organized. In these trainings, content, and strategies to increase the self-compassion levels of adolescents can be discussed.

Finally, this research has some limitations. The first of these is related to the working group of the research. In the study, 9 participants were in the experimental group and 9 participants were in the control group. It is quite difficult to generalize the findings of a study with this number of participants. This is a significant limitation. The other limitation is that participants in the experimental and control group of the research study at the same secondary school. Participants in the experimental and control group had an environment in which they would interact with each other during the experimental process. Therefore, this variable, which cannot be controlled, can be considered as a limitation of research. Finally, this research was conducted with secondary school students studying in a public school.

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### **About Authors**

**Musa Yıldırım.** He completed his undergraduate education at Sakarya University and his master's degree in Guidance and Psychological Counseling at Bolu Abant İzzet Baysal University. He continues PhD. education at Yıldız Technical University in the same field. Since 2016, he has been working as a school psychological counselor in schools affiliated to the Ministry of National Education.

**Tuğba Sarı.** Tuğba Sarı earned her bachelor's degree in Guidance and Psychological Counseling at Hacettepe University, master's degree at Middle East Technical University, and PhD. degree at Hacettepe University. She is currently an associate professor in the Department of Counseling and Guidance at Akdeniz University. Her research interests include positive psychology, positive psychotherapy, and self-compassion.

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## RESEARCH

## Open Access

## ARAŞTIRMA

## Açık Erişim

## Five Factor Personality Traits in Self-Compassion, Coping Strategies and Communication Skills

*Öz-anlayış, Başa Çıkma Stratejileri ve İletişim Becerilerinde Beş Faktör Kişilik Özellikleri*

Esin Özer 

### Authors Information

#### Esin Özer

Assistant Professor, Aydın Adnan Menderes University, Aydın, Turkey  
[cozer@adu.edu.tr](mailto:cozer@adu.edu.tr)

### ABSTRACT

This study aims to determine whether the sub-dimensions of five personality traits at a significant level predict the sub-dimensions of the variables "Self-compassion", "Coping Strategies" and "Communication." During the 2018-2019 academic year, the sample for the research includes 336 university students. Of the students, 243 are women and 93 are males. The Five-Factor Personality Scale, Self-Compassion Scale, Coping Strategies Scale, and Communication Skills Scale were used as a data collection tool. There was a multivariate regression analysis done. The results of the study showed that the relationship between extraversion and self-compassion is positive and that there is a negative relationship between emotional stability and self-compassion. The study's other finding is that individuals with higher levels of self-compassion use coping mechanisms effectively. The consequences of these findings were discussed in the conclusion.

### Article Information

#### Keywords

Self-compassion  
Coping Strategies  
Communication  
The Five-factor Personality Scale

#### Anahtar Kelimeler

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### ÖZET

Bu çalışmada, Beş Faktör Kişilik Özelliğinin alt boyutlarının, Öz-anlayış, Başa Çıkma Stilleri ve İletişim Değişkenlerinin alt boyutlarını manidar düzeyde yordayıp yordadığının incelenmesi amaçlanmıştır. Araştırmanın çalışma grubunu Aydın Adnan Menderes Üniversitesi'nde 2018-2019 öğretim yılında öğrenim görmekte olan 243'ü kız, 93'ü erkek, toplam 336 öğrenci oluşturmaktadır. Bu çalışmada, veri toplama aracı olarak, Beş Faktör Kişilik Ölçeği, Öz-anlayış Ölçeği, Başa Çıkma Stilleri Ölçeği Kısa Formu ve İletişim Becerileri Ölçeği kullanılmıştır. Veri analizinde, Çok Değişkenli Regresyon Analizi uygulanmıştır. Yapılan çalışmada, dışa dönüklük ile öz anlayış arasında pozitif yönlü bir ilişki, duygusal denge ile öz anlayış arasında negatif bir ilişki bulunmaktadır bulgusu elde edilmiştir. Elde edilen diğer önemli bir bulgu, öz anlayış düzeyi daha yüksek olan bireylerin, başa çıkma stillerini etkili bir şekilde kullanmalarıdır.

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**Ethical Statement:** The study was carried out within the framework of the Helsinki Declaration and volunteer participants were included in the study.

## INTRODUCTION

The concept of self-compassion, which became a focus of interest within the scope of positive psychology studies in recent years, was defined as the openness and sensitivity of an individual towards own suffering, a non-judgmental attitude towards oneself, a kind and compassionate attitude, and the awareness that individual experiences are a part of the common experiences of humanity. According to Neff et al. (2005), individuals, who adopt the self-compassion approach, tend to accept themselves as a whole with their positive and negative aspects, consider that other individuals undergo similar experiences in case of negative conditions, and behave more understanding and compassionate towards themselves. Individuals with self-compassion do not assess circumstances based on the evaluations made by other individuals and ideal standards, accept all the positive and negative characteristics, has the awareness that human nature comprises mistakes and not everything would be perfect, thus, such individuals handle failure in a more balanced way and are less concerned about failures (Neff et al., 2005).

Three sub-dimensions are significant for self-compassion:

- a) Self-kindness: The ability to behave kind towards oneself instead of judging oneself in a self-destructive manner against the individual's own suffering and inadequacies.
- b) Common experiences of humanity: The ability to realize that the encountered negativities could happen to other individuals and could be considered as a part of the common experiences of humanity, instead of feeling oneself isolated from the environment.
- c) Mindfulness: The ability to accept the experienced suffering and inadequacies rather than excessively internalizing them (without identifying, exaggerating or suppressing personality) and the ability to keep their mindfulness in such a balance that allows the individual to develop oneself (Neff, 2003a).

In some studies, conducted in Turkey on self-compassion have been found that self-compassion significantly related with self-sabotage (Yıldırım & Demir, 2017), life satisfaction (Alibekiroğlu, 2018), perceived social support and attachment styles (Bayar & Dost, 2019), relationship status (Baykal et al. 2019), cognitive flexibility and authenticity (Özdemir, 2020) and coping strategies (Sayın, 2017). Besides, some studies on mindfulness, which is a dimension of self-compassion, it has been found that mindfulness is significantly related with psychological well-being (Deniz et al., 2017), emotion regulation (Uygur, 2019), cognitive flexibility (Akman & Demir, 2021), perceived stress (Önder & Utkan, 2018).

The characteristics of individuals with high self compassionate such as productive, not hesitating to do more challenging activities, and being able to cope with the difficulties they encounter more decisively, also in individuals with developed coping strategies. It draws attention as they are the features encountered. Individuals with high self-compassion were also noted for being individuals who use effective coping skills effectively (Allen & Leary, 2010). Individuals are confronted with problems of different feature in many areas of life. Coping skills are very crucial for individuals to interpret these problems they encounter and to solve them successfully and effectively. Coping strategies are a dynamic process that covers individual, cognitive, emotional and behavioral responses that are used to alleviate the sources of events or factors that cause stress or psychological distress and to overcome their negative effects.

The coping strategy to be used draws attention with its structure that differentiates from situation to situation (Lazarus & Folkman, 1984). The process of selecting a coping strategy depends on the source



of stress and the individual's ability to cope with this stress. When individuals perceive that the stress source is manageable, they use problem-oriented coping strategies to solve the problem, however, when they perceive that the stress source is unmanageable, they use emotion-oriented coping strategies with an attempt to manage the situation (Carver et al., 1989).

Problem-oriented coping is a relatively active strategy targeting to remove the stress source, if inevitable, reduce its impact. Problem-oriented coping involves identifying effective problem-solving strategies to reduce stress levels, setting specific behavioral goals, and using behaviors that help solve the problem. In tackling stressful situations, problem-oriented coping includes either direct problem solving (brainstorming solutions, action-oriented planning) or concentrating on problem solving. Problem-oriented coping provides beneficial effects on emotions through reducing or adjusting stress sources (Carver, 1997).

The other coping strategy, emotion-oriented coping, is defined as the individual recognition, expression of own feelings, reducing emotional stress when challenging situations are encountered, dealing with emotional stress sources and feeling better (Baker & Berenbaum, 2007). It is used for altering the meaning of the stress sources or for organizing emotional reactions caused by these sources (altering the meaning of the situation and emotional reaction, seeking emotional support, revealing negative feelings to reduce stress (crying), avoiding stressful situations). While problem-oriented coping includes altering or managing the situation, emotion-oriented coping focuses on controlling the negative emotions associated with the stressful situation (Lazarus & Folkman, 1984).

In Turkey, some studies with university students have been found that coping strategies are significantly related with self-efficacy and cognitive flexibility (Laçın & Yalçın, 2018), life satisfaction (Karavardar & Korkmaz, 2018), core self-evaluation and resilience (Özer, 2016), perceived stress level (Savcı & Aysan, 2014), causes of stress (Aşçı et al., 2014), resilience, social support and well-being (Malkoç & Yalçın, 2015), adaptation to university, social support, self-interpretation and psychological resilience (Rahat & İlhan, 2016). It is aimed to contribute to the literature by adding variables of self-compassion, five-factor personality traits and communication skills to the studies.

The communication skills, holds an important space in lives of individuals. Throughout their lives, individuals feel the need to establish relationships, to interact and receive support from other individuals (Aydın et al., 2017). The interactions that first started with the mother and father grow over time and continue with different people (Koç & Arslan, 2019). Communication is significantly associated with self-esteem, problem solving, job satisfaction, emotional intelligence, attachment styles (Bugay & Qwen, 2016; Hazar & Yılmaz, 2015), Interpersonal Problem-Solving Skills (Koç et al., 2015).

Communication skills fundamentally include listening, speaking, writing and reading skills, furthermore, an effective communication requires the ability to recognize and understand the messages sent. Communication skills are influenced by the communication processes, which are psychosocial processes that include generating, transferring and interpreting knowledge (Koç et al., 2015). The framework of the conceptual model proposed by Buluş et al. (2015) defines five basic effective communication skills that enable communication multidimensionally: the ego-supportive language, effective listening, self-recognition, self-disclosure, empathy and I-language skills.

- a) Ego-supportive language was defined as a type of expression that positively affects self in interpersonal relations, through this skill the individual becomes capable of realizing necessary developments through drawing attention to his/her positive characteristics and performances in the process of communication.
- b) Effective listening: It could be defined as an active participation to any moment through adequate motivation and attention that allows the comprehension of the message of an individual.
- c) Self-recognition, self-disclosure skills indicate that an individual is self-aware, establishes adequate relationship with own ideas and emotions and recognizes and discloses oneself voluntarily.
- d) Empathy is considered the most fundamental communication skill in an individual that attempts to understand the subjective world of another individual, thus conveying the emotions, ideas and expectations to oneself.
- e) "I-language": It means how an individual is affected by a behavior, the tangible influences are indicated, and the experienced emotion is disclosed (Buluş et al., 2015).

The main purpose of communication is that the messages whose content is determined reach the recipient through appropriate channels and create a desired effect in the receiver. Personality is at the forefront in communication skills, which can be summarized as sensitivity to verbal and non-verbal messages, effective listening and responsiveness.

Personality is a general pattern of a person's ongoing thinking, feeling, behavior, communication and relationship with people. The Big Five theory, developed by McCrae and Costa (1987) is among the most recently developed theories about personality traits, and the number of studies involving five factor personality traits is increasing day by day. The Five Factor Personality Model is defined in five basic dimensions.

- a) Extraversion: Extraverted individuals are energetic, willing, dominant, friendly and talkative, courageous, and ambitious individuals who enjoy being together with other people. O'Brein and De Longis (1996) stated that extraverted individuals use problem-oriented coping strategies under stress conditions
- b) Agreeableness: It includes traits such as being polite, gentle, flexible, reliable, cooperative, forgiving, compassionate and tolerant (Barrick & Mount, 1991).
- c) Conscientiousness: The dimension of conscientiousness includes traits such as carefulness, attentiveness, meticulousness, being responsible, organized, planned, success-oriented (Barrick & Mount, 1991).
- d) Neuroticism (Emotional Stability): Emotionally stable individuals are commonly defined as calm and satisfied with themselves (Friedman & Schustack, 1999). They are compliant, self-confident and tend to experience positive emotions. Neurotic individuals are highly tense, anxious, distressed and sad and experience problems related to their emotional stability (McCrae & John, 1992).
- e) Openness to Experience: It includes interest in knowledge and learning, open-mindedness and artistic sensitivity (Barrick & Mount, 1991). The individuals who are open to development generally appears to be highly imaginative, creative and witty (Todd, 2010).

When the literature is reviewed, it is concluded that there are studies discussing the relationship between five factor personality factors and different variables. For example, The Impact of Five-Factor Personality

Traits on career values in university students (İcerli & Uğuz, 2018), Personality traits of individuals who have children with disabilities (Bal, 2018), The effect of personality characteristics on the psychological resilience levels of bank employees (Cavuşoğlu & Yalcın, 2018), The effect of Five-Factor Personality Traits on loneliness in work-life (Parlak & Sazkaya, 2018).

However, there has not been seen any researches that those variables which are self-compassion, coping strategies and communication skills are studied together to determine. It is thought that the results to be obtained from the study will contribute to self-compassion, coping strategies and big five personality traits literature,

Within the scope of this aim, the research questions of the study are as follows:

- a) Are the sub-dimensions of the Five-Factor Personality Traits, “Extraversion (EV)”, “Neuroticism (N)”, “Conscientiousness (CT)”, “Agreeableness (AN)”, and “Openness to Experience (OE)” significant predictors of the Self-compassion (SC) variable?
- b) Are the sub-dimensions of the Five-Factor Personality Traits significant predictors of the sub-dimensions of coping strategies “positive reinterpretation (PR)”, “mental disengagement (MD)”, “focus on and venting of emotions (FVE)”, “seeking instrumental social support (ISS)”, “denial (DN)”, “turning to religion (TR)”, “humor (HM)”, “behavioral disengagement (BD)”, “restraint coping (RC)”, “seeking emotional social support (ESS)”, “use of drugs/alcohol (UDA)”, “acceptance (ACC)”, “suppression of competing activities (SCA)”, and “planning (PLN)”?
- c) Are the sub-dimensions of the Five-Factor Personality Traits significant predictors of the sub-dimensions of communication, “the ego-supportive language (ESL)”, “effective listening (EFL)”, “self-recognition, self-disclosure (SRSD)”, “empathy (EMP)”, and “I-language skills (ILS)”?

## METHOD

### Research Model

This research examines the relationship between several psychological variables; therefore, it employs quantitative research design, namely, the correlational research. Correlational research examines the relationships between two or more variables (Karasar, 2005).

### Participants

The sample group of this research included 336 students who continued their college education in the west region during the 2018-2019 academic year.

**Table 1. Demographic information of participants**

		Number	%
<b>Gender</b>	Woman	243	72
	Men	93	28
<b>Total: 336</b>			
<b>Departments</b>	Psychological Counseling and Guidance	153	46
	Finance	19	5
	Business and Management	5	1
	International Relations	26	8
	Social Studies Teacher	36	11
	Turkish Teaching	59	18
	Elementary School Teaching	38	11
<b>Total: 336</b>			

### Data Collection Tools

This study employed four different scales to measure personality, self-compassion, coping strategies, and communication skills.

**Five-factor Personality Scale.** Five-Factor Personality Scale (FFPS) was developed by Benet-Martinez and John (1998) and adapted to the Turkish by Sumer and Sumer (as cited in Basim et al., 2009) was used to evaluate the personality traits of students. The inventory consists of a total of 44 items. The scale was defined in 5-point Likert-type (1-Strongly Disagree, 5-Fully Agree) The personality sub-dimensions were defined as “Extraversion”, “Neuroticism”, “Conscientiousness”, “Agreeableness”, and “Openness to Experience” and the reliability coefficients were reported to have values between 0.64 and 0.77.

**Self-compassion Scale.** The reliability and validity studies in the Turkish language for the Self-Compassion Scale developed by Neff (2003b) were conducted by Deniz et al. (2008). In the Self-Compassion Scale, the participants are asked to rate the frequency for their responses through a 5-point Likert-type scale ranging from “Never=1”, “Almost Never=2”, “Sometimes=3”, “Almost Always=4” and “Always=5”. The internal consistency coefficient and the test-retest correlations were calculated as .89 and .83, respectively.

**The Coping Strategies Scale (COPE Inventory).** The Coping Strategies Scale (COPE Inventory) was developed by Carver (1997) and was adapted to the Turkish by Bacanlı, Surucu, and İlhan (2013). The items were kept same as the original, with a 4-point Likert-type scale: “1 = I usually don't do this at all”, “2 = I usually do this a little bit”, “3 = I usually do this a fair amount”, “4 = I usually do this a lot”. A short form of the scale consists of 28 items, 2 items per 14 dimensions. These dimensions are; Seeking Instrumental Social Support, Humor, Focus on and Venting of Emotions, Use of Drugs/Alcohol, Acceptance, Suppression of Competing Activities, Turning to Religion, Denial, Behavioral Disengagement, Mental Disengagement, Restraint Coping, Positive Reinterpretation, Seeking Emotional Social Support and Planning. Cronbach internal consistency coefficients of the sub-dimensions were found to be between ,39-,92.

**Communication Skills Scale.** Communication Skills Scale, developed by Buluş et al. (2017), was intended to measure the interpersonal communication skills among adults. It consists of 34 items with a 5- point Likert-type scale. The items 15, 16, 28, 32 and 33 are reversely scored. The reliability and validity studies conducted for this scale indicated that item-total correlations were between .32 and .60. The factor structure of the scale was analyzed by principals-components analysis based on 34 items and 5

factors were found to constitute 51% of the total variance with more than 1 eigenvalue. The internal consistency coefficients were calculated as .72 for the ego-supportive language sub-dimension, .84 for the effective listening sub-dimension, .76 for the self-recognition / self-disclosure sub-dimension, .85 for the empathy sub-dimension, and .836 for the I-language use sub-dimension. Therefore, the scale was structured to be rated based on the sub-dimensions. Accordingly, a higher total score from each subscale means higher levels of using communication skills.

### **Process**

During the data collection process, explanations were made about the purpose of the study and the confidentiality of the data. Data collection tools were applied to the students who wanted to participate in the research voluntarily. The application took approximately 35 minutes.

### **Data Analysis**

In order to test the assumptions of these analyses and to conduct a multivariate regression analysis, IBM SPSS 20 and LISREL 8.7 software were used. Confirmatory factor analysis (CFA) was applied to the related data groups to confirm the model-data compliance and it was observed that the model-data compliance for the sub-dimensions of both scales was perfectly consistent. Subsequently, the missing data on extreme value analysis was conducted for the regression analysis and the "multivariate normality", "multiple linearities" and the "multiple connection" assumptions were tested.

During the data editing stage, the missing data on extreme value analysis was tested. The missing data on extreme value analysis yielded that no missing data was observed in the present study group. In determining the extreme values Z scores were taken into consideration and the presence of any data outside the limits of +3 and - 3 was controlled. To calculate the multivariate extreme values, the Mahalanobis distances were calculated. No multivariate extreme values were determined within the data of the present study. Univariate and bivariate normality tests were used to test multivariate normality. In the present study, the Kolmogorov Smirnov test was applied for univariate normality. Given the level of significance was lower than .05 as a result of the significance test, normality was not provided. Once the Kolmogorov Smirnov Test does not indicate normality, skewness and kurtosis coefficients should be examined. The skewness coefficient between +1 and -1 indicates that the univariate normality is achieved (Büyüköztürk, 2020). The skewness and kurtosis coefficients of the variables of the present study were obtained and it was observed that these values were within the value ranges (Table 2).



**Table 2. Coefficients of Skewness and Kurtosis**

	Skewness	Kurtosis		Skewness	Kurtosis
<b>PR</b> (Positive Reinterpretation)	0,36	0,09	<b>DN</b> (Denial)	0,30	0,11
<b>BD</b> (Behavioral Disengagement)	0,07	-0,53	<b>ACC</b> (Acceptance)	0,22	-0,05
<b>N/ES</b> (Neuroticism/Emotional Stability)	0,15	-0,01	<b>ESL</b> (The ego-supportive Language)	-0,14	-0,13
<b>MD</b> (Mental Disengagement)	0,36	0,25	<b>TR</b> (Turning to religion)	0,49	-0,42
<b>RC</b> (Restraint Coping)	-0,35	-0,14	<b>SCA</b> (Suppression of competing activities)	-0,16	-0,23
<b>CT</b> (Conscientiousness)	-0,01	-0,35	<b>EFL</b> (Effective Listening)	-0,79	0,4
<b>FVE</b> (Focus on Venting on Emotions)	-0,22	-0,76	<b>HM</b> (Humor)	-0,43	-0,40
<b>ESS</b> (Seeking Emotional Social Support)	0,15	-0,31	<b>PLN</b> (Planning)	0,62	0,27
<b>AN</b> (Agreeableness)	-0,21	0,18	<b>SRSD</b> (Self-recognition, self-disclosure)	-0,13	-0,25
<b>ISS</b> (Seeking Instrumental Social Support)	-0,15	-0,21	<b>SC</b> (Self compassion)	0,03	-0,16
<b>UDA</b> (Use of Drugs/Alcohol)	-0,01	0,14	<b>EMP</b> (Empathy)	-0,45	0,69
<b>OE</b> (Openness to Experience)	0,18	-0,22	<b>EV</b> (Extraversion)	0,08	0,24
			<b>ILS</b> (I-Language Skills)	0,08	-0,35

Power analysis was performed with the Gpower 3.1 program. While performing the analysis, the number of dependent variables and the analysis type were taken into consideration. When the appropriate sample size is calculated with 15% effect size, 5% error amount and 95% power; The suitable sample size was found to be 220. It has been observed that the number of samples considered in the study is sufficient.

## RESULTS

a. The results of the research sub-question, Are the sub-dimensions of the Five-Factor Personality Traits, "Extraversion", "Neuroticism", "Conscientiousness", "Agreeableness" and "Openness to Experience" significant predictors of the Self-Compassion variable are as follows:

In this sub-question, the predictive powers of the variables "Extraversion", "Neuroticism", "Conscientiousness", "Agreeableness" and "Openness to Experience", which are the sub-dimensions of the personality traits, were evaluated for the Self-Compassion variable. The analysis results were presented in Table 3.

**Table 3. Multivariate regression analysis results for self-compassion,  $\beta$ , t and R<sup>2</sup> values**

Predictor	Outcome	$\beta$	SE	R <sup>2</sup>
EV	SC	.12*	.050	0.24
N/ES		.44*	.050	
CT		.030	.050	
AN		.004	.050	
OE		.072	.050	

\*p<.05

(Extraversion” (EV), “Neuroticism” (N), “Conscientiousness” (CT)  
 “Agreeableness” (AN) and “Openness to Experience” (OE))

As seen in Table 3, while the variables “extraversion” and "neuroticism” significantly predicted the self-compassion variable, the remaining variables, "conscientiousness” “agreeableness” and "openness to experience", did not significantly predict the self-compassion variable. A one-unit change in the extraversion variable leads to a .12-unit increase in self-compassion skills. A one-unit change in the neuroticism variable leads to a .44 unit decrease in the self-compassion skill. Such an outcome could be interpreted as the existence of a positive relationship between Extraversion and self-compassion, whereas there existed a negative relationship between neuroticism and self-compassion. In other words, one-unit change in the extraversion skill of an individual increases the self-compassion skill by .12 units and one-unit change in neuroticism leads to a .44 unit decrease in self-compassion skills. These two variables together explain the 24% of the self-compassion skill (R<sup>2</sup>=.24). The regression equation with significant variables is as follows; SC= 0.12\*EV – 0.44\*N

b. The results of the research sub-question, Are the sub-dimensions of the Five-Factor Personality Traits, “Extraversion”, “Neuroticism”, “Conscientiousness”, “Agreeableness”, and “Openness to Experience” variables, significant predictors of the sub-dimensions of coping strategies “positive reinterpretation”, “mental disengagement”, "focus on and venting of emotions", "seeking instrumental social support", "denial", "turning to religion", "humor" "behavioral disengagement" "restraint coping", "seeking emotional social support", "use of drugs/alcohol", "acceptance", "suppression of competing activities", and "planning" are as follows:

The results of the multivariate regression analysis conducted for the sub-dimensions of coping strategies "positive reinterpretation", "mental disengagement", "focus on and venting of emotions", "seeking instrumental social support", "denial", "turning to religion” “humor", "behavioral disengagement", "restraint coping", "seeking emotional social support", "use of drugs/alcohol”, "acceptance”, "suppression of competing activities" and "planning" variables were presented in Table 4.

**Table 4. Multivariate regression analysis for coping strategies,  $\beta$ , t and  $R^2$  values**

Predictor	Outcome	$\beta$	SE	$R^2$	Outcome	$\beta$	SE	$R^2$
EV	PR	.01	.06	.025	BD	-.08	.06	.06
N		.15*	.06			.06		
CT		-.02	.06			-.11	.06	
AN		.02	.06			.05	.06	
OE		-.02	.06			.06	.06	
EV	MD	.09	.06	.014	RC	.03	.06	.06
N		-.05	.06			.05	.06	
CT		-.04	.06			.11	.06	
AN		-.06	.06			.09	.06	
OE		.01	.06			.05	.06	
EV	FVE	.18*	.06	.11	ESS	.00	.06	.06
N		.29*	.05			.04	.06	
CT		.05	.06			.087	.06	
AN		.07	.05			.12*	.06	
OE		-.05	.05			.19*	.06	
EV	ISS	.07	.06	.060	UDA	.02	.06	.06
N		.05	.06			.08	.06	
CT		.20*	.06			.03	.06	
AN		-.05	.06			.01	.06	
OE		.07	.06			.14*	.06	
EV	DN	.05	.05	.043	ACC	.047	.06	.06
N		-.07	.06			-.21*	.06	
CT		-.14*	.06			-.08	.06	
AN		-.13*	.06			.01	.06	
OE		.09	.06			.14*	.06	
EV	TR	-.10	.06	.062	SCA	.08	.06	.06
N		-.04	.06			.05	.06	
CT		-.16*	.06			.12*	.06	
AN		-.11	.06			.03	.06	
OE		.014	.06			.059	.06	
EV	HM	.0052	.06	.067	PLN	.10	.06	.06
N		-.0060	.06			-.015	.06	
CT		.14*	.058			-.094	.06	
AN		.14*	.056			-.094	.06	
OE		.087	.056			-.0091	.06	

\* $p < .05$

As seen in Table 4, each sub-dimension of coping strategies is an outcome variable. For each outcome variable, the predictive power of the predictor variables was separately interpreted, and the regression formulas were presented.

"Mental disengagement", "behavioral disengagement", "restraint coping" and "planning" variables, which are the sub-dimensions of coping strategies, were not significantly predicted by any of the sub-dimensions of the personality traits ( $t < 1.96$ ). The sub-dimensions of the personality traits were not significant predictors of the MD, BD, RC and PLN sub-dimensions.

The significant predictor of the positive reinterpretation (PR) variable was the N variable ( $t > 1.96$ ) and the EV, CT, AN, and OE variables did not significantly predict the PR variable. Such an outcome could be interpreted as a positive reinterpretation, which means a coping strategy was significantly predicted by

emotional balance, one of the personality traits. A one-unit change in the neuroticism (N) of individuals caused a .15-unit increase in their positive reinterpretation (PR) skills. There existed a positive relationship between neuroticism(N) and positive reinterpretation (PR) variables. A positive one-unit change in the neuroticism situation of individuals resulted in .15-unit more positive reinterpretation skill. The neuroticism variable explained only 2% of the positive reinterpretation variable. The regression equation was as follows:  $PR = 0.15 * N$

Once the focus on and venting of emotions (FVE) outcome variable was investigated, it was observed that this variable was significantly predicted by the Extraversion (EV) and the neuroticism (N) variables ( $t > 1.96$ ). Conscientiousness (CT), Agreeableness (AN) and Openness to Experience (OE) were not significant predictors ( $t < 1.96$ ). Once the  $\beta$ -value was interpreted, it was observed that one-unit change caused .18-unit increase in the focus on and venting of emotions (FVE) variable. On the other hand, one-unit change in the neuroticism variable resulted in .29-unit change. Both variables presented a positive relationship with the focus on and venting of emotions variable. It is possible to assert that the individuals, who are more extraverted and have a high level of neuroticism, have a higher strategy of focus on and venting of emotions, with .18 and .29, respectively. Together, these two variables explained only 11% of the focus on and venting of emotions variable ( $R^2 = .11$ ). In other words, other variables, which were not taken into consideration in the present study, could explain the 89% focus on and venting of emotions strategy. The regression equation was as follows:  $FVE = 0.18 * EV + 0.29 * N$

When seeking instrumental social support variable was examined, it was observed that this variable was significantly predicted only by the conscientiousness variable ( $t > 1.96$ ). The  $\beta$ -value indicated that a one-unit change in the CT variable resulted in a .20-unit increase in the ISS variable. Individuals with one-unit higher conscientiousness traits tend to utilize the seeking instrumental social support strategy .20-unit more. The predictor CT variable, alone, explained 6% of the ISS ( $R^2 = .060$ ) and its regression equation could be written as follows:  $ISS = 0.20 * CT$

Once the Denial variable (DN) was investigated, it was observed that conscientiousness (CT) and agreeableness (AN) were the significant predictor variables ( $t > 1.96$ ). The directions of the relationships of these variables with the DN variable indicated a negative relationship for both. Interpreting this finding based on the  $\beta$  coefficient, it was possible to state that one-unit change in CT and AN variable resulted in .14- and .13-unit decrease, respectively, in the DN variable. In other words, individuals with a unit higher conscientiousness and agreeableness skills have lower denial strategies, by .14-unit and .13-unit, respectively. These two variables explained only 4% of the denial strategy ( $R^2 = .043$ ). Such findings could be interpreted as the existence of other variables that explain the denial strategy, but as of yet not included in the study. The regression equation could be written as follows:  $DN = -0.14 * CT - 0.13 * AN$

The significant predictor of the turning to religion (TR) variable was determined as the conscientiousness (CT) variable ( $t > 1.96$ ). One-unit change in the CT variable resulted in a .16-unit decrease in the turning to religion strategy. In this respect, it was possible to state that individuals with one-unit higher conscientiousness trait employ coping strategy, turning to religion, .16-unit less, and this finding could be expressed by the regression equation  $TR = -0.16 * CT$ . Moreover, the CT variable explained 6% of the TR variable ( $R^2 = .062$ ).

The significant predictors for the Humor (HM) variable were determined as the conscientiousness (CT) and agreeableness (AN) variables ( $t > 1.96$ ). Both variables had a positive direction in their relationship with the HM variable and one-unit change in these variables resulted in .14-unit change in a positive

direction in the HM variable. More conscientious and agreeable individuals tend to have more sense of humor, which is one of the coping strategies. These two variables explained almost 7% of the HM variable ( $R^2=.067$ ) and the regression equation for this relationship could be written as follows:  $HM=0.14*CT$

The personality traits that significantly predicted seeking emotional support (ESS) strategy were agreeableness (AN) and openness to experience (OE) ( $t>1.96$ ). A one-unit change in the agreeableness variable resulted in a .12-unit increase in the ESS variable. Openness to experience caused .19-unit increase. These two variables together explained 7% of the ESS strategy ( $R^2=.07$ ). The regression equation is:  $ESS=0.12*AN+0.19*OE$

One of the personality traits, openness to experience (OE) variable significantly predicted the use of drugs/alcohol (UDA) strategy ( $t>1.96$ ). A one-unit change in this variable resulted in a .14-unit increase in the UDA variable. Individuals who are open to experience could exhibit the use of drugs/alcohol strategy for coping. The OE variable explained almost 3% of the use of drugs/alcohol strategy ( $R=.029$ ). The regression equation for this relationship was determined as follows:  $UDA=0.14*OE$

Acceptance (ACC) outcome variable was significantly predicted by the emotional balance (EBN) and openness to experience (OE) variables. While a one-unit change in the ES variable resulted in a .21-unit decrease, one-unit change in the OE variable resulted in a .14-unit increase in the ACC strategy. In other words, individuals who exhibited an emotional balance trait utilized less acceptance strategy for coping, whereas individuals open to experience utilized more acceptance strategy. The regression equation was written as  $ACC=-0.21*ES + 0.14*OE$  and these variables together explained 7% of the ACC variable ( $R^2=.067$ ).

Suppression of competing for activities (SCA) was significantly predicted with the conscientiousness (CT) variable ( $t>1.96$ ). One-unit change in the conscientiousness variable resulted in a .12-unit increase in the SCA strategy. This variable explained 4% of the SCA strategy ( $R^2=.035$ ). The regression equation was written as follows:  $SCA= 0.12*CT$

c. The results of the multivariate regression analysis conducted to determine whether the sub-dimensions of the Five-Factor Personality Traits, “Extraversion”, “Neuroticism”, “Conscientiousness” “Agreeableness” and “Openness to Experience” variables were significant predictors of the sub-dimensions of communication, “the ego-supportive language”, “effective listening”, “self-recognition, self-disclosure”, “empathy”, and “I-language skills” were presented in Table 5.



**Table 5. Multivariate regression analysis for communication strategies,  $\beta$ , t and R<sup>2</sup> values**

Predictor	Outcome	$\beta$	SE	R <sup>2</sup>	Outcome	$\beta$	SE	R <sup>2</sup>
EV	ESL	-.01	.05	.23	EMP	.030	.05	.13
N		-.05	.05			-.033	.05	
CT		.05	.05			.16*	.05	
AN		.36*	.05			.19*	.05	
OE		.22*	.05			.26*	.05	
EV	EFL	.15*	.05	.26	ILS	-.030	.05	.13
N		.017	.05			.12*	.05	
CT		.15*	.05			.22*	.06	
AN		.29*	.05			.22*	.05	
OE		.21*	.05			.081*	.05	
EV	SRSD	.25*	.05	.14				
N		-.16*	.05					
CT		.07	.06					
AN		.06	.05					
OE		.09	.05					

\*p<.05

Table 5 presents the predictive powers of the sub-dimensions of the personality traits on the sub-dimensions of communication, of which the variables are the Ego-Supportive Language, Effective Listening, Self-Recognition, Self-Disclosure, Empathy, and I-Language Skills.

The ego-supportive language variable was predicted by the personality traits, Agreeableness and Openness to Experience ( $t>1.96$ ). One-unit change in the agreeableness variable resulted in .36-unit and one-unit change in openness to experience resulted in .22-unit increase in the ESL. It is possible to state that individuals who exhibit agreeable (.36) and open to experience (.22) personality traits utilize ego-supportive language more. These variables together explained 23% of the ESL variable ( $R^2=.23$ ). Taking the significant predictors into consideration, the regression equation for ESL could be written as follows:  $ESL = 0.36*AN + 0.22*OE$

The effective listening skill was significantly predicted by the extraversion, conscientiousness, agreeableness, and openness to experience ( $t>1.96$ ). It was observed that neuroticism was not a significant predictor for the EFL variable ( $t<1.96$ ). Examining the change of these predictor variables on the outcome variable, it was possible to indicate that a one-unit increase in EV, CT, AN, and OE variables resulted in .15-, .15-, .29- and .21-unit increase, respectively, in EFL skills. Individuals who exhibit in EV, CT, AN, and OE traits have higher EFL skills. Moreover, these variables together explain 23% of the EFL skills ( $R^2=.23$ ). The regression equation was written as:  $EFL = 0.15*EV + 0.15*CT + 0.29*AN + 0.21*OE$

The significant predictors of the Self-Recognition, Self-Disclosure (SRSD) communication skills were extraversion (EV) and neuroticism (N) variables ( $t>1.96$ ). SRSD had a positive relationship with the EV variable and a negative relationship with the N variable. One-unit change in the EV variable resulted in .25-unit increase in the SRSD variable and a one-unit increase in the N variable decreased the SRSD variable with .16-unit. Together, the two variables explained %14 of the SRSD variable and the regression equation was written as follows:  $SRSD = 0.25*EV - 0.16*N$

Empathy (EMP), one of the communication skills, was significantly predicted by the conscientiousness (CT), agreeableness (AN) and openness to experience (OE) variables. A one-unit increase in the CT

variable resulted in .16-unit increase in the EMP variable, and one-unit increase in the AN and OE variables resulted in .19- and .26-unit increase, respectively, in the EMP behavior. The three variables, CT, AN, and OE, together explained 19% of the EMP variable ( $R^2=.19$ ). The regression equation of the relationship was determined as follows:

$$EMP = 0.16*CT + 0.19*AN + 0.26*OE$$

I-Language Skills (ILS) was significantly predicted by the neuroticism (N), conscientiousness (CT) and agreeableness (AN) ( $t>1.96$ ). Predictor variables had a positive relationship with the predicted variable. In other words, an increase in the N, CT and AN variable caused an increase in the ILS variable. The amount of the increase caused by N, CT and AN on ILS are .12-, .22- and .22-unit, respectively. 13% of the ILS variable was explained by the N, CT and AN variable ( $R^2=.13$ ) and the regression equation was written as follows:

$$ILS = 0.12*N + 0.22*CT + 0.22*AN.$$

## DISCUSSION

The present study investigated whether the sub-dimensions of the Five-Factor Personality Traits, “Extraversion”, “Neuroticism”, “Conscientiousness”, “Agreeableness” and “Openness to Experience” significantly predicted the sub-dimensions of “Self-Compassion”, “Coping Styles” and “Communication Skills”.

The findings of the present study indicated that there was a positive relationship between extraversion and self-compassion and a negative relationship between emotional stability, and self-compassion. These findings were supported by similar studies in the literature (Neff, 2003b; Leary et al., 2007). For example, Neff (2003b) established the finding that there was a positive relationship between participation, agreeableness, and self-compassion. Moreover, Neff (2003b) concluded that self-compassion was negatively correlated with neuroticism. Individuals with self-compassion were more extraverted and experience less anxiety in their relationship with other individuals. There is a positive relationship between conscientiousness and self-compassion. Emotional stability achieved due to self-compassion results with higher conscientious behavior.

The finding obtained from Neff's (2003b) study, that self-compassion is positively associated with life satisfaction, social relationship, positive affect, extroversion, agreeableness, emotional intelligence, and social relationship supports the finding of the findings of the present study indicated that there was a positive relationship between extraversion and self-compassion. Self-compassionate people draw attention with their higher levels of constructive relationships, emotional intelligence, and coping skills, as well as greater happiness, optimism, life satisfaction, and intrinsic motivation (Neff et.al., 2007). Similarly, according to Crocker and Canevello (2008), self-compassionate individuals are more compassionate in their friendships and more inclined to provide social support.

The findings of the present study indicating a negative relationship between emotional stability (neuroticism) and self-compassion. The findings of the study are supported by the findings of other studies in the literature by Leary et al. (2007). They found that individuals who had higher scores in self-compassion had the tendency to receive lower scores in neuroticism and depression and these individuals were less concerned with negative emotions and more involved with positive reinterpretation when challenging situations were encountered.

The study conducted by Neff et al. (2007) presented that there was a positive relationship between self-compassion and participation, extraversion and conscientiousness and a negative relationship between self-compassion and neuroticism, and these are in line with the findings of the present study. Additionally, the present study established parallels with the study of Adams and Leary (2007), stating that higher levels of self-compassion were related to better psychological health and lower self-compassion resulted in negative psychological outcomes such as neuroticism, depressive symptoms, and anxiety. The individuals who had higher scores in neuroticism due to the presence of negative thoughts and feelings tended to retain such negativity for longer periods. These individuals were determined to be conservative in exhibiting more agreeable behaviors, investing in problem-solving and personal values, and making an effort towards their objectives. Individuals with high neuroticism have problems with strategic response selection and let the negative emotions to be experienced exaggeratedly. The tendency towards negative emotions is the basis of neuroticism (O'Brien & De Longis, 1996). Emotionally stable individuals, when confronted with mixed, uncertain and unanticipated stimuli, set the positive-negative emotions that can cope with this situation into operation, instead of escaping from this situation (Todd, 2010). However, neurotic individuals, there exists a tendency to develop long-term negative emotions and develop several behavioral pathologies. The finding that these individuals have difficulty in maintaining a healthy relationship with other individuals and experience long-term stress (Bruck & Allen, 2003) supports the finding of the present study indicating that individuals with neuroticism utilized the acceptance strategies less. Ekşi (2004) conducted a study with university students and concluded that there were moderate and significant relationships between the situational responses, coping strategies, and dealing with neuroticism and optimistic responses of the Five-Factor Personality Traits. This also supports the finding of the present study that individuals with neuroticism utilized the acceptance strategies less. It is noteworthy that individuals who effectively solve their problems have better psychological and physical health and professional success (Heppner et al, 2004). Effective problem-solving skills are key coping mechanisms in reducing the negative impacts of emotional stress, as well as eliminating the impairment effect of personal and interpersonal problems (Tetik & Açıkgöz, 2013).

Another remarkable finding of the present study is that individuals with higher levels of self-compassion use coping strategies more effectively. This finding is consistent with the finding of Neff et al. (2007), stating that individuals with higher levels of self-compassion, self-expression and who take hold and control the situation, utilized coping strategies more effectively when a source of stress was encountered.

Self-compassion and positive reinterpretation, stemmed from the work of Allen and Leary (2010), have a positive relationship and self-compassionate individuals utilize problem-solving and coping strategies and this finding also supports the findings of the present study. This study is also in line with the findings of Sirois et al. (2015), stating that self-compassion was positively related to the problem solving oriented coping strategies. Similarly, in a study conducted by Park (2014) with 232 university students, it was concluded that students with higher self-compassion utilized problem solving oriented coping mechanisms more effectively

Self compassion covers mindfulness, which refers to a balanced and non-judgmental response to negative emotions, as opposed to get rid of them or becoming overwhelmed by them (Lathren et al., 2021).

Findings from the study of Uygur (2019) stated, while mindfulness, a sub-dimension of self-compassion, shows a negative and significant relationship with negative coping and avoidant coping; The finding that it has a positive and significant relationship with active coping is similar to another remarkable finding of

the present study is that individuals with higher levels of self-compassion use coping strategies more effectively. In a similar study, Weistein et al. (2009) concluded that there is a positive and significant relationship between active coping style and mindfulness. Because for individuals using active coping style, stressful situations are seen as manageable situations. Instead of making sudden and impulsive decisions, it is noteworthy that they make more logical and accurate decisions and act. According to Halland et al. (2015), active coping ability can facilitate the mindfulness skill by providing the individual's attention to the "moment" and awareness of positive or negative emotions. Weistein et al. (2009) and Bergomi et al. (2012) revealed that there is a negative and significant relationship between mindfulness and avoidant coping style.

The findings of the present study is that individuals with higher levels of self-compassion use coping strategies more effectively are in line with the findings of the literature (Lathren et al., 2021; Costa & Pinto-Gouveia, 2013). Self-compassion is related with adaptive responses to challenging interpersonal states, increase in relationship quality, be balanced in concern for self and others and high perceived supportiveness of others (Lathren et al., 2021). Costa and Pinto-Gouveia (2013) concluded positive relations of self-compassion with adaptive coping strategies and negative relations with maladaptive coping strategies. The use of an active coping strategy, which includes defining the problem, thinking about the solution options, applying and evaluating them, brings highly effective and functional results for the individual (Dolenc, 2015)

Breines and Chen (2013) reported that self-compassion increased healthy coping behaviors and personal development, thus provided protection against negative emotions and facilitated subjective well-being. Barnard and Curry (2011) examined several studies, and found that self-compassion was positively associated with well-being and happiness, and negatively associated with negative emotions, depression, and anxiety. Similarly, the study conducted with university students by Deniz and Sumer (2010) indicated that depression, anxiety and stress levels of university students with low self-compassion levels were significantly higher compared to students with moderate and high self-compassion levels. In his study, Gilbert (1989, 2005) concluded that self-compassion had a structure that had significant positive relationships with psychological health. Self-compassion was negatively associated with self-criticism, depression, anxiety, rumination, suppression, and neurotic perfectionism, and was positively associated with satisfaction of life, social commitment, and emotional intelligence.

In this study, the findings stated that individuals who had high scores from the Five-Factor Personality Traits, agreeableness, and openness to experience, used ego-supportive language more effectively. The sub-dimensions Five Factor Personality Traits of conscientiousness (CT), agreeableness (AN) and openness to experience (OE) significantly predicted Empathy (EMP), which is one of the sub-dimensions of communication skills.

Individuals who exhibited extraversion, conscientiousness, agreeableness, and openness to experience had more effective communication skills. Our findings in this study are highly similar to the findings of Bugay and Owen (2016), stating that extraversion strongly predicted the communication skills in adolescents. Considering extraversion as a predisposition to social harmony, friendship and new environments, it is reasonable that it significantly predicts communication skills. The findings of Ashton et al. (2002) suggested that extraverts had good interpersonal relations, and such an assertion supports the findings of this study. Phipps & Prieto (2011) concluded that extraverts were more open to initiating and maintaining relationships with other individuals, and were more successful in interpersonal

relationships. This study illustrates that individual with higher levels of extraversion and emotional stability, sub-dimensions of the Five-Factor Personality Traits, had the strategy, focusing on and venting of emotions. Accordingly, Extraversion (EV) and Emotional Stability (Neuroticism) sub-dimensions were the predictors of Self-Recognition, Self-Disclosure (SRSD) ( $t > 1.9$ ). The self-recognition, self-disclosure communication skill was positively associated with extraversion dimension and negatively associated with the neuroticism dimension. One-unit change in extroversion dimension increased the self-recognition, self-disclosure skill by .25-unit, one-unit change in neuroticism decreased the self-recognition, self-disclosure skill by .16-unit. This finding was similar to the finding of Yiğit and Deniz (2012), stating that there was a significant relationship between the five-factor personality traits and communication skills, negative relationship between neuroticism and communication skills. Positive and significant relationships were found between extraversion, openness to experience, agreeableness, and conscientiousness.

### **Suggestions**

This research contributes to the field where a positive relationship between the relationship between five-factor personality traits, self-compassion, coping strategies and effective communication skills has been established. It can be suggested that programs with long-term, positive and productive effects should be implemented both individually and as group studies. Within the scope of these studies, activities of personal-social counseling facilitate (social problem-solving, effective communication skills, assertiveness training, etc.) can be included in that programs. From this point of view, the preparation and implementation of self-compassion enhancing programs for students to whom low coping skills and communication skills scarcity will bring long-term positive and productive results.

University counseling centers might present psycho-educational programs to students in order to increase their self compassion, communication skills or coping strategies. For example, students can be taught effective coping strategies, communication skills (students can obtain interpersonal relationship skills to enhance relationships with families, friends, and significant others). Individuals who face many emotional, physiological and psychological problems may not be at a sufficient level to use coping strategies effectively. Social support from friends, field experts or family is very important in dealing with the problems experienced effectively. Inclusion of other important figures (family, friend, etc.) in the intervention studies is important.

### **Limitations**

This study contains some limitations on the characteristics of the study group. Limitations should be considered while generalizing the results. This study is limited to a sample of public university in Aydın. Working with students from public and private universities in different cities can be enriched. It is thought that the larger the size of the sample and its repetition on larger samples will be beneficial. In addition, experimental research can be designed to determine the effects of psychoeducational programs that increase self-compassion, communication skills and coping strategies on individuals.



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### **About Authors**

#### **Esin Özer**

She completed her undergraduate education at Middle East Technical University, Guidance and Psychological Counseling Department in 1993. She received her Master's degree in 2002 at Selcuk University, and her doctorate degree in 2013 at Necmettin Erbakan University in the field of Psychological Counseling. She is still working as an Assistant Professor at the Adnan Menderes University, Faculty of Education, Guidance and Psychological Counseling Department.

### **Conflict of Interest**

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

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### **Ethical Statement**

Since the data used in this study were collected before 2020, ethics committee approval was not provided.

## RESEARCH

## Open Access

## ARAŞTIRMA

## Açık Erişim

## The Reasons University Students Apply to the Center of Psychological Counseling and Guidance: A Retrospective Study

*Üniversite Öğrencilerinin Psikolojik Danışma ve Rehberlik Merkezine Başvuru Nedenleri: Retrospektif Bir Çalışma*

Şerife Koç , Esra Öksüz , Fatma Ayhan 

**Authors Information****Şerife Koç**

Assistant Professor, Karamanoğlu Mehmetbey University, Karaman, Turkey [serifekoc@kmu.edu.tr](mailto:serifekoc@kmu.edu.tr)

**Esra Öksüz**

Psychological Counselor, Ministry of Education, İstanbul, Turkey [esraoksuz@kmu.edu.tr](mailto:esraoksuz@kmu.edu.tr)

**Fatma Ayhan**

Psychological Counselor, Ministry of Education, Gaziantep, Turkey [f.kucuksumbul@gmail.com](mailto:f.kucuksumbul@gmail.com)

**ABSTRACT**

The aim of this study is to examine the application reasons of university students to psychological counseling and guidance center. The population of this retrospective and descriptive designed research was comprised of all applications of students of a university to a psychological counseling and guidance center between 2012-2019, and the sample was comprised of 373 applications with complete information. The data were collected through the application form and analyzed with descriptive tests, chi-square test, with the significance level at  $p < 0.05$ . The highest number of applicants were from the first and second grades. Admissions were most frequently with personality problems, least with adaptation complaints. There was no significant difference between demographic characteristics, and the psychological problems. University students frequently experience personality-related complaints, which should be treated with ultimate care in providing psycho-social support for students. Counseling centers and the health professionals play an important role in improving mental health levels of the students.

**Article Information****Keywords**

University Students  
Psychological Counseling  
Application Reasons  
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**Anahtar Kelimeler**

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**ÖZET**

Bu çalışmanın amacı; psikolojik danışmanlık ve rehberlik merkezine başvuran üniversite öğrencilerinin başvuru nedenlerinin incelenmesidir. Retrospektif tanımlayıcı türdeki araştırmanın evrenini 2012-2019 yılları arasında bir devlet üniversitesinin psikolojik danışmanlık ve rehberlik merkezine yapılan tüm öğrenci başvuruları, örneklemini bilgileri eksiksiz 373 başvuru oluşturmuştur. Veriler görüşmelerde kaydedilen başvuru formu ile toplanmıştır. Verilerin analizinde tanımlayıcı testler ve ki-kare testi kullanılmış, istatistiksel anlamlılık düzeyi  $p < 0.05$  kabul edilmiştir. Üniversite öğrencilerinin merkeze başvurusu birinci ve ikinci sınıfta daha yoğunudur. Öğrenciler, en sık kişilik sorunları, en az uyum ile ilgili sorunlar nedeniyle merkeze başvurmuştur. Demografik özellikler ile psikososyal problemler arasında anlamlı bir fark bulunmamıştır. Üniversite öğrencileri sıklıkla kişilikle ilgili sorunlar deneyimlemektedir. Üniversite öğrencilerine psikososyal destek sağlanmasıyla ilgili planlamalarda kişilikle ilgili problemler konusu atlanmamalıdır. Öğrencilerin psikososyal sağlığını koruma ve geliştirmede üniversitelerin Psikolojik Danışma ve Rehberlik Merkezlerine ve sağlık profesyonellerine önemli görevler düşmektedir.

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**Ethical Statement:** The research was reviewed and approved by the Non-interventional Clinical Trials Ethics Committee of Karamanoğlu Mehmetbey University (08-2018/26).

## INTRODUCTION

As a result of continuous change of the societies and their values, psychological problems and the need to receive psychological support are increasing. Considering the lifetime prevalence rates of psychological disorders, the highest rates are observed in the university period (Blanco et al., 2008; Holm-Hadulla & Koutsoukou-Argraki, 2015; Hunt & Eisenberg, 2010; Zivin et al., 2009). The age at university education covers critical processes for the young people such as gaining freedom and independence, where socio-cultural changes occur that directly/indirectly influence the mental health such as getting away from the family and establishing new friendship relations (Cömert & Gizir, 2020; Demirhan et al., 2012; Pektaş & Bilge, 2007; Topkaya & Meydan, 2013). Due to the nature of this period, which includes the transition from adolescence to early adulthood, mental ups and downs can be observed in young people arising from physical, emotional and psychosocial changes (Erkan, Özbay et al., 2012). According to Erikson, the task of individuals during these periods of development is to positively solve the crises of “role confusion versus identity confusion” and “isolation versus closeness” (Erikson, 1994). Young people need to cope with these psychosocial problems arising from crises and ups and downs experienced during this period. The extent and impact of psychological problems that cannot be effectively dealt with will be greater. (Erkan, Özbay et al., 2012). Some of the psychological problems of the youth, who are in an identity quest struggling to find and understand oneself in the society, are identity crisis, adaptation problems, mood problems, human relations and communication, family, school problems, sensuality, academic problems, social and friendship problems. Young people who experience these problems are at risk for mental health problems of our time such as stress, anxiety and depression and other psychological diseases. The lack of adequate preventive mental health services in universities poses a significant risk for the increase of mental illnesses in the society (Geçkil & Yıldız, 2006; Holm-Hadulla & Koutsoukou-Argraki, 2015; İkiz & Mete Otlu, 2015; İnanç et al., 2004; Karataş & Gizir, 2013; Özgüven, 1992; Pektaş & Bilge, 2007; Rith-Najarian et al., 2019; Topkaya & Meydan, 2013). Therefore, individuals at the university age are among the primary risk groups in terms of community mental health (Gulliver et al., 2010; Kızıldağ et al., 2012; Şimşek et al., 2007).

Early diagnosis of the psychosocial problems of the university students in the early adulthood, which is a critical period for the onset of mental illnesses, and planning appropriate interventions are among the priority issues for preventive mental health services (Cömert & Gizir, 2020; Erkan, Özbay et al., 2012; Gizir, 2010; Topkaya & Meydan, 2013). In addition to the responsibilities of raising qualified manpower and gaining professional knowledge skills, universities have undertaken the responsibility of providing psychosocial support for developing the personality in students, helping them cope with the problems and solving their mental problems (Pektaş & Bilge, 2007). The article 47 of the Higher Education Act No. 2547 in Turkey obliges universities to solve personal and family problems of students within the scope of protection of physical and mental health (The Law on Higher Education 1981, 2020). In line with the findings of this article, it is evaluated to be compulsory to establish psychological counseling and guidance centers in universities under the “Department of Medico Social, Health, Culture and Sports Affairs”. In accordance with this implementation, a significant responsibility falls on the university psychological counseling and guidance centers to protect and improve the mental health levels of university students and employees (Cömert & Gizir, 2020; Erkan, Cihangir Çankaya et al., 2012; Higher Education Institutions, Medico-Social, Health, Culture and Sports Affairs Department Implementation Regulation, 1984).

In order for the improvement of the university counseling and guidance centers to plan psychosocial support programs, certain information is required about the psychosocial problems most frequently experienced among the students in the university. Determining the main issues, with which the students most frequently apply to the psychological counselling and guidance centers, will not only make contribution to the students for a better adaptation to the university and later life and prevent mental health problems, but also will increase the quality of the psychological counselling and guidance services and increase the application rates (Erkan, Cihangir Çankaya et al., 2012; Gizir, 2010; Topkaya & Meydan, 2013). It was reported that young people traditionally seek support from the family and friends to cope with their psychological problems, with an insufficient level of intention to seek help from a specialist and with low rates of application to the psychological counseling and guidance centres (Gulliver et al., 2010; İkiz & Mete Otlu, 2015; Kacur & Atak, 2011; Kızıldağ et al., 2012; Topkaya & Meydan, 2013). There are some factors that prevent university students from applying to psychosocial services. These factors are absence of an awareness about psychosocial services (in other words, being unaware about what services are available or and how to access), stigma, individual characteristics, concerns about privacy and trust, inability to evaluate the symptoms, and accessibility (i.e., having no sufficient time, long distance, cost) problems (Eisenberg et al., 2007; Gulliver et al., 2010; Storrie et al., 2010; Yorgason et al., 2008). Determining the characteristics of individuals applying to university counseling and guidance services and the motives behind will provide significant information in increasing the satisfaction of the demands and expectations of the ones who benefit from these services. Additionally, it will also provide important information to increase the rate of application for those abstaining from these services and seeking traditional solutions. In this context, there is an urgent need for studies aimed at identifying the mental problems faced by young people in the university (Demirhan et al., 2012; Erkan, Cihangir Çankaya et al., 2012; Rith-Najarian et al., 2019; Türküm et al., 2004). There are studies in the literature that examine the psychological support needs of university students (Atik & Yalçın, 2010; Getachew, 2019; Janetius, 2016; Karataş & Gizir, 2013). In these studies, it was determined that university students needed support for academic, crisis, discrimination, disability (Karataş & Gizir, 2013), relational, emotional, and career issues (Atik & Yalçın 2010). According to these studies, university students required help for academic, crisis, discrimination, disability (Karataş & Gizir, 2013), relational, emotional, and career difficulties (Atik & Yalçın 2010). Another study found that students applied respectively mostly for academic reasons, mental health issues such as depression and anxiety, and interpersonal relationship issues (Getachew, 2019). In a qualitative study conducted with college students in India, it was found that students applied due to academic, unwanted habits, familial problems, relationship problems, and personal problems respectively (Janetius, 2016). In a university in South America, it was found that students most frequently applied to a counseling center due to academic problems, anxiety, affective problems, and adverse life events (Villacura et al., 2015). This study is the first retrospective study that examines the problems of the students applying to the psychological counseling and guidance center.

The aim of this study is to examine the application reasons of university students to a psychological counseling and guidance center.

Research questions are:

- For which reasons did the university students apply to the psychological counseling and guidance center of the university?

- What is the relationship between students' gender and age and intervention applied, number of psychological counseling, and application reason?
- What is the relationship between students' educational levels and grades and intervention applied, number of psychological counseling, and application reason?

## **METHOD**

The study was conducted in the retrospective descriptive research design.

### **Study Group**

The population of the study is comprised of all the student applications made to the Psychological Counselling and Guidance Center of a public university between November 2012-October 2019. No sampling was implemented in the study, instead, 373 applications, whose interview records were kept complete, were included in the study. Among these applications, 42 were not included in the study due to missing information. In the study, 89.8% of the population could be reached.

### **Ethical Statement**

Prior to the research, the approval of the Ethics Committee was obtained (Decision no: 08-2018/26), and in order to examine the interview records, the institutional permission was obtained from the university where the study was conducted. In the examination of the interview records, the ethical principles of the Declaration of Helsinki were taken into consideration, the student data were examined through numbers, the interview records and the information about the students were not shared with third parties.

### **Data Collection and Instruments**

In the collection of the data, the Application Form was used that includes certain pieces of information such as age, gender, faculty, grade, application date, and interview records.

The data about the application reasons of the students were determined by descriptive analysis of the interview records. The psychosocial problems of the students admitted to the center were collected in 5 themes as emotional, academic, personality, concentration and adaptation problems. Problematic areas include emotional issues (certain emotions such as anger, happiness, sadness, sorrow, and grief), and academic issues (anxiety and insecurity of university students about both their education life and professional life after graduation), personality issues (the mood elements formed in childhood, and problems arising from certain motives such as the negative attitudes displayed by the parents while raising the child, cultural factors, subconscious factors, and issues that negatively influence almost all the life of an individual, deteriorating one's general temperament), concentration issues (inability to maintain concentration on work or situation, and accompanying insomnia or difficulty in maintaining sleeping) and adaptation issues (inability to adapt to faculty and university life with the emotional depression caused by being away from the family).

### **Data Analysis**

In the data analysis of the study, the demographic data (age, gender, faculty, grade, application date, number of applications) in the interview records and the data collected for the analysis of the psychosocial issues were all coded and they were evaluated through the SPSS 21.0 program through descriptive



statistics such as number and percentage. Chi-square test was applied for the intergroup significance. In the analysis of the data, the significance level was accepted as  $p < 0.05$ .

## RESULTS

This section covers certain data about the relationships between some socio-demographic characteristics of the students applying to the counseling and guidance center and certain variables such as the information about some of their application reasons, the type and number of interventions applied.

Of the students admitted to the center, 255 (68.4%) were female and 118 (31.6%) were male. The average age of the students was  $21.37 \pm 4$ . The group with the highest number of applications to the center was the 17-20 ( $n=180$ ; 48.3%) group. The application numbers of the first grade ( $n=123$ ; 33%) and second grade ( $n=121$ ; 32.4%) students were higher. The majority of students applying to the center continue their education at undergraduate level ( $n=253$ ; 67.8%) (Table 1).

**Table 1. Socio-demographic characteristics of the students who applied to the psychological counselling and guidance center**

	Number (n)	Percentage (%)
<b>Gender</b>		
Female	255	68,4
Male	118	31,6
<b>Age</b>		
17-20 years old	180	48,3
21-24 years old	163	43,7
25 and over	30	8
<b>Grade</b>		
1 <sup>st</sup> grade	123	33
2 <sup>nd</sup> grade	121	32,4
3 <sup>rd</sup> grade	62	16,6
4 <sup>th</sup> grade	67	18
<b>Education Level</b>		
Associate Degree	111	29,8
Undergraduate Degree	253	67,8
Postgraduate Degree	9	2,4

Of the students, 32.2 percent ( $n=120$ ) were from the Faculty of Economics and Administrative Sciences, 24.9% ( $n=93$ ) were from the Faculty of Literature, 15.3% ( $n=57$ ) were from the Vocational Schools, 7.8 % ( $n=29$ ) were from the Faculty of Engineering, 7% ( $n=26$ ) from the Faculty of Health Sciences, 4% ( $n=15$ ) from the School of Physical Education and Sports, 2.9 % ( $n=11$ ) were from the Faculty of Education, 2.1 percent ( $n=8$ ) were from the Faculty of Islamic Sciences, 1.6 % ( $n=6$ ) from the Institute of Social Sciences, 1.1 percent ( $n=4$ ) from the Faculty of Science, and 1.1 percent ( $n=4$ ) were from the Institute of Science and Technology.

It was determined that 2.95% ( $n=11$ ) of the students were also followed by a psychiatric physician when they applied to the center. Of the students admitted to the center, 88.2% ( $n=329$ ) received psychological support from the psychologist in the center, while 11.8% ( $n= 44$ ) received psychological support and referred to a psychiatric physician. 50.9% of students ( $n=190$ ) were given psychological support for once, 18.5% ( $n=69$ ) for two times, and 30.6% ( $n=114$ ) for three times and more. Examining the application reasons of the students, it was determined that the students applied most frequently due to emotional issues (50.7%) and personality issues (39.1%), while the least number of application was due to adaptation problems (2.7%) (Table 2).

**Table 2. Application reasons of students to the psychological counselling and guidance center**

Application reason	Number (n)	Percentage (%)
Emotional Problems	189	50,7
Academic Problems	15	4,0
Personality Problems	146	39,1
Concentration Problems	13	3,5
Adaptation Problems	10	2,7

Some socio-demographic characteristics of the students and some figures as well as percentages are given (Table 3, Table 4) concerning the reasons for applying to the psychological counseling and guidance center, type and number of interventions applied. There was no significant difference among the gender, age, and grade of the students, their application reasons, and the type and number of the interventions applied.

**Table 3. Application reasons of students to the psychological counselling and guidance center and interventions applied (based on their gender and age groups)**

Application Reasons and Interventions	Gender		Age groups		
	Female n (%)	Male n (%)	17-20 n (%)	21-24 n (%)	25 and over n (%)
<b>Intervention applied</b>					
PC	224(87,8)	105 (89)	156(47,4)	146(44,4)	27(8,2)
PC and RPC	31(12,2)	13(13,9)	24(54,5)	17(38,6)	3(6,8)
Test Value	x <sup>2</sup> = ,021p=,885		x <sup>2</sup> = ,795p=,672		
<b>Number of psychological counselling</b>					
1 time	128 (50,2)	62 (60,1)	88 (46,3)	32(46,4)	60(52,6)
2 times	43(16,9)	26 (22)	80(42,1)	33 (47,8)	50(43,9)
3 times and more	84 (32,9)	30(25,4)	22(11,6)	4(5,8)	4(3,5)
Test Value	x <sup>2</sup> = 2,745p=,253		x <sup>2</sup> = 7,331p=,119		
<b>Application Reason</b>					
Emotional Problems	129(68,3)	60(31,7)	98(54,4)	79(48,5)	12(6,3)
Academic Problems	9(60)	6(40)	7(3,9)	5(3,1)	3(10)
Personality Problems	102(69,9)	44 (30,1)	61(33,9)	71(43,6)	14(46,7)
Concentration Problems	7(53,8)	6(46,2)	10(5,6)	3(1,8)	-
Adaptation Problems	8(80)	2(20)	4(2,2)	5(3,1)	1(2,7)
Test Value	x <sup>2</sup> = 2,221p=,205		x <sup>2</sup> = 7,326p=,163		

PC: Psychological Counselling, RPC: Referral to a Psychiatric Clinic

There was no significant relationship between the educational level of the students and the number of psychological support sessions in the counseling and guidance center (Table 4).

**Table 4. Application reasons of students to the psychological counselling and guidance center and interventions applied (based on their educational levels and grades)**

	Educational level			Grade			
	Associate Dg. n (%)	Undergraduate Dg. n (%)	Postgraduate n (%)	1 n (%)	2 n (%)	3 n (%)	4 n (%)
<b>Intervention applied</b>							
PC	101(91)	219(86,6)	9(100)	106(86,2)	107(88,4)	57(91,9)	59(88,1)
PC and RPC	10(9)	34(13,4)	-	17(13,8)	14(11,6)	5(8,1)	8(11,9)
Test Value	$\chi^2= 1,810p=,405$			$\chi^2= 1,322p=,724$			
<b>Number of psychological counselling</b>							
1 time	43(38,7)	141(55,7)	6(66,7)	73(59,3)	49(40,5)	35(56,5)	33(49,3)
2 times	27(24,3)	42(16,6)	-	19(15,4)	19(15,7)	14(22,6)	17(25,4)
3 times and over	41(36,9)	70(27,7)	3(33,3)	31(25,2)	53(43,8)	13(21)	17(14,9)
Test Value	$\chi^2= 2,445p=,655$			$\chi^2= ,024p=,876$			
<b>Application reason</b>							
Emotional Problems	58(52,3)	129(27,3)	2(22,2)	69(56,1)	60(49,6)	30(48,4)	30(44,8)
Academic Problems	8(7,2)	7(2,8)	-	5(4,1)	6(5)	1(1,6)	3(4,5)
Personality Problems	32(28,8)	108(42,7)	6(66,7)	43(35)	47(38,8)	28(45,2)	28(41,8)
Concentration Problems	9(8,1)	4(1,6)	-	4(3,3)	6(5)	0	3(4,5)
Adaptation Problems	4(3,6)	5(6,8)	1(11,1)	2(1,6)	2(1,7)	3(4,8)	3(4,5)
Test Value	$\chi^2= 2,321p=,564$			$\chi^2= 1,602p=,386$			

## DISCUSSION

Throughout university life, students face a variety of difficulties and psychosocial problems. Most of these problems negatively affect the psychological status of the students. It is a known fact that both the frequency of psychological problems of university students and the need for psychological counseling are increasing (Atik & Yalçın, 2010; Karataş & Gizir, 2013). In order to cope with their psychological problems appropriately and effectively, it is expected from the students to display the behavior of seeking help from a specialist (Gulliver et al., 2010). However, the results of previous studies demonstrate that most students with psychological problems do not apply for treatment, and most of those who are treated also give up treatment (Blanco et al., 2008; Hunt & Eisenberg, 2010; Zivin et al., 2009).

University students face a wide range of problems such as developmental problems like personality issues, emotional problems, academic problems, adaptation problems, stress, depression and suicide (Atik & Yalçın, 2010; Erdur Baker & Bıçak, 2006; Getachew, 2019; Karataş & Gizir, 2013; Macaskill, 2013; Özgüven, 1992; Storrie et al., 2010; Villacura et al., 2015). In this study, it was determined that the highest number of applications to the center were emerging from emotional and personality problems while the lowest number of applications were due to adaptation problems. Similarly, Erkan, Özbay et al., (2012) determined that students most frequently experience emotional problems. As the university process is a period covering the transition from adolescence to early adulthood, it is common to experience emotional problems and personality problems. The fact that most frequently observed issues are the emotional

problems can be explained by that students involve in a new environment different from their family life and their own culture and difficulties arise in adapting to this environment.

In this study, the second most frequent application reason of students is personality problems. This result can be interpreted by the fact that these ages correspond to a period of transition from adolescence to early adulthood that is abound with identity confusions in individuals. Family characteristics and having childhood problems like love, trust and attachment in the family affect the entire personality of the individual and can cause future personality problems. In the solution of personality problems, it is recommended to carry out studies on family characteristics, family problems and parental attitudes. Since identity characteristics of an individual will be efficient in solving the problems to be faced during the university years and in the further stages of life, personality development programs should be executed in the university period in order for the students to gain certain skills such as self-recognition, self-confidence, being self-ordained, displaying resolute/consistent behaviors, catching oneself on doing mistakes, and develop problem solving skills (Dündar, 2009; Erkan, Özbay et al., 2012). Intervention programs such as self-recognition and character empowerment are important for students to cope with personality problems (Eryılmaz, 2017). Other problems faced by students include academic problems, concentration problems, and adaptation problems, respectively. Similar to this conclusion, it was determined by Atik and Yalçın (2010) that students admitted to the psychosocial services less frequently due to academic problems, concentration problems and adaptation problems.

It was reported by previous studies that, in coping with the problems university students face during their education, the students use rather ineffective coping methods and display avoidance behavior (Sevinç & Gizir, 2014), and prefer to receive social support from family and friends (Erkan, Özbay et al., 2012; Kızıldağ et al., 2012), while their willingness to seek help from a specialist is at moderate levels. The incidence of psychosocial problems is increasing in students (Atik & Yalçın, 2010; Karataş & Gizir, 2013) and the fact that the student willingness level to seek help from a specialist is moderate (Erkan, Özbay et al., 2012) indicates that these centers should focus on comprehensive, preventive and mental-health-enhancing studies to increase student participation.

In this study, there was no significant difference between the gender of the students and the psychosocial problems they experienced. Unlike this finding, some studies in the literature found that there were differences between gender and psychosocial problems (Erkan, Özbay et al., 2012). Although there was no significant difference in terms of the gender, it was determined in the present study that the number of female students admitted to the center was higher than that of males. Similar to this result, it was determined by numerous previous studies that the application numbers of the female students to the psychosocial services were more than those of male students (Eisenberg et al., 2011; Rickwood et al., 2005; Rith-Najarian et al., 2019). These results support the findings that female students are more likely to be willing to seek help from a specialist and girls display more support-receiving behavior than males (Erkan, Özbay et al., 2012; Kızıldağ et al., 2012).

In this study, it was also found that applications to the psychosocial guidance and counseling center were most frequently made in the first and second grades, respectively. According to Macaskill (2013), psychological symptoms of British university students in the second year are much greater than in the previous years, and further evaluation of the mental health of the students in the second year is essential. In the previous studies, it was determined that the students experienced psychosocial problems most frequently in the first grade (Ceyhan & Ceyhan, 2011; İkiş & Mete Otlı, 2015). Since the first year is a

new start to the university life, it brings along many issues such as leaving the family, adaptation to a new environment and friends. In parallel to this result, it was reported in the literature that first grade students experience a higher level of depression than the fourth grade students (Ceyhan & Ceyhan, 2011; Sevinç & Gizir, 2014). It is a known fact that students can experience problems like “boredom, restraint, unhappiness, anhedonia, anger control, quick temper, concentration, repetitive thought and behavior rituals, etc.”. In order to cope with their psychological problems, they seek support from friends and family, often without professional support (Kızıldağ et al., 2012). It is reported in the literature that help seeking behavior of young people is not at the desired level, and that very few students apply to the university psychological counseling and guidance center for professional support (Gulliver et al., 2010; Rith-Najarian et al., 2019). In this respect, it is important that professionals working in the field should conduct studies on the barriers for young people's psychological help seeking behavior and factors that facilitate their professional help seeking behavior, and to develop practices that will increase mental health literacy in the community (Gulliver et al., 2010; Rith-Najarian et al., 2019; Storrie et al. 2010). Furthermore, it would be beneficial to implement treatments in the guidance and psychological counseling center for the most prevalent psycho-social difficulties experienced by students, as well as to assure student engagement. Similar to the result of this study, as it is mentioned that emotional disorders are more prevalent in students, it will be beneficial to organize emotion regulation programs for students. As it will allow students who gain the skills to deal with emotional issues to continue their studies and achieve their academic goals (Storrie et al., 2010). In addition, personal development seminars can be organized to contribute to personality development. At this point, physicians, nurses and other health professionals working at the university and psycho-social service workers have important duties (Getachew, 2019; Storrie et al., 2010). For the development of a country, identifying the mental problems experienced by university students, who are considered the most dynamic force for the development of the community, and planning appropriate programs are of great importance for both individual and social development. Therefore, it would be a rational approach for universities and health professionals to organize mental health promotion and protection programs for university students. Indeed, the mental health levels of students will affect not only themselves but also future generations (Geçkil & Yıldız, 2006; Yeşilyaprak, 1993).

The fact that this is a retrospective study covering a period of seven years is a limitation for some statistical analyses and interpretation of the results. Multicenter retrospective and prospective studies will provide more enlightening insights into psychosocial problems in university students. In universities, the effectiveness of counseling and guidance centers can be increased by means of service models appropriate to student profile and university structure (Erkan, Cihangir Çankaya et al., 2012; İkiz & Mete Otlı, 2015). It is important for the university psychological counseling and guidance centers to plan and provide services by taking into consideration the problems and needs of the students (Erkan, Cihangir Çankaya et al., 2012). The results of this study will provide important information for planning and implementing mental health protection development programs for university students and for multidisciplinary studies aimed at protecting and improving mental health. As stated by İkiz and Mete Otlı (2015), it is recommended that students should meet the staff of the psychological counseling and guidance center as early as the first days in university, and those regular programs should be organized for students and educators. From the beginning of the university to the graduation, health programs including a regular monitoring with a record and follow-up system should be established (Getachew, 2019). University psychological counseling and guidance centers should be improved to be more functional, university



students should be given mental health improvement programs in line with their needs, and personality development and mental-health-problem prevention programs should be executed (İkiz & Mete Otlu, 2015). In developing personality traits, it is recommended to apply individual/group psychoeducation programs, psychological counseling and group guidance and support programs. Considering the fact that university students, who are struggling to deal with the issues originating from adolescence, use ineffective methods to cope with their existing or future problems, implementation of trainings, seminars, and awareness programs for these young people will increase their support-receiving behavior from the university guidance and counseling units, and the health professionals.

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### **About Authors**

**Şerife Koç** obtained her bachelor's degree in nursing; graduate and PhD degrees in Public Health Nursing from Istanbul University. She recently works as an assistant professor at Karamanoğlu Mehmetbey University, Faculty of Health Sciences, Department of Nursing. Her research interests include public health, community mental health, and health promotion.

**Esra Öksüz** received her bachelor's degree in psychology at 2009 from Uludağ University. She is currently working at Karamanoğlu Mehmetbey University as a psychologist. Her research interests include clinical psychology.

**Fatma Ayhan** is assistant professor in the field of Mental Health and Psychiatric Nursing. She holds a master's degree in anatomy and nursing; bachelor of Nursing, and Sociology. She received her PhD in the department of Psychiatric Nursing. She works on risk assessment, risk management, mental health, attachment.

### **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.

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### **Ethical Statement**

This study was completed in accordance with the Helsinki Declaration. In line with this, the study was permitted by Karamanoğlu Mehmetbey University, Non-interventional Clinical Trials Ethics Committee. **Ethics Committee Name:** Karamanoğlu Mehmetbey University, Non-interventional Clinical Trials Ethics Committee.

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## RESEARCH



## Open Access

## ARAŞTIRMA

## Açık Erişim

## Investigation of the Relationship Between Cyber Dating Violence and Attachment Styles in University Students

*Üniversite Öğrencilerinde Siber Flört Şiddeti ile Bağlanma Stilleri Arasındaki İlişkinin İncelenmesi*

Ahmet Erdem , Emine Tunç , Şefika Erdem 

### Authors Information

#### Ahmet Erdem

Assistant Professor, Tokat Gaziosmanpaşa University, Tokat, Turkey [ahmet.erdem@gop.edu.tr](mailto:ahmet.erdem@gop.edu.tr)

#### Emine Tunç

Research Assistant, Bolu Abant İzzet Baysal University, Bolu, Turkey [eminetunc@ibu.edu.tr](mailto:eminetunc@ibu.edu.tr)

#### Şefika Erdem

Assistant Professor, Tokat Gaziosmanpaşa University, Tokat, Turkey [sefikaerdempdr@gmail.com](mailto:sefikaerdempdr@gmail.com)

### ABSTRACT

This study was conducted to adapt the Cyber Dating Violence Scale (CDVS), which was developed to measure whether adolescents and young adults experienced online violence from their partners and whether they used online violence against their partners, into Turkish and to investigate the relationship between attachment styles and cyber dating violence in university students. The scale adaptation study group consisted of 300 participants, and the main study group included 476 participants. The "Cyber Dating Violence Scale", the "The Experiences in Close Relationships Inventory-I", and a "Personal Information Form" were used as data collection tools. According to the findings, abuse psychological violence, which is a sub-dimension of cyber dating violence, was predicted by anxious attachment and avoidant attachment of Adult Attachment Styles Scale, and abuse relational violence sub-dimension was predicted only by avoidant attachment sub-dimension. Both victimization relational violence and victimization psychological violence sub-dimensions of cyber dating violence were predicted only by the anxious attachment sub-dimension. Regarding the effect of gender, the avoidant attachment styles and abuse relational violence scores of females were significantly higher than those of males. The findings were discussed according to the literature, and various suggestions were presented in this direction.

### Article Information

#### Keywords

Cyber Dating Violence  
Attachment Styles  
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#### Anahtar Kelimeler

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### ÖZET

Bu çalışmada, ergenlik çağı ve genç yetişkinlikteki bireylerin partnerlerinden çevrimiçi şiddet görüp görmediğini ve partnerlerine çevrimiçi şiddet uygulayıp uygulamadıklarını ölçmek amacıyla geliştirilen Siber Flört Şiddeti Ölçeği'nin (SFŞÖ) Türkçeye uyarlanması ve üniversite öğrencilerinde siber flört şiddeti ile bağlanma stilleri arasındaki ilişkinin incelenmesi amaçlanmıştır. Araştırmanın ölçek uyarlama kısmı çalışma grubu 300 katılımcıdan, ana çalışma grubu ise 476 katılımcıdan oluşmaktadır. Veri toplama araçları olarak "Siber Flört Şiddeti Ölçeği", "Yetişkin İlişkilerde Bağlanma Stilleri Ölçeği" ve "Kişisel Bilgi Formu" kullanılmıştır. Elde edilen bulgulara göre siber flört şiddetinin mağdur etme psikolojik şiddet alt boyutu yetişkin ilişkilerde bağlanma stilleri ölçeğinin kaygı ve kaçınma alt boyutları tarafından, mağdur etme ilişkisel şiddet alt boyutu ise yalnızca kaçınma alt boyutu tarafından yordanmaktadır. Siber flört şiddetinin hem mağdur olma ilişkisel şiddet hem de mağdur olma psikolojik şiddet alt boyutları bağlanma stillerinin sadece kaygı alt boyutu tarafından yordanmaktadır. Üniversite öğrencilerinde cinsiyete göre ise kadınların kaçınan bağlanma düzeyleri ve mağdur etme ilişkisel şiddet puanları erkeklere göre anlamlı olarak daha yüksektir. Elde edilen bulgular alanyazına göre tartışılmış ve bu doğrultuda çeşitli öneriler sunulmuştur.

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**Ethical Statement:** The data of this article was obtained in 2018. Since there was no ethics committee in the Tokat Gaziosmanpaşa University where the data were obtained that year, the data were obtained by obtaining permission from the university administration and by signing informed consent from the students in the faculties.(02.02.2018).

## INTRODUCTION

Internet technology and digitalization are gradually developing, thereby facilitating people's lives (Schmidt & Cohen, 2014). Yet, despite its facilitating properties, the damaging effects of internet technology on people's lives are also substantial (Avşaroğlu & Akbulut, 2020; Hamarta et al., 2021; Koyuncu et al., 2014; Nakayama et al., 2020). Recent studies have drawn attention to the effects of the Internet on facilitating abuse and aggression (Werner et al., 2010; Xu et al., 2015). Anonymity (or privacy), which is one of the most important features of the Internet, can decrease the human behavior of individuals to question the consequences of their own actions or to take responsibility for them (Diener, 1980; Peris et al., 2002; Zimbardo, 1970). Another problematic feature of the Internet is the lack of features that make it easier for individuals to be understood by using the contexts in communication in addition to understanding each other through verbal/written context as in social life. Accordingly, with the Internet and developing technologies, even behaviors that would not have been considered as violence before may become widespread due to such features of the Internet (Morelli et al., 2016a, 2016b). Dating violence can be considered as another type of violence that can become widespread with the use of the Internet as a result of these characteristics.

Dating violence is a new type of violence that has been studied extensively in the literature in recent years (Aslan et al., 2008; Soft, 2013; Soft & Şahin, 2014). There are three types of this violence: physical, psychological, and sexual (Price et al., 1999; Saltzman et al., 2002). Also, scales have been developed to measure these characteristics of dating violence separately (Price et al., 1999; Soft & Şahin, 2014). In the current literature, there are studies investigating whether dating violence also occurs online (Zweig et al., 2013; Morelli et al., 2017).

The fact that the Internet has become a highly advanced technology allows individuals to stay connected from anywhere and to be accessible at any time. While these features do not pose a problem when used positively, they can bring more harm than good to the life of the individual when used negatively. The fact that the Internet does not have physical and temporal boundaries causes individuals to control the lives of their partners, humiliate them among their friends, and be harmed (Melander, 2010; Zweig et al., 2014).

In the literature, while there are studies that show mutual anger in dating relationships turns into violence (Whitaker et al., 2007), there are also studies that directly measure the attitudes of adolescents and young adults towards dating violence (Yumuşak, 2013; Yumuşak & Şahin, 2014). This was also confirmed by the scales developed. Though most of the scales that directly measure cyber violence focus on victimization or abuse, very few of them have been confirmed (Borrajo et al., 2015). The attempt to break up the relationship of one's lover with her/his friends can be considered as relational dating violence (Wolfe et al., 2001), which is one of the types of dating violence. This type of violent behavior carried out on the Internet is considered as a type that differs from other behaviors of violence (Morelli et al., 2017).

### **Attachment**

Bowlby conducted some studies that would form the basis of attachment theory with the call of the World Health Organization in the 1950s. In the World Health Organization report, which was prepared in the light of these studies, the effects of maternal deprivation on children were examined, but Bowlby continued his studies because there were important deficiencies in the causes of these effects (Soysal et

al., 2005). According to Bowlby (1969), attachment is defined as the behavior of seeking or maintaining closeness to another individual. Attachment is the infant's feeling of intimacy with the individual who meets their physiological needs from the first moment and seeking security. The attachment system allows the child to gain a sense of trust and to recognize the environment, as well as meeting their physiological needs (Göçener, 2010). The attachment styles formed by the baby towards the caregiver in these early periods will also have an effect on the close relationships established in the later stages of life (Kaya, 2017). That is, children's internalization of their relationships with caregivers and attachment styles also show similarities to relationships established with others outside the family in the following years (Bowlby, 1969).

Based on Bowlby's (1969) attachment theory, Hazan and Shaver (1987; 1994) studied the effect of attachment behavior in adulthood. Accordingly, they stated that people establish a relationship with their partners in their romantic relationships similar to the relationship they established with their caregivers in their infancy. For a secure attachment style to be formed, it is important that the physiological needs of the baby are met on time and the caregiver feeds it when it is hungry and shows affection when it cries. However, if the baby's physiological needs are not met on time or an inconsistent attitude is displayed, it develops an insecure attachment style. While individuals with an experience of secure attachment become more self-confident, can express their feelings and thoughts comfortably in their social relationships, and become autonomous individuals in adulthood, individuals with an experience of insecure attachment style become those who have low self-confidence, see themselves as less valuable, and experience adjustment problems in their interpersonal relationships (Karabacak & Demir, 2017). Individuals with secure attachment also see themselves as worthy of love and believe that others can help them when they need it (Mikulincer & Shaver, 2007). However, the situation is different for anxious and avoidant attachment styles in the insecure attachment group, which is the opposite of secure attachment. When children with an anxious attachment style cannot see their parents, they experience intense stress and fear, and when they see their parents, it is not easy to calm down. It can be said that parents or caregivers may have exhibited inconsistent behaviors while meeting the needs of these children, and they may have sometimes been indifferent while meeting the needs of the child. In this case, it is very difficult for the child to develop a sense of trust towards the parent. By generalizing this situation to adulthood, the child cannot easily feel a sense of trust in the relationships they establish and approaches their environment with concerns and suspicion. Children with this attachment style become overly dependent on their partners in adulthood (Soğancı, 2017). An individual with anxious attachment is intensely concerned about whether their partner will be accessible or supportive in case of need in the relationship. At the same time, they constantly exhibit addiction, fear of abandonment and rejection, and obsessive attitudes in close relationships (Mikulincer & Shaver, 2007). Unlike anxious attachment, children with an avoidant attachment style do not show much stress when they are separated from their parents, and when they see their parents, they are unresponsive and do not care (Çamurlu Keser, 2006). The needs of these children may have often been ignored by their parents. They may not have spent much time with their parents and shared emotionally. These children, who cannot develop confidence in their parents, become individuals who do not easily have connections in their social relations and prefer loneliness when they become adults (Soğancı, 2017). When considered in terms of romantic relationships in the future, these individuals try to maintain an emotional distance towards their partner in the relationship and minimize interdependence with their partners. For this reason, they try to maintain their distance by avoiding establishing a warm, supportive, and compassionate relationship with their partners (Shaver et al., 2005).

In addition to avoiding intimacy, these individuals become distrustful of other people and even try to do everything alone to avoid intimacy (Hazan & Shaver, 1987; Mikulincer & Shaver, 2007).

Developmentally, romantic relationships have an important place in the early years of adolescence and adulthood. Young individuals discover and form their values, expectations, and beliefs about close relationships especially in this period (Johnson et al., 2014). On the other hand, technological developments have begun to direct the course of romantic relationships, too. Partners have the opportunity to communicate with each other more easily thanks to especially communication technologies, but they have also started to control each other more (Postmus, 2013). The determination of dating violence experienced in romantic relationships especially in the first years of adulthood and the variables that cause it and taking precautions in this regard make up an important turning point for healthy romantic relationships (Exner-Cortens, 2014). Attachment styles are thought to be related to the violence experienced in dating relationships. Reflecting on this point of view, this study was conducted to adapt the Cyber Dating Violence Scale (CDVS), which was developed to measure whether adolescents and young adults experienced online violence from their partners and whether they used online violence against their partners, into Turkish and to investigate the relationship between attachment styles and cyber dating violence in university students.

## METHOD

The correlational survey model was used in this study. In this model, the presence/absence and degree of variation between two or more variables are measured (Karasar, 2000). In this study, the relationship between cyber dating violence and attachment styles was examined.

### Participants and Procedures

The sample of the scale adaptation study consisted of 476 university students. The analysis was carried out with the data of 436 participants after 40 data that involved too many unanswered items and extreme values and did not contribute to normality were removed. The age range of the participants was 17-30 ( $x=20.31$ ,  $sd=2.43$ ). The convenience sampling method was used for selecting the study group. Participants consisted of students from two universities, one in the Black Sea region and the other in the Central Anatolia region.

The sample of the study, which was conducted to examine the relationship between attachment and dating violence, consisted of 300 university students. The age range of the participants was 18-28 ( $x=20.78$ ,  $sd=1.76$ ). The convenience sampling method was used for selecting the study group. Participants consisted of students from two universities, one in the Black Sea region and the other in the Central Anatolia region.

In the study, as in the original study, the participants were told to perceive the "short message" statement as "any kind of online text messages" while responding to the questionnaire items. The participants who had a current dating relationship were told to respond to the items according to this relationship. Those who did not have a current dating relationship were told to respond to the items according to their last dating relationship. The data of those who did not have any dating relationship were excluded from the set. In addition, the "Facebook" statement in the scale items was changed to "social media" after taking the permission of the researcher.



## **Ethical Statement**

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## **Data Collection Tools**

***The Personal Information Form.*** On this form, there are questions about the gender, age, department, school year, and relationship status of the participants.

***The Cyber Dating Violence Scale (CDVS).*** This scale was created by Morelli et al. (2017) and developed by Wolfe et al. (2001) by changing the verbal/emotional, relational, and abuse dimensions. The items of the scale were modified by adding the "text message/e-mail/Facebook" phrases to evaluate cyber violence. The "short message" phrase was explained as "any kind of text message on the Internet" in the directive of the scale. The items were rephrased for abuse and victimization. Thus, two forms of the scale were formed. The scale has a 4-point Likert-type structure (0=Never, 3=6 or more).

Before developing the scale, exploratory factor analysis was performed with the items obtained. It was found that the 11-item of the abuse sub-dimension explained 55.66% of the total variance and that 11-item of the victimization sub-dimension explained 55.60% of the total variance. The explained variance was 37.90% for the abuse psychological violence sub-dimension of the scale (six items) and 17.76% for the abuse relational violence (five items). The relationship between these factors was  $r=.43$ . Two sub-dimensions emerged in the victimization sub-dimension, too. The explained variance was 38.95% for the psychological violence (six items) and 16.65% for the relational violence (five items). The relationship between the two sub-dimensions was  $r=.48$ . When the internal consistency of the scales was examined, Cronbach's alpha value was found as .82 for the victimization sub-dimension and .81 for the relational violence sub-dimension. Cronbach's alpha value was .82 for the victimization psychological violence sub-dimension and .82 for the victimization relational violence sub-dimension.

After that, confirmatory factor analysis was conducted for this structure of the scale. At this stage, both the single-factor structure and the two-factor relational structure were tested. Since the goodness-of-fit indices of the two-factor relational structure showed a better fit, the researchers agreed on this structure. The goodness of fit indices related to this structure was Chi-square=311.17, RMSEA=.067, CFI=.97, NFI=.97, and NNFI=.96 for the abuse sub-dimension, and they were Chi-square=415.30, RMSEA=.079, CFI=.96, NFI=.96, and NNFI=.95 for the victimization sub-dimension.

***The Experiences in Close Relationships Inventory-I (ECRI-I).*** This inventory was developed by Brennan Clark, & Shaver (1998) to measure the anxiety experienced in attachment in close relationships and avoidance from others. There are 36 items on the scale, including 18 for avoidance and 18 for anxiety. It is a 7-point Likert-type inventory. Participants rate the extent to which each item describes themselves on a seven-point scale (1 = does not describe me at all, 7 = completely describes me). Sümer (2006) examined the factor structure of the scale and found two dimensions, namely, anxious and avoidant attachment, as in the original scale. Factor values ranged from .318 to .731 for the anxiety dimension and between .466 and .754 for the avoidance dimension. These dimensions explained 38% of the total variance. An increase in the score obtained from any of the dimensions indicates an increase in anxious

attachment or avoidant attachment. The reliability scores of the scale are .86 for the anxiety dimension and .90 for the avoidance dimension. Both dimensions have high-reliability coefficients.

## RESULTS

This section includes findings regarding the adaptation of the Cyber Dating Violence Scale into Turkish, prediction of cyber dating violence by attachment styles, and the findings related to the effect of gender on cyber dating violence and attachment styles.

### **The Factor Structure of the Cyber Dating Violence Scale and its Reliability Study**

To adapt the Cyber Dating Violence Scale (CDVS) into Turkish, first, the permission of the developers of the original scale was obtained. The items of the scale were translated into Turkish by three academicians who have a good command of English and work as experts in the field of educational sciences. The translation of the items was written under the original items of the English form, and experts scored the suitability of the translation. A 10-point Likert-type scoring (1-not appropriate at all, 10-completely appropriate) was used for the evaluation of the items. At this stage of the research, five experts were consulted. These experts were academics who have experience abroad, have been educated in a foreign language, and have an advanced level of English. Table 1 presents experts' assessment of each item of the cyber dating violence scale for the appropriateness of the translation.

**Table 1. Mean and standard deviation values for the appropriateness of the translation of the cyber dating violence scale**

<b>Cyber Dating Violence Scale</b>		
<b>Abuse</b>		
<b>Items</b>	<b>Mean</b>	<b>SD</b>
1	8.71	1.70
2	9.57	.53
3	9.28	.75
4	8.57	2.93
5	8.57	2.93
6	9.57	.53
7	9.00	1.82
8	9.71	.48
9	8.14	2.26
10	8.71	2.98
11	9.42	.53
<b>Victimization</b>		
1	9.85	.37
2	9.71	.48
3	9.42	.78
4	8.57	2.93
5	8.57	2.93
6	9.71	.48
7	9.14	1.86
8	9.42	.78
9	8.28	2.36
10	9.71	.48
11	9.71	.48

In the next stage, the scale was translated back into English by an expert. This expert was doing a Ph.D. in educational sciences at a university abroad then and spoke advanced English. The translations obtained

were compared with the original form, and they were found appropriate. The scale was finalized after the proposed changes had been made.

Exploratory factor analysis was performed on the data obtained from the sample to determine the validity of the scales. For this purpose, KMO (Kaiser-Meyer-Olkin) was used to test the adequacy of the sample size so that the results of the factor analysis could be interpreted, and the Barlett Test of Sphericity was employed to determine the suitability of the data for factor extraction. It was found that factor analysis could be conducted for the abuse (KMO=.83 and Barlett ( $\chi^2_{2436}=1286.48$ ,  $p<.001$ )) and the victimization (KMO=.84 and Barlett ( $\chi^2_{2436}=1415.06$ ,  $p<.001$ )) sub-dimensions of the cyber dating violence scale. Since the factors of subscales of the cyber dating violence scale were conceptually related to each other and a correlation was observed between the two factors in the study in which the scale was developed (Morelli et al., 2017), a high correlation was expected between the factors, and the factor structure was examined by principal component analysis using Promax rotation. In this way, it was tested whether the subscales would show a 2-factor structure as in the original scale. As a result of the first analysis, a 2-factor structure with eigenvalues greater than 1 emerged for both subscales. When factor loads were examined, it was found that only item 11 was not in the factor that it should be in both subscales. As a result of the exploratory factor analysis, it was concluded that the scale had a structure with two-factor sub-dimensions in the Turkish sample, similar to its original version.

After this analysis, confirmatory factor analysis was conducted on the AMOS software to determine to what extent the original structure of the scale was compatible with the data obtained from the Turkish sample and to determine its validity. The original structure of the scale was analyzed, and it was found to show a moderate level of agreement (Abuse sub-Scale: ( $\chi^2_{436}=220.36$ ,  $p<.001$ , CFI=.86, AGFI=.87, RMSEA=.09); Victimization sub-Scale: ( $\chi^2_{436}=201.11$ ,  $p<.001$ , CFI=.88, AGFI=.88, RMSEA=.09)) When the modifications suggested by the model were examined, it was decided that they were not directly related to each other, although they increased agreement when applied, and therefore, the modifications were not carried out. After this stage, item 11 (Abuse Subscale: I threatened to hurt my girlfriend/boyfriend via text messages/e-mail/social media; Victimization Subscale: My girlfriend/boyfriend threatened to hurt me via e-mails/social media/text messages/), which was in a different factor in both scales, was removed from the analysis, and the analysis was repeated. As a result of the analysis, it was suggested that a modification was needed between items 1 and 6 and between items 1 and 2. When the related items were examined, it was decided that they were related and that modifications were established between them. As a result of the analysis, it was seen that both models of the subscales had a good fit (Abuse subscale: ( $\chi^2_{436}=115.46$ ,  $p<.001$ , CFI=.93, AGFI=.92, RMSEA=.06); Victimization subscale: ( $\chi^2_{436}=97.21$ ,  $p<.001$ , CFI=.95, AGFI=.93, RMSEA=.06)). The ratio of the Chi-square value of the abuse sub-dimension to the degree of freedom was 3.6, and the ratio of the Chi-square value of the victimization sub-dimension to the degree of freedom was 3.03.

To determine the reliability of the cyber dating violence scale, Cronbach's alpha internal consistency coefficient was calculated. Cronbach's alpha coefficient of the abuse sub-dimension was .78, and it was .77 for the psychological violence sub-dimension (6 items) and .74 for the relational violence sub-dimension (4 items). Cronbach's alpha coefficient of the victimization sub-dimension was .81, and it was .80 for the psychological violence sub-dimension (6 items), and .72 for the relational violence sub-dimension (4 items). Nunnally and Bernstein (1994) and Başol (2012) considered a reliability coefficient

of .70 and above adequate in their studies. Relevant factor loads and goodness-of-fit indices are presented in Table 2 and Table 3. In this context, it can be stated that the scales are reliable and valid.

**Table 2. Factor Loads of the Cyber Dating Intensity Scale**

Cyber Dating Intensity Scale					
Abuse sub-dimension			Victimization sub-dimension		
Items	Factor 1	Factor 2	Item	Factor 1	Factor 2
1	.73		1	.80	
2	.64		2	.75	
3	.75		3	.70	
4	.67		4	.67	
5	.62		5	.52	
6	.69		6	.73	
7		.74	7		.63
8		.65	8		.81
9		.85	9		.83
10		.78	10		.68
<b>Eigenvalue</b>	3.65	1.64	<b>Eigenvalue</b>	3.84	1.51
<b>Explained variance</b>	36.57	16.41	<b>Explained variance</b>	38.35	15.05
<b>Total variance</b>	52.98		<b>Total variance</b>	53.40	

**Table 3. Goodness-of-fit indices of Cyber Dating Violence Scale**

Abuse	NFI	.91
	CFI	.93
	IFI	.90
	RMSEA	.06
	GFI	.95
	AGFI	.92
	RMR	.02
	SRMR	.05
Victimization	NFI	.92
	CFI	.95
	IFI	.93
	RMSEA	.06
	GFI	.96
	AGFI	.93
	RMR	.02
	SRMR	.05

**Table 4. t-test analysis of the variance in the abuse and victimization sub-dimensions of the cyber dating violence and the sub-domains of psychological violence and relational violence, and avoidant and anxious attachment levels in university students.**

Variable	Gender	n	x	Sd	t	p
Abuse Psychological Violence	Female	222	4.70	3.52	.92	.58
	Male	78	4.27	3.54		
Abuse Relational Violence	Female	222	.34	.74	1.95	<b>.00*</b>
	Male	78	.16	.54		
Victimization Psychological Violence	Female	222	4.71	4.00	-1.52	.34
	Male	78	5.52	4.25		
Victimization Relational Violence	Female	222	1.01	2.09	-.59	.48
	Male	78	1.18	2.35		
Anxious Attachment	Female	222	63.26	19.06	-1.14	.52
	Male	78	66.11	18.60		
Avoidant Attachment	Female	222	54.82	18.36	1.31	<b>.03*</b>
	Male	78	51.79	14.56		

As seen in the table, females had significantly higher abuse relational violence scores than males. Females used more relational violence than males. In addition, females' avoidant attachment levels were significantly higher than those of males. There was no significant difference in terms of other variables.

**Table 5. Results of correlation analysis between the level of psychological violence, which is the sub-domain of abuse sub-dimension of the cyber dating violence scale, and anxious attachment**

Abuse	1	2	3
Psychological violence	-	.42*	.30*
Anxious attachment	.42*	-	.27*
Avoidant attachment	.30	.27*	-

\*p<.05

**Table 6. The results of regression analysis for the prediction of abuse psychological violence sub-dimension by attachment level**

Variables	B	T	p
Abuse psychological violence		-2.50	.01*
Anxious attachment	.37	6.84	.00*
Avoidant attachment	.19	3.64	.00*

R=.46, R2=.21 F(2,297)=39.70\*

\*p<.05

As seen in Table 6, the anxious and avoidant attachment levels of university students significantly predicted the abuse psychological violence sub-dimension of the cyber dating violence scale. Fourteen percent of the abuse psychological violence levels was explained by the anxious attachment levels of university students ( $p < .05$ ) and five percent by the avoidant attachment levels ( $p < .05$ ). According to the results, anxious attachment predicted the level of abuse psychological violence of the cyber dating violence at a higher level.



**Table 7. The results of the correlation analysis between the relational violence level, which is the abuse sub-dimension of the cyber dating violence scale, and attachment levels**

Variables	1	2	3
Abuse relational violence	-	.10	.16
Anxious attachment	.10	-	.27*
Avoidant attachment	.16	.27*	-

\*p<.05

**Table 8. The results of regression analysis for the prediction of abuse relational violence sub-dimension by the attachment level**

Variables	B	T	p
Abuse relational violence		-1.31	.30
Anxious attachment	.37	1.11	.26
Avoidant attachment	.19	2.45	.01*

R=.18, R2=.04 F(2,297)=4.74\*

\*p<.05

As seen in Table 8, the avoidant attachment level of university students significantly predicted the abuse relational violence sub-dimension of the cyber dating violence scale, but the anxious attachment level of the students did not predict it. The avoidant attachment level of university students explained 2% (p<.05) of abuse relational violence levels.

**Table 9. The results of correlation analysis between the level of psychological violence sub-domain of the victimization sub-dimension of the cyber dating violence scale and the levels of attachment**

Variables	1	2	3
Victimization psychological violence	-	.49*	.20*
Anxious attachment	.49*	-	.27*
Avoidant attachment	.20*	.27*	-

\*p<.05

**Table 10. The results of regression analysis for the prediction of victimization psychological violence by the attachment level**

Variables	B	T	p
Victimization psychological violence		-2.87	.00*
Anxious attachment	.47	8.92	.00*
Avoidant attachment	.07	1.46	.15

R=.49, R2=.24 F(2,297)=47.86\*

\*p<.05

As seen in Table 10, university students' level of anxious attachment significantly predicted the level of victimization psychological violence sub-dimension of the cyber dating violence scale, but avoidant attachment levels were found to not predict it significantly. The anxious attachment levels of university students explained 22% of the victimization psychological violence levels.

**Table 11. The results of correlation analysis between victimization relational violence sub-dimension of the cyber dating violence scale**

Variables	1	2	3
Victimization relational violence	-	.29*	.15
Anxious attachment	.29*	-	.27*
Avoidant attachment	.15	.27*	-

\*p<.05

**Table 12. The results of regression analysis for the prediction of victimization relational violence sub-dimension by the attachment level**

Variables	B	T	p
Victimization relational violence		-2.92	.00*
Anxious attachment	.27	4.69	.00*
Avoidant attachment	.08	1.43	.15

R=.30, R2=.09 F(2,297)=14.96\*

\*p<.05

As seen in Table 12, the anxious attachment level of the university students significantly predicted the victimization relational violence sub-dimension of the cyber dating violence scale, but the avoidant attachment levels did not predict it significantly. The anxious attachment levels of university students explained 7% of the victimization relational violence levels (p<.05).

## DISCUSSION

This study was conducted to examine the relationship between cyber dating violence and attachment styles in university students. The first finding obtained as a result of the analyses was that the psychological violence sub-dimension of the abuse sub-scale of the cyber dating violence scale was predicted by the anxious attachment and avoidant attachment subscales of the attachment styles and that the relational violence sub-dimension of the abuse sub-scale was predicted only by avoidant attachment sub-dimension. The research findings on the relationship between avoidant attachment style and cyber dating violence show differences in the relevant literature, and the results also differ between males and females. Studies have found that there is a relationship between avoidant attachment style and using dating violence between males (Babcock et al., 2000; Holtzworth-Munroe et al., 1997; Lawson & Malnar, 2011). In another study, a positive relationship was found between avoidant attachment styles and using dating violence for males, but the results were not the same for females (Doumas et al., 2008). However, in addition to studies showing that there is no relationship between avoidant attachment styles and dating violence in adult dating relationships (Bookwala & Zdaniuk, 1998; Rapoza & Baker, 2008), there are also studies showing a negative relationship (Lee et al., 2014). It is very important for individuals with an avoidant attachment style to be independent in a relationship and to maintain a relational distance with their partners (Mikulincer & Shaver, 2012). Individuals with this style are particularly uncomfortable when their partner is too attached or too close to them. In such cases, individuals with avoidant attachment experience the anxiety of being too close to their partner in the dating relationship but also seek a way to distance their partner from themselves (Brennan et al., 1998; Lee et al., 2014). Desire to distance partners from themselves and distance themselves from their partners in a dating relationship also increases the likelihood of individuals with avoidant attachment styles to resort to destructive conflict resolution strategies (Mikulincer & Shaver, 2012). As a result, individuals with an avoidant attachment may inflict

violence on their partners in a dating relationship. Allison et al., (2008) revealed that males with avoidant attachment use violence to distance their partners and maintain distance.

The finding that the anxious attachment style predicted the abuse psychological violence sub-dimension, which is a subscale of cyber dating violence, is similar to the results of the studies conducted (Bookwala & Zdaniuk, 1998; Lee et al., 2014; Rapoza & Baker, 2008; Tussey et al., 2018). Individuals with higher attachment anxiety have higher fears of being abandoned, rejected, or not loved by their romantic partners (Brennan et al., 1998; Lee et al., 2014). These concerns about losing a partner can trigger violent behavior in a dating relationship (Tussey et al., 2018). In other words, dating violence can be motivated by the fear of abandonment in individuals with anxious attachment. Violence emerges as one of the strategies used by anxious individuals to protect their relationship (Gormley & Lopez, 2010). Moreover, the relationship between attachment anxiety and dating violence is based on Bowlby's (1984) interpretation of violence as a dysfunctional behavior used to maintain intimacy with the attachment figure (Allison et al., 2008). According to a study, males with an anxious attachment used violence against their partners to build intimacy with their partners and to attract the attention of their partners (Allison et al., 2008). On the other hand, individuals with high attachment anxiety are in constant doubt about whether they are loved in their romantic relationships. This suspicion can cause individuals with anxious attachment to experience outbursts of anger or jealousy as they constantly seek confidence (Hazan & Shaver, 1987). Studies show that attachment anxiety is also associated with increased affect, impulsivity, anger and temper, aggression, and low self-control (Alexander & Anderson, 1994; Bartholomew, 1990; Gormley & Lopez, 2010). All these findings can explain the controlling, coercive, and violent behaviors exhibited by individuals with higher levels of anxious attachment.

Another finding of the study was that both the sub-dimensions of victimization relational violence and victimization psychological violence were predicted only by the anxious attachment sub-dimension. Similar to this finding, a study on adult couples showed that partners with an anxious attachment style were more vulnerable to dating violence (Péloquin et al., 2011). There are strong connections between anxious attachment and different forms of victimization, especially among women (Yarkovsky & Fritz 2014). Henderson et al., (1997) found that most of the women identified as victims of violence had high attachment anxiety. Individuals with high attachment anxiety have difficulty in breaking up even if they are in a violent relationship because they experience high separation anxiety and fear of losing. These individuals can do their best to establish and maintain strong attachment ties even if the attachment figure (mostly romantic partner in adulthood) is a source of threat (Dutton & Painter, 1993). This situation can cause individuals with anxious attachment to be vulnerable to violence. Pepler (2012) suggested that individuals with insecure attachment who are prone to use destructive conflict resolution strategies tend to choose partners with similar attachment styles. This can lead to the emergence of a negative communication pattern by increasing vulnerability to victimization in romantic relationships. Thus, conflict patterns that emerge with insecure attachment can lead to mutually aggressive behaviors in dating relationships (Burk & Seiffge-Krenke, 2015).

Another finding of the study was that females resort to abuse relational violence more than males. In the related literature, some studies show that females are more likely to control their partners online than males (Bennett et al., 2011; Burke et al., 2011). Generally, males resort to direct aggression, in other words, physical aggression. Contrary to males, females are more likely to engage in relational aggression, such as spreading rumors and gossiping about males (Borrajo & Gamez-Guadix, 2015). In line with the

research findings, the examination of the attachment styles by gender indicated that the avoidant attachment style scores of females were significantly higher than those of males. Studies conducted so far support this finding (Özgül et al., 2019).

### Conclusion and Recommendations

Addressing dating relationships experienced in the early stages of adulthood has an important place in terms of young individuals' development of healthy relationships. Violent behavior is one of the leading negative experiences, especially in romantic relationships. The findings obtained from this study, in which the relationship between cyber dating violence and attachment styles in university students was examined, was that attachment styles were determinant on violence realized through technology within dating relationships. In this study, the attachment styles variable was discussed, and future studies can address different concepts that are thought to be related to cyber dating violence. On the other hand, this study, which was carried out with university students, can also be carried out with different age groups and married individuals.

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### **About Authors**

**Ahmet Erdem** completed her undergraduate education Department of Psychological Counseling and Guidance at Selçuk University. She received her Master's degree and Ph.D. Department of Psychological Counseling and Guidance at Tokat Gaziosmanpaşa University. He is working as an assistant professor at Tokat Gaziosmanpaşa University, Faculty of Education, Psychological Counseling and Guidance Department since 2017.

**Emine Tunç** completed her undergraduate education Department of Psychological Counseling and Guidance at Sakarya University. She received her Master's degree Department of Psychological Counseling and Guidance at Bolu Abant İzzet Baysal University. He is working as research assistant at Bolu Abant İzzet Baysal University, Faculty of Education, Psychological Counseling and Guidance Department.

**Şefika Erdem** completed her undergraduate education Department of Psychological Counseling and Guidance at Selçuk University. She received her Master's degree and Ph.D. Department of Psychological Counseling and Guidance at Tokat Gaziosmanpaşa University. He is working as an assistant professor at Tokat Gaziosmanpaşa University, Faculty of Education, Psychological Counseling and Guidance Department since 2019.

### **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.

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### **Ethical Statement**

The data of this article was obtained in 2018. Since there was no ethics committee in the university where the data were obtained that year, the data were obtained by obtaining permission from the university administration and by signing informed consent from the students in the faculties.

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