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## RESEARCH

## Open Access

## ARAŞTIRMA

## Açık Erişim

## Social Interest and Contact Disturbances as Predictors of Relationship Satisfaction in Romantic Relationship

*Romantik İlişkilerde İlişki Doyumunun Yordayıcıları Olarak Sosyal İlgî ve Temas Engelleri*

Meryem Vural Batık , Hatice Epli , Seher Balcı Çelik , Nurdan Doğru Çabuker 

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### ABSTRACT

The aim of this study is to determine the predictive effects of social interest and contact disturbances on relationship satisfaction. Study group consists of 405 university students. Data were collected by the “Premarital Relationship Assessment Scale”, the “Adlerian Social Interest Scale-Romantic Relationship Form”, and the “Gestalt Contact Disturbances Scale”. According to the results of Multiple Regression Analysis, social interest, contact, and full contact predict relationship satisfaction in romantic relationships significantly. “Social interest” predicts relationship satisfaction in the first place, “full contact” predicts in the second place, and “contact” predicts in the third place. These three variables together explain 31% of the relationship satisfaction. According to the results of One-Way MANOVA, social interest, contact disturbances, and relationship satisfaction in romantic relationships differ significantly by gender. While social interest and relationship satisfaction levels of females are significantly higher; contact, full contact, and final contact levels of males are significantly higher.

### Article Information

#### Keywords

Relationship Satisfaction  
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### ÖZET

Araştırmanın amacı romantik ilişkisi olan üniversite öğrencilerinde sosyal ilgi ve temas engellerinin romantik ilişkilerde ilişki doyumunu üzerindeki yordayıcı etkilerini belirlemektir. Araştırmanın çalışma grubunu 405 üniversite öğrencisi oluşturmaktadır. Araştırmada veriler “Evlilik Öncesi İlişkileri Değerlendirme Ölçeği”, “Romantik İlişkilerde Adlerian Sosyal İlgî Ölçeği” ve “Gestalt Temas Engelleri Ölçeği” aracılığıyla toplanmıştır. Çoklu regresyon analizi sonucuna göre, romantik ilişkilerde sosyal ilgi, temas ve tam temasın romantik ilişkilerde ilişki doyumunu anlamlı olarak yordadığı belirlenmiştir. Romantik ilişkilerde ilişki doyumunu birinci sırada “sosyal ilgi”, ikinci sırada “tam temas” ve üçüncü sırada ise “temas” yordamaktadır. Bu üç değişken, ilişki doyumunun %31’ini açıklamaktadır. Tek Yönlü MANOVA sonucuna göre, romantik ilişkilerde sosyal ilgi, temas engelleri ve ilişki doyumunu, cinsiyete göre anlamlı düzeyde farklılık göstermektedir. Kadınların sosyal ilgi ve ilişki doyumları, erkeklerin ise temas, tam temas ve temas sonrası puanları anlamlı ölçüde daha yüksektir.

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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 Ondokuz Mayıs University, Social and Humanities Ethics Committee.

## INTRODUCTION

Individuals have development tasks they have to perform specific to the developmental periods they are in during their lives. Close relationships individuals experience has a complementary effect in healthy execution of these developmental tasks (Gizir, 2012). According to Havighurst, the period between 18 to 35 years of age is called young adulthood (Onur, 1995). This period, which coincides with the university years, includes tasks such as choosing a partner and learning to live with the chosen partner. Erikson (1968) defined this process as “isolation against proximity” and emphasized the importance of the individual’s ability to live an open and supportive romantic relationship without the fear of losing identity during this period in order to be able to overcome this developmental crisis.

Erikson (1968) states that being in a romantic relationship in which the individual can get satisfaction is important for the psychological health of the individual, for the foundation of healthy relationships that the individual will build in the future and especially for the healthy identity development of individuals. Developing romantic relationships is closely related with the satisfaction the individual gets from the relationship the individual experiences. The concept of relationship satisfaction, which expresses the feelings, thoughts, and behaviours of individuals about their relationship emphasizes the satisfaction one gets from the relationship (Fincham & Beach, 2006; Hendrick, 1988). Individuals tend to make assessments about the romantic relationships they have, and this has a positive or negative effect on their relationship satisfaction (Hinde, 1997). Relationship satisfaction strengthens individuals’ survival mechanisms (Fletcher, Simpson, Campbell, & Overall, 2015). Besides, in addition to being among the most important relationship types which both contribute to individuals’ social development and also provide social support, romantic relationships during university years also affect individuals’ partner choice and quality of relationship in the future (Collins, 2003; Furman & Buhrmester, 1992).

Studies conducted show that relationship satisfaction is associated with positive behaviours such as acceptance, compromise, and appreciation (Feeney, 2002; Gill, Christensen, & Fincham, 1999). It has also been found that individuals with high relationship satisfaction have less neuroticism symptoms such as anxiety, hostility, and depression (Watkins, 1994), high self-confidence and sense of self (Kalkan & Yalçın, 2012) and less sources of stress (Abakay, 2015). In addition, epidemiological studies suggest that the satisfaction individuals get from romantic relationship can protect them from early death (mortality) and diseases (morbidity) (Holt-Lunstad, Birmingham, & Jones, 2008).

Cooperation and partnership in romantic relationships which are considered as the biggest challenge in life tasks (Logan, Kern, Curlette, & Trad, 1993) have been accepted by Adler (2000) as a prerequisite of not only marriage but also for the happiness of all humanity. The individual who prioritizes the happiness of all humanity takes into account the needs of others in his/her behaviours. Thus, with such a developed sense of social interest, it is also possible for the individual to do his/her best to comfort and enrich his/her romantic partner’s life because romantic couples can be happy when they feel that they are important for each other, needed by their partner and accepted as a real friend by their partner.

This feature, which is expressed as social interest, was addressed by Adler as mental health criterion (Bickhard & Ford, 1991) and conceptualized as a criterion with which all actions could be evaluated in terms of the potential of social benefit and contribution (Ansbacher, 1991a). Social interest

is an innate potential, ability and behaviours which do not work and which do not contribute to anything for the benefit of the society, and useless personality traits such as selfishness and arrogance have a direct negative effect on social life (Ansbacher, 1991b). Adler also expressed that cooperation problem was the basis of all problems that occurred in romantic relationships (Adler, 1978). Inadequate cooperation in romantic relationships will cause a decrease in relationship satisfaction for both partners. Adler (2002) defined individuals with high social interest as individuals who act more courageous against problems, who believe that they can overcome these problems, and who are prone to cooperation.

When studies on social interest in romantic relationships were examined in literature, it was found to be positively associated with displaying a tolerant sexual attitude (Leak & Gardner, 1990), romantic relationship (Logan et al., 1993) and marital adjustment (Markowski & Greenwood, 1984). Kalkan (2010) found that social interest was a significant predictor of problem solving in romantic relationships. Tekin-Çatal and Kalkan (2018) found a positive association between interpersonal relations nourishing style and social interest level in romantic relationships, while they found a negative association between poisoning style and social interest level in romantic relationships.

In this context, it is thought that social interest will also affect romantic relationship satisfaction. It is expected that characteristics of social interest such as partnership, solidarity, putting oneself in the partner's place, sharing, reconciliation, and being constructive also affect relationship satisfaction in romantic relationships.

It is thought that contact disturbances, another variable of the study, which affect individuals' developing healthy relationships with themselves, others, and the environment can also affect satisfaction in romantic relationships because while defining their identity and character, individuals use socially qualifying expressions which are in social relationship matrix. This shows the importance of the need for interpersonal contact in life. The approach focusing on the concept of contact is Gestalt Approach. Gestalt Approach explains this situation with the concept of "interpersonal contact" (Kuyumcu, 2011). Interpersonal contact starts with the individual needing others to define himself/herself, and to make sense of his/her existence (Perls, 1982).

It is stated that contact styles are influenced by the state of discerning and rejecting changes/differences and while one contact style supports growth and development, another contact style does not. Contact styles begin to form in childhood and they are shaped by the family environment individuals are raised in. Contact disturbances can occur in children who are living in families in which their needs/wants are ignored, who try to force themselves into their families and in families who have strict rules or too many expectations and these disturbances create risks in adulthood (cited from: Tagay, 2010).

Human beings contact with their environment by using their five senses, in other words, by hearing, touching, smelling, seeing, tasting, talking, and moving. Relationship distortions may occur or contact may change direction when contacting self and others. The resulting relationship distortions or changes in the direction of contact are called contact disturbances. Contact disturbances are relationship distortions or changes in the direction of contact while contacting.

Contact disturbances are indicated as healthy in some cases, while they are indicated as unhealthy in others (Voltan-Acar, 2006). In case of contact disturbance, in other words, when

unhealthy contact disturbances are used, the harmony of individuals with themselves and with other individuals, especially their romantic partners, may be impaired.

Studies conducted on contact disturbances show that full contact disturbance predicts abuse perceived in romantic relationships significantly in a positive way (Mutlu-Tagay, Çalışandemir, & Ünüvar, 2018). Clarkson (1994) and Kirchner (2000) showed that high contact disturbance has a negative effect on individuals' self-assessment and that these individuals are not autonomous, they have an accusatory tendency in interpersonal relationships and also, they are individuals who do not take responsibility.

As a result, it is thought that acting with social interest and contact styles will affect romantic relationships and increase relationship satisfaction. It is expected that showing the association between satisfaction individuals obtain from their romantic relationships and social interest will be a guide in finding out the effect of contact styles and planning preventive-protective interventions to provide for young people who have romantic relationship. From this point of view, the present study examines the association between social interest and contact disturbances in romantic relationships. The aim of this study is to find out the predictive effects of social interest and contact disturbances on relationship satisfaction in romantic relationships in university students who have romantic relationship. Accordingly, answers were sought to the following questions:

1. Is there an association between the social interest, contact disturbances in romantic relationships, and relationship satisfaction in romantic relationships?
2. Are social interest and contact disturbances in romantic relationships significant predictors of relationship satisfaction in romantic relationships?
3. Do social interest, contact disturbances in romantic relationships, and relationship satisfaction in romantic relationships show significant difference in terms of gender?

## METHOD

### Research Model

The present study is a correlational study. The correlational survey models aim to determine whether there is a co-variation between two or more variables and the degree of co-variation if there is (Karasar, 2009). Within the scope of this model, the association between social interest in university students who have romantic relationship and relationship satisfaction between romantic relationships will be examined.

### Study Group

The study group consists of 405 university students who were studying at Ondokuz Mayıs University and who had a romantic relationship. The study group was chosen with simple random sampling method. Simple random sampling method is a method in which the units chosen are taken in the sampling by giving equal probability of being chosen to each choice of sample (Çıngı, 1994). For simple random sampling, the units in the population should be known and listed. After this, units should be chosen from the list until the predetermined sample size is reached (Büyüköztürk, Kılıç-Çakmak, Akgün, Karadeniz, & Demirel, 2019). Accordingly, by considering the number of students studying in different faculties, their distribution by their year of study and gender was taken into consideration. For sample size, the criterion of total number of items in the scales x 5 was used



(MacCallum, Widaman, Zhang, & Hong, 1999). Since the data were collected from university students who had romantic relationship, students from different faculty and years of study were reached until a sufficient sample size was reached. 222 (54,8%) of the university students in the study were female, while 183 (45,2%) were male. 25,2% of the participants were in their first year of study; 24,9% were in their second year; 24,4% were in their third year, and 25,4% were in their fourth year. It was found that 28,4% of the participants did not have any previous romantic relationship, while 29,9% had one and 41,7% had more than one previous romantic relationship. In addition, 33,8% of the participants had their current romantic relationship for less than a year; 31,6% had their current romantic relationship for 1-2 years, and 34,6% had their current romantic relationship for more than two years. The participants' ages varied between 18 and 32 average age was found as 20.98.

### **Ethical Statement**

This study was completed in accordance with the Helsinki Declaration. In line with this, the study was permitted by Ondokuz Mayıs University, Social and Human Sciences Ethics Committee (REF: 2018/1-26).

### **Data Collection Tools**

In the study, the data were collected with the "Premarital Relationship Assessment Scale (PMRAS)", the "Adlerian Social Interest Scale-Romantic Relationship Form (ASIS-RR)", and the "Gestalt Contact Disturbances Scale (GCDS)".

***Premarital Relationship Assessment Scale (PRAS)***. The scale, which was developed by Kalkan and Kaya (2007), is used to find out the individuals' perceptions about their existing partners and relationships, and the existing and possible problems in the relationship. This 5-Likert type scale has 34 items. The lowest score one can get from the scale is 34, while the highest score is 170. A high total score taken from the scale shows that the individual has high happiness level for his/her existing relationship and has high positive thoughts about the relationship. According to the results of factor analysis conducted to find out the construct validity of the scale, 5 factors explaining the 42.9% of the variance was found. The sub-dimensions of the scale are religious values, communication, friend relationships, family relationships, and sexual compatibility. Its correlation with Happiness in Relationships Scale was calculated for validity with similar scales (Tutarel-Kışlak, 2002), and it was found as .48. Cronbach's alpha coefficient of the scale was found as .84, and its test-retest reliability coefficient was found as .72 (Kalkan & Kaya, 2007). In the present study, Cronbach's alpha coefficient was found as .81.

***Adlerian Social Interest Scale-Romantic Relationship Form (ASIS-RR)***. It was developed by Kalkan (2009) to measure individuals' social interest levels in their romantic relationships. This 5-Likert type scale has 24 items. The lowest score one can get from the scale is 24, while the highest score is 120. A high total score taken from the scale shows that social interest level is high. According to the results of factor analysis conducted to find out the construct validity of the scale, a single factor explaining the 34.1% of the variance was found. Its correlation with Social Interest Scale was calculated for validity with similar scales (Soyer, 2004), and a high correlation was found between the scales ( $r=.64$ ). Cronbach's alpha coefficient of the scale was found as .90, and its test-retest reliability coefficient was found as .93 (Kalkan, 2009). In the present study, Cronbach's alpha coefficient was found as .85.

***Gestalt Contact Disturbances Scale (GCDS).*** It was developed by Tagay and Voltan-Acar (2012) to find out individuals' contact disturbances. This 5-Likert type scale has 24 items. Exploratory factor analysis was conducted for the construct validity of the scale, and a 4-factor structure explaining the 42.3% of the variance was found. The sub-dimensions of the scale are contact, full contact, dependent contact, and final contact. The scale does not have a total score. The scores taken from the sub-dimensions show the contact disturbances individuals use. Cronbach's alpha internal consistency coefficients were found as .61, .79, .75 and .60, respectively for the sub-dimensions of contact, full contact, dependent contact, and final contact. Test re-test reliability coefficients were found as .74, .77, .69 and .65, respectively (Tagay & Voltan-Acar, 2012). For the present study, Cronbach's alpha internal consistency coefficients were found as .80, .75, .71 and .70, respectively for the sub-dimensions of contact, full contact, dependent contact, and final contact.

***Personal Information Form.*** The form prepared by the researchers has questions about the participants' demographic characteristics, parents' educational status, place of residence, parental attitudes and the duration of the romantic relationship.

### **Process**

First of all, necessary permissions were taken from the Social and Human Sciences Ethics Committee (Number of decisions: 2018/1-26). The data were collected from university students studying in different faculties of Ondokuz Mayıs University during lesson hours. Verbal consent was taken from the students who volunteered to participate in the study. Before starting the application, the participants were informed about the purpose of the study and the questions asked about the study and/or data collection instruments were answered by the researchers. It took about 25 minutes to apply the scales.

### **Data Analysis**

Firstly, the data with extreme values were determined by calculating Mahalanobis distance. Mahalanobis distance shows the distance of one subject from the centre of the other subjects (average of all variables) (Tabachnick & Fidell, 2013). According to this, 4 data were found with extreme values. These data were excluded and the analysis was conducted with 405 data.

In order to be able to conduct multivariate analyses, normality and co-variance assumptions should be tested (Çokluk, Şekercioğlu, & Büyüköztürk, 2018). For multivariate normality, each variable should first meet univariate normality assumption (Mertler & Vannatta, 2005). In the analysis of univariate normality distribution, calculation of Kurtosis and Skewness coefficients is described as descriptive methods (Abbott, 2011). Kurtosis and Skewness coefficients within the limits of  $\pm 1,5$  is considered as the evidence of the presence of normal distribution (Tabachnick & Fidell, 2013). Kurtosis and Skewness values were calculated as .66 and -.84 for relationship satisfaction; as .80 and -.67 for social interest; as -.68 and .34 for contact; as .12 and .45 for full contact; as -.52 and .004 for dependent contact, and as -.31 and .43 for final contact. In line with this information, it was found that the data met univariate normality assumption.

Following this, multivariate normality assumptions were tested. According to this, all sub-sets of the variable sets (all paired combinations) should have multivariate normality. Bivariate normality means that the scatter diagrams of each variable pair is in the shape of ellipsis (Mertler & Vannatta,

2005). Scatter diagrams of all binary variable combinations were examined, and it was found that all of them were found to be elliptical or close to elliptical.

Of the multivariate normality assumptions, co-variance was examined last. Box's M test was conducted to find out whether covariance matrices of groups were equal, in other words, whether the variances were homogenous. The fact that the value obtained exceeds the significance level shows that variance-covariance matrices are homogeneous (Çokluk et al., 2018). According to the results of Box's M test, it was found that homogeneity of variances assumption was not met (Box's M= 108.83, p= .00). However, covariance assumption for multivariate analyses is not one of the critically significant assumptions for analyses (Tabachnick & Fidell, 2013). Thus, it was decided that multivariate analyses could be made.

In the analysis of data, first of all Pearson Correlation Coefficient was calculated to find out the association between social interest, contact styles, and relationship satisfaction in romantic relationships in university students who had romantic relationship. Multiple regression analysis was conducted to find out the variables predicting relationship satisfaction in romantic relationships. Multiple regression analysis aims to predict the dependent variable based on two or more independent variables (predictive variables) related with the dependent variable (Büyüköztürk, 2018).

One-Way MANOVA was conducted to find out whether social interest, contact disturbances, and relationship satisfaction in romantic relationships differed in terms of gender. MANOVA (Multivariate ANOVA) is used to test whether the groups formed according to one or more factors differ in terms of more than one dependent variable. Depending on the number of factors observed on the dependent variable, it is called one-way or two-way (Büyüköztürk, 2018). The data obtained from the study were analyzed by using SPSS 22 program. Significance of the data obtained was tested at .05 level.

## RESULTS

### Is there an association between social interest, contact disturbances in romantic relationships and relationship satisfaction in romantic relationships?

Table 1 shows the arithmetic means, standard deviation and Pearson correlation coefficients of the variables of social interest, contact disturbances in romantic relationships, and relationship satisfaction in romantic relationships.

**Table 1. Mean, standard deviation, and Pearson correlation coefficients**

	Social Interest	Contact	Full contact	Dependent contact	Final contact	Relationship satisfaction
<b>Social Interest</b>	1	-.15**	-.10*	.17**	-.06	.49**
<b>Contact</b>	-	1	.37**	.25**	.45**	-.26**
<b>Full contact</b>	-	-	1	.19**	.35**	-.27**
<b>Dependent Contact</b>	-	-	-	1	.25**	.004
<b>Final Contact</b>	-	-	-	-	1	-.20**
<b>Relationship Satisfaction</b>	-	-	-	-	-	1
<b>Mean</b>	98.33	14.80	19.58	24.45	12.12	136.77
<b>Standard deviation</b>	10.35	4.72	5.65	4.83	3.38	16.34

\*p<.05, \*\*p<.01

As can be seen in Table 1, there is a positive moderate association between social interest in romantic relationships and relationship satisfaction ( $r=.49$ ,  $p<.01$ ); while a negative weak association was found between contact and relationship satisfaction ( $r=-.26$ ,  $p<.01$ ); full contact and relationship satisfaction ( $r=-.27$ ,  $p<.01$ ); and final contact and relationship satisfaction ( $r=-.20$ ,  $p<.01$ ). No significant association was found between dependent contact and relationship satisfaction ( $r=-.004$ ,  $p>.05$ ). A correlation coefficient between .70 and 1.00 between two variables shows strong association, while a correlation coefficient between .70 and .30 shows moderate association and a correlation coefficient between .30 and .00 shows weak correlation (Büyüköztürk, 2018).

**Are social interest and contact disturbances in romantic relationships significant predictors of relationship satisfaction in romantic relationships?**

Regression analysis was conducted to find out the variables predicting relationship satisfaction in romantic relationships. As a prerequisite for regression analysis, it is stated that there should be statistically significant correlations between the variables (Büyüköztürk, 2018). As a result of the Pearson Correlation Analysis conducted (Table 1), significant correlations were found between the variables of social interest, contact, full contact, final contact and relationship satisfaction. For this reason, Multiple Regression Analysis was conducted on these correlated variables. Standard method and stepwise method were used in Multiple Regression Analysis. In standard method, all variables are taken regardless of whether they have a significant contribution to the explained variance in dependent variable, and the common effect of all variables on the dependent variable is examined. In stepwise regression analysis, only variables which are significant predictors of the dependent variable are taken in the regression. The variable which has the highest correlation with the dependent variable is processed first and then the variable which brings less contribution to the variance is added in the procedure (Büyüköztürk, 2018). In the present study, first standard multiple regression analysis was performed (Table 2) and significant predictors of relationship satisfaction were found. Following this, stepwise regression analysis was conducted (Table 3), and only independent variables which are significant predictors were processed.

**Table 2. Multiple regression analysis results**

Predictive variable	Reg. coeff.	St. Error	$\beta$	$t$	$p$	Paired $r$	Partial $r$
Fixed	83.84	7.57	-	11.07	.00	-	-
Social interest	.72	.06	.46	10.94	.00	.49	.48
Contact	-.33	.16	-.09	-2.01	.04	-.26	-.10
Full contact	-.47	.13	-.16	-3.59	.00	-.27	-.17
Final contact	-.33	.23	-.06	-1.46	.14	-.20	-.07
R= .56		R <sup>2</sup> = .31					
F (4, 400) = 45.72		p=.000					

When the paired and partial correlations between the predictive variables and relationship satisfaction in romantic relationships variable in Table 2 were examined, a positive and moderate association was found between social interest and relationship satisfaction ( $r=.49$ ); however, when the other variables were controlled, the correlation between two variables was found to be  $r=.48$ . Based on these results, it can be said that as social interest in romantic relationships increases, relationship satisfaction also increases. A negative weak association was found between contact and relationship satisfaction ( $r=-.26$ ); however, when the other variables were controlled, the correlation between two variables was found to be  $r=-.10$ . While there was a negative weak association between full contact and

relationship satisfaction ( $r=-.27$ ), when the other variables were controlled, the correlation between two variables was found to be  $r=-.17$ . While there was a negative weak association between final contact and relationship satisfaction ( $r=-.20$ ), when the other variables were controlled, the correlation between two variables was found to be  $r=-.07$ .

When the results of the t-test associated with the significance of regression coefficients were examined, it was found that social interest ( $t=10.94$ ,  $p=.000$ ), contact ( $t=-2.01$ ,  $p=.04$ ) and full contact ( $t=-3.59$ ,  $p=.000$ ) predicted relationship satisfaction in romantic relationships significantly, while final contact did not predict relationship satisfaction in romantic relationships significantly ( $t=-1.46$ ,  $p=.14$ ). Stepwise regression analysis was carried out to determine the power of the predictive variables in predicting relationship satisfaction. Since final contact variable did not predict relationship satisfaction significantly, it was not included in the stepwise regression analysis. The results of the analysis carried out with the other three variables are shown in Table 3.

**Table 3. Stepwise regression analysis results**

Predictive variable	Reg. coef.	St. Error	$\beta$	$t$	R	R <sup>2</sup>	F <sub>reg</sub>	F <sub>change</sub>	$\Delta R^2$
Fixed	59.60	6.74	-	8.83**	.49	.24	132.29**	132.29**	.24
Social interest	.78	.06	.49	11.50**					
Fixed	76.10	7.21	-	10.54**	.54	.29	84.97**	28.60**	.05
Social interest	.74	.06	.47	11.24**					
Full contact	-.65	.12	-.22	-5.34**					
Fixed	82.07	7.48	-	10.96**	.55	.31	60.08**	7.54*	.01
Social interest	.72	.06	.45	10.91**					
Full contact	-.51	.13	-.18	-4.00**					
Contact	-.42	.15	-.12	-2.74*					

\* $p<.01$ , \*\* $p<.001$

The variable of “social interest” examined in the first step of the stepwise regression analysis predicts 24% of relationship satisfaction ( $R^2=.24$ ,  $F_{reg}(1,403)=132.29$ ,  $p=.000$ ). “Full contact” variable entered in the second step of stepwise regression analysis. “Social interest” and “full contact” variables together explain 29% of relationship satisfaction significantly ( $R^2=.29$ ,  $F_{reg}(2,402)=84.97$ ,  $p=.000$ ). “Full contact” variable contributes with a rate of 5% to total variance ( $\Delta R^2=.05$ ,  $F_{change}(1,402)=28.60$ ,  $p=.000$ ). “Contact” variable entered in the last step of stepwise regression analysis. When the other variables affecting relationship satisfaction in romantic relationships were kept fixed, it was found that “social interest, full contact, and contact” variables together predicted 31% of relationship satisfaction significantly ( $R^2=.31$ ,  $F_{reg}(3,401)=60.08$ ,  $p=.000$ ). “Contact” variable contributes with a rate of 1% to total variance ( $\Delta R^2=.013$ ,  $F_{change}(1,401)=7.54$ ,  $p=.006$ ). According to  $\beta$ ,  $R^2$ ,  $\Delta R^2$ ,  $F_{Reg}$  and  $F_{change}$  values of the variables, it was found that “social interest” significantly predicted relationship satisfaction in romantic relationships in the first place, while “full contact” significantly predicted relationship satisfaction in romantic relationships in the second place, and “contact” significantly predicted relationship satisfaction in romantic relationships in the third place.

**Do social interest, contact disturbances in romantic relationships and relationship satisfaction in romantic relationships show significant differences in terms of gender?**

One-Way MANOVA was conducted to find out whether social interest, relationship satisfaction, and contact disturbances in romantic relationships differed significantly by gender and the results are given in Table 4.

**Table 4. One-Way MANOVA results**

Variable	Source	n	M	SD	Df	F	p
<b>Social interest</b>	Female	222	100.90	7.23	1	32.57	<b>.000**</b>
	Male	183	95.21	12.52			
<b>Relationship satisfaction</b>	Female	222	140.60	12.39	1	28.84	<b>.000**</b>
	Male	183	132.12	19.15			
<b>Contact</b>	Female	222	14.21	4.70	1	7.87	<b>.005*</b>
	Male	183	15.52	4.66			
<b>Full contact</b>	Female	222	18.46	5.25	1	20.15	<b>.000**</b>
	Male	183	20.94	5.82			
<b>Dependent contact</b>	Female	222	24.55	4.55	1	.23	.632
	Male	183	24.32	5.15			
<b>Final contact</b>	Female	222	11.67	3.25	1	8.75	<b>.003*</b>
	Male	183	12.66	3.46			

( $\lambda = .87$ ,  $F_{(6, 398)} = 9.409$ ,  $p = .000$ )

\* $p < .01$ , \*\* $p < .001$

According to One-Way MANOVA results, the basic effect of social interest, relationship satisfaction, and contact disturbances scores were found to be significant ( $\lambda = .87$ ,  $F(6,398) = 9.409$ ,  $p < .001$ ). Social interest score averages of university students who were found to have romantic relationship showed significant differences between male and female students [ $F(1,403) = 32.57$ ,  $p < .001$ ]. According to the results, it can be said that female students had significantly higher social interest levels when compared with male students. It was also found that relationship satisfaction in romantic relationships differed significantly by gender [ $F(1,403) = 28.84$ ,  $p < .001$ ], and female students had significantly higher relationship satisfaction level than male students. Significant differences were found in the sub-dimensions of “contact” [ $F(1,403) = 7.87$ ,  $p < .01$ ]; “full contact” [ $F(1,403) = 20.15$ ,  $p < .001$ ] and “final contact” [ $F(1,403) = 8.75$ ,  $p < .01$ ] in terms of gender, and it was found that male students had significantly higher score averages when compared with female students.

## DISCUSSION, CONCLUSION & SUGGESTIONS

The present study researches whether social interest levels and contact disturbances of individuals are significant predictors of relationship satisfaction in romantic relationships. First of all, a positive and moderately significant association was found between social interest and relationship satisfaction in romantic relationships. When the variables’ predicting relationship satisfaction in romantic relationships were examined, it was found that social interest, contact, and full contact significantly predicted relationship satisfaction in romantic relationships, while final contact did not. “Social interest” predicts relationship satisfaction in the first place, while “full contact” predicts relationship satisfaction in the second place and “contact” predicts relationship satisfaction in the third place. These three variables together explain 31% of relationship satisfaction.

It is expected for partnership, solidarity, putting oneself in the partner’s place, sharing, reconciliation, and being constructive to affect relationship satisfaction in romantic relationships. Similar to this finding of the study, Rennebohm, Seebeck, and Thoburn (2017) found that couples with high social interest level also had high compatibility in romantic relationships. While these results can

be interpreted as individuals with high social interest having more satisfaction from the relationship, it can also be said that healthy relationships which give satisfaction increase individuals' social interest levels.

On the other hand, a weak negative association was found between full contact and relationship satisfaction, and between final contact and relationship satisfaction. However, no significant relationship was found between dependent contact and relationship satisfaction. When the literature was reviewed, no study was found which examined the association between contact disturbances and romantic relationship satisfaction. For this reason, the related results were discussed in the light of conceptual explanations. In the contact stage, projection contact disturbance is generally used. In projection, individuals attribute the characteristics they cannot accept in themselves to others, run away from responsibility and accuse others (Tagay, 2010). A healthy and satisfactory relationship is expected to include the feeling of responsibility. For this reason, in romantic relationships, couples are expected to require a contact process which includes responsibility within relationship satisfaction.

In the full contact stage, introjection, and deflection contacts boundaries are generally used. Full contact is the stage in which individuals choose the option that they consider as the most suitable for themselves (Tagay, 2010). Contact boundaries that can be seen at this stage are introjection and deflection (Tagay & Voltan-Acar, 2012). Individuals who use introjection frequently accuse themselves all the time. In addition, these individuals also have self-pity feelings accompanying guilt. They make plans all the time and think about the consequences of their behaviours. Obsessive efforts to control the results make the person unresponsive after a point. They do not go into risky situations that they think they will lose control. They tend to blunt even expectations such as getting attention and love. For this reason, they can become individuals who are afraid to contact other people (Kepner, 1982). Their fears prevent them from conveying their feelings, thoughts and wishes. They cannot act or meet their needs because they keep these inside (Daş, 2006). However, romantic relationship satisfaction requires couples' love and affection, and sometimes the type of relationship in which anger is properly expressed. Thus, the negative association between full contact and relationship satisfaction is in parallel with the related literature.

Deflection contact disturbance is a situation in which the individual moves his/her energy away from a specific target. This way, the individual will be able to prevent the stimuli coming from the environment and direct them to another area or direction from the contact in order to avoid the strong effects caused by the existing contact (Polster & Polster, 1973: cited from. Gürdil, 2014). With deflection, the individual provides a kind of isolation and provides protection against situations that will disturb himself/herself by preventing a word or action aimed for him/her from reaching him/her (Philippon, 2001). Deflection is usually done by speaking too much, making jokes all the time, not making eye contact, coughing frequently, giving abstract answers to questions, focusing on irrelevant details, expressing feelings by alleviating or exaggerating them, talking about the past or future but not talking about the present, yawning or itching (Kepner, 1982; Polster & Polster, 1974). When the way deflection is done is considered, it shows the pattern of communication that can harm a relationship and cause the relationship to dissolve. Studies conducted show that the style of communication with the aforementioned characteristics decreases relationship satisfaction (Anders & Tucker, 2000; Olderbak & Figueredo, 2009). Therefore, the negative association between full contact and relationship satisfaction is in parallel with the literature. From this point of view, it can be said that individuals with

nourishing communication style can increase their relationship satisfaction because they adopt open and respectful relationship.

The contact disturbances in final contact stage are withdrawal and isolation. This concept which can also be expressed as seclusion is a very suitable concept to express withdrawal process. Withdrawal is sometimes used for getting away from the environment, listening and digesting what has happened previously, and sometimes for drawing boundaries. Besides this withdrawal which is considered as healthy withdrawal, the withdrawal the individual is not aware of is considered as unhealthy withdrawal (Voltan-Acar, 2006). Unhealthy withdrawal contact disturbance can present with behaviours such as dullness, fatigue, saturation, slow movements and loss of eye contact (Jacobs, 2007). This result can be interpreted as the proximity and communication in relationships will increase the warmth and sharing of couples, which will in turn increase relationship satisfaction.

No significant association was found between dependent contacts and relationship satisfaction. Dependent contact consists of absence of boundaries and contact disturbances of auxiliary syndrome. It is the factor in which items preventing individualization and differentiation occur (Tagay & Voltan-Acar, 2012). According to Voltan-Acar (2006), in lack of boundary contact disturbance, the difficulties of individual experiences in determining the boundaries between himself/herself and others. Its assisting syndrome is treating people the way you want to be treated. It is an expected result for these people to have unrealistic beliefs such as sharing everything in their relationship and having extreme expectations both materially and spiritually. Dependence on others is mentioned in this contact disturbance. Thus, considering that individuals who have higher expectations from the relationship are more dependent, it is expected from them to be more willing to leave their own benefits aside in order to prevent relationships from being resolved (Rusbult, 1980). Thus, a significant association between relationship satisfaction and dependent contact types was expected. However, the fact that these variables do not show a significant association according to the results of the study brings to mind that mediator variables affecting relationship satisfaction should also be taken into consideration.

Finally, it can be seen that female university students who had romantic relationships had significantly higher social interest score averages when compared with male students. The results of studies conducted in literature are different. While some of the studies show that social interest level differs significantly by gender in romantic relationships (Johnson, Smith, & Nelson 2003; Kaplan 1991), others show that there are no significant differences by gender (Tekin-Çatal & Kalkan, 2018). Similarly, women have been shown to have significantly higher relationship satisfaction when compared with men. Results of studies conducted in literature are different. While different results have been found in studies conducted to find out whether relationship satisfaction differs by gender, it has been shown in general that gender does not have a decisive role (Cihangir-Çankaya, 2009; Saraç, Hamamcı, & Gürçay, 2005; Satici & Deniz, 2018). However, there are also research results that are similar to this finding (Kaura & Lohman, 2007; Rosen, Bailey, & Muise, 2017).

It is thought that this difference occurs in favour of women regarding relationship satisfaction because women are more concerned about their relationship and women experience their feelings more intensely. On the other hand, significant differences were found by gender in contact, full contact, and final contact sub-dimensions of contact disturbances, and men were found to have significantly higher score averages when compared with women. Results of studies conducted in literature are not



consistent with each other. Tagay (2010) found that women had significantly lower scores when compared with men in dependent contact sub-dimension. Yazıcı and Şahin (2018) found difference in terms of gender in the sub-dimension of desensitization and male students had significantly higher desensitization contact disturbance scores when compared with female students. However, Tümlü-Ülker and Voltan-Acar (2017) did not find any significant difference between genders in terms of contact and dependent contact. It is thought that these different results are due to different characteristics of the sample groups on which the studies are conducted.

As a conclusion, social interest, contact, and full contact are significant predictors of relationship satisfaction in romantic relationships. It can be said that acting with social interest and contact styles will affect romantic relationship. It is thought that this result will be a guide in planning preventive-protective intervention methods to be provided to young people who have romantic relationship.

Although the study shows significant results, it also has some limitations. The sample of this study consists of university students. This situation does not provide data about how relationship satisfaction of married individuals explains social interest and contact disturbances. Thus, this brings to mind the necessity of conducting further studies on married individuals. In addition, the results of this study can enable psychological counsellors who aim to increase relationship satisfaction of their clients to plan individual or group works to decrease contact disturbances. Based on the fact that establishing a close relationship with the opposite sex is an important developmental task in terms of university years, it is thought that developing intervention programs based on healthy contact disturbances in order to eliminate possible problems about contact disturbances, and testing their efficiency will make significant contributions to literature.

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### **Author Contributions**

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 Ondokuz Mayıs University, Social and Human Sciences Ethics Committee.

**Ethics Committee Name:** Ondokuz Mayıs University, Social and Human Sciences Ethics Committee.

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## REVIEW

Open Access

## DERLEME

Açık Erişim

## Psychometric Properties of Turkish CyberPsychology Scales

*Siber Psikoloji Alanındaki Türkçe Ölçeklerin Psikometrik Özellikleri*Fedai Kabadayı **Author Information****Fedai Kabadayı**Research Assistant, Recep Tayyip  
Erdogan University, Rize, Turkey  
[fdkbdy@gmail.com](mailto:fdkbdy@gmail.com)**ABSTRACT**

Digital technologies have seen significant use in the lives of individuals, but despite the many contributions, digital technologies also cause some problems. Self-report scales are widely used in psychology to determine problems and have an important position for researchers and mental health practitioners. 167 Turkish cyberpsychology scales were compiled, and its properties were examined in the preset study. The research was designed using qualitative methods. A sample group of mostly adolescents and university students was existed in Turkish cyberpsychology scales. According to the findings, half of the scales had adaptation, three-quarters of scales had adequate or good levels of variance explanatory power, and a cutoff point was determined for nearly one-quarter of the scales. Previous scales and the problem areas that do not yet have measurement instruments have been examined, and some suggestions are made regarding the scales and sample groups that can be developed for Turkish culture.

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Ölçek**Article History****Received:** 09/11/2018**Revision:** 14/05/2020**Accepted:** 17/05/2020**ÖZET**

Dijital teknolojiler bireylerin yaşamlarında önemli bir kullanım alanı edinmiştir. Teknolojinin bireylerin yaşamlarına sağladığı birçok katkının yanı sıra bazı sorunlara da neden olmaktadır. Sorunların belirlenmesi için öz-bildirime dayalı ölçekler yaygın şekilde kullanılmaktadır. Bu bağlamda sorunların tespit edilmesinde kullanılan ölçme araçları araştırmacılar ve ruh sağlığı uygulayıcıları için önemli bir konumdadır. Bu araştırmada Türkçe dilindeki siber psikoloji alanında kullanılan 167 ölçek derlenmiş ve bazı özellikleri açısından incelenmiştir. Araştırma nitel paradigmaya göre tasarlanmıştır. Elde edilen bulgulara göre Türkiye’de siber psikoloji alanında örneklem gruplarının çoğunlukla ergenler ve üniversite öğrencilerinden oluştuğu, ölçeklerin yaklaşık yarısının uyarlama olduğu, ölçeklerin dörtte üçünün yeterli ya da iyi düzeyde varyans açıklama gücünün olduğu ve ölçeklerin yaklaşık dörtte birinde kesme puanlarının belirlendiği tespit edilmiştir. Son olarak, literatürde geliştirilmiş ölçekler ile henüz ölçme aracı olmayan sorun alanları incelenmiş ve Türk kültüründe geliştirilebilecek ölçekler ile örneklem gruplarına ilişkin bazı önerilerde bulunulmuştur.

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## INTRODUCTION

Digital technologies and media are becoming central in many areas, including shopping, banking, communication, family, and friendship relations. Many activities in daily life take place through digital technologies and media. Cyberpsychology covers many areas ranging from digital innovations to how technology is adapted to everyday life and how developments are perceived by people (Harley, Morgan, & Frith, 2018). Cyberpsychology is mainly related to the changes in human-technology interaction (HTI) (Card, Moran, & Newell, 1983; Jeon, 2017, p. 3) and is used to examine positive and negative changes resulting from the interactions (Harley et al., 2018, p. 6). These changes can contribute to or cause serious harm in the daily lives of individuals.

HTI can cause depression, anxiety (Kim et al., 2006; Young & Rogers, 1998), excess weight gain (Li, Deng, Ren, Guo, & He, 2014), and social problems (Hardie & Tee, 2007), such as being isolated from friends. Researchers and practitioners are examining the changes that occur in individuals and trying to help individuals overcome their problems with technology in their lives (Shek, Tang, & Lo, 2009; Young, 2007). Some of the problems that arise in HTI are internet addiction (Beard & Wolf, 2001; Young, 1998), problematic internet use (Caplan, 2006; Davis, Flett, & Besser, 2002), computer game addiction (Kuss & Griffiths, 2012; Lemmens, Valkenburg, & Peter, 2009), smartphone addiction (Bian & Leung, 2015; Kwon et al., 2013), social media addiction (Al-Menayes, 2015; Hawi & Samaha, 2017), fear of missing out (FOMO) (Alt, 2015; Elhai, Levine, Dvorak & Hall, 2016), “nomophobia” (Bragazzi & Del Puente, 2014; King et al., 2013; Yildirim & Correia, 2015), “ringxiety” (Alam et al., 2014; Kruger & Djerf, 2016), technology addiction (Hamissi, Babaie, Hosseini, & Babaie, 2013; Wang, Sigerson, & Cheng, 2019), online compulsive buying disorder (Duroy, Gorse, & Lejoyeux, 2014), cyber pornography disorder (Grubbs, Sessoms, Wheeler, & Volk, 2010; Grubbs, Stauner, Exline, Pargament, & Lindberg, 2015), and online gambling disorder (Chóliz, 2016; Gainsbury, 2015).

Researchers are developing and applying individual counseling or group interventions to help with the problems experienced by individuals related to the effects of HTI. The aim is to help individuals avoiding the negative experiences that occur in their lives. Researchers and mental health practitioners are also developing measurement instruments to identify the problems experienced by individuals (Demirci, Orhan, Demirdaş, Akpınar, & Sert, 2014; Ko et al., 2005; Meerkerk, van Den Eijnden, Vermulst, & Garretsen, 2009). These instruments are used to measure the effectiveness of counseling, psychoeducation and group psychotherapy programs or case studies.

Many measurement instruments have been developed in cyberpsychology and applied in many studies. Many instruments are also being developed in Turkey or are being adapted to Turkish culture. But so far, there has been no detailed study on the uses of the information and the psychometric properties of Turkish cyberpsychology scales. This information could shed light on the identification and development of the scales that should be included in cyberpsychology in Turkey. Thus, the main purpose of the present study is to guide future studies on Turkish cyberpsychology scales.



## METHOD

### Research Design

A document analysis was carried out using a qualitative research design. Written sources (books, articles, etc.) were examined, evaluated, or analyzed (Creswell, 2007, p. 141). Psychometric properties of Turkish cyberpsychology scales were examined.

### Data Collection Tool

The research data were obtained by scanning Google Scholar, the National Thesis Center, and Ulakbim National Databases. The study included 167 Turkish cyberpsychology scales. The scales obtained were recorded using Google Forms. The data categorized from The Scale Evaluation Form was used (see Appendix 1).

### Criteria and Analysis

Self-report scales should have some particular properties. They must be distinctive, reliable, valid, and standardized (Coolican, 2014, p. 198). The findings of instruments were evaluated according to the criteria (see Table 1).

**Table 1. Evaluation and Criteria Form**

	Criteria	Evaluation	Reference
Scale Type		Development	
		Adaptation	
		Revision	
Cronbach's Alpha	Over .75	Good	(Coolican, 2014, p. 217)
	Under .75	Not Good	
Sample Size	0-99	Inadequate	(Mundfrom, Shaw, & Ke, 2005)
	100-199	Adequate	
	200 +	Good	
Variance	0-29	Inadequate	(Büyükoztürk, 2002)
	%30-49	Adequate	
	%50 +	Good	
Cutoff Score		Yes	
		No	
Sample Group		Kids	
		Adolescents	
		Young Adults	
		Adults	
		Elderliness	
		Other Groups	

## RESULTS

### Psychometric Properties of Cyber Bullying / Cyber Victim Scales

Psychometric properties of cyber bullying / cyber victim scales were examined (see Table 2).

**Table 2. Psychometric properties of cyber bullying / Cyber victim scales**

Scales	Reference	Scale Type	Items	Subscale	Sample Group	Sample Size	Variance	$\alpha$	Cutoff Score
Cyber Bully / Cyber Victim Scale - Bully Form	(Ayas & Horzum, 2010)	Development	19	3	Kids	450	44	.81	-
Cyber Bully / Cyber Victim Scale - Victim Form	(Ayas & Horzum, 2010)	Development	19	3	Kids	450	-	.81	-
The Revised Cyber Bullying Inventory - (Cyber Bully Form)	(Topçu & Erdur-Baker, 2010)	Revision	28	2	Adolescents	358, 339	50	.75	-
The Revised Cyber Bullying Inventory - (Cyber Victim Form)	(Topçu & Erdur-Baker, 2010)	Revision	28	2	Adolescents	358, 339	50	.82	-
Cyber Victim and Bullying Scale - Bully Form	(Çetin, Yaman, & Peker, 2011)	Development	22	3	Adolescents	404	49.18	.89	-
Cyber Victim and Bullying Scale - Victim Form	(Çetin, Yaman, & Peker, 2011)	Development	22	3	Adolescents	404	46.38	.89	-
Cyber-bullying and Online Aggression Survey Instrument (Cyberbullying Subscale)	(Özdemir & Akar, 2011)	Adaptation	9	-	Adolescents	366	71.30	.94	-
Cyber-bullying and Online Aggression Survey Instrument (Cybervictim Subscale)	(Özdemir & Akar, 2011)	Adaptation	9	-	Adolescents	366	40.78	.79	-
Cyberbullying Scale	(Arıcak, Kınay, & Tanrıku, 2012)	Development	24	-	Adolescents	515	50.58	.95	-
Cyber Victimization Scale	(Arıcak et al., 2012)	Development	24	-	Adolescents	532	30.17	.89	-
Cyberbullying Sensibility Scale	(Tanrıku, Kınay, & Arıcak, 2013)	Development	14	-	Adolescents	663	46.65	.87	-
Cyberbullying Sensibility Scale	(Uysal, Duman, Yazıcı, & Şahin, 2014)	Development	13	-	Candidate teachers	296	-	.78	-
Cyberbullying Awareness Scale	(Ayas, Aydın, & Horzum, 2015)	Development	26	3	Adolescents	300	56.10	.94	Yes
E-Bullying Scale And E-Victimization Scale - E-Bullying Form	(Gençdoğan & Çıkrıkçı, 2015)	Adaptation	6	2	Adolescents	163	-	.75	-
E-Bullying Scale And E-Victimization Scale - E-Victimization Form	(Gençdoğan & Çıkrıkçı, 2015)	Adaptation	5	-	Adolescents	188	-	.79	-
Facebook Bullying Scale	(Küçük & Şahin, 2015)	Adaptation	17	-	Adolescents	212, 866	-	.94	-

Facebook Victimization Scale	(Küçük & Şahin, 2015)	Adaptation	18	-	Adolescents	212, 866	-	.91	-
The Scale on Coping with Cyber Bullying	(Peker, Özhan, & Eroğlu, 2015)	Development	17	4	Adolescents	318	61.36	.70, .86	-
Coping with Cyberbullying Scale	(Koç et al., 2016)	Development	19	4	Adolescents	264, 277	54.29	.75	Yes
Workplace Cyber Bullying Victim Scale	(Kayman-Serda, 2017)	Development	12	3	Academic, Administrative staff	153	79.07	.90, .93, .89	-
Cyberbullying Scale	(Küçük, İnanıcı, & Ziyalar, 2017)	Adaptation	13	2	Adolescents	633	50.71	.87	-
Student Cyberwellness Scales - Cyberbullying Form	(Mihçı & Çakmak, 2017)	Development	8	2	Kids	528	61.70	.84	Yes
The Revised Cyber Bullying Inventory (Cyberbullying Form)	(Topçu & Erdur-Baker, 2017)	Revision	10	2	Adolescents	1803	-	.80	-
The Revised Cyber Bullying Inventory (Cybervictimization Form)	(Topçu & Erdur-Baker, 2017)	Revision	10	2	Adolescents	1803	-	.79	-
Scale of Coping Strategies with Cyberbullying for Teachers - Information Form	(Altundağ & Ayas, 2018)	Development	18	3	Teachers	328	41.20	.72, .66, .54	-
Scale of Coping Strategies with Cyberbullying for Teachers - Application Form	(Altundağ & Ayas, 2018)	Development	18	3	Teachers	328	54.03	.87, .78, .66	-
The Cyberbullying Threat Level Scale - Victimization Form	(Kavuk-Kalender, Bulu, & Keser, 2018)	Development	17	3	Kids, Adolescents	304, 296	53.00	.94	-
The Cyberbullying Threat Level Scale - Bullying Form	(Kavuk-Kalender et al., 2018)	Development	17	3	Kids, Adolescents	304, 296	57.68	.95	-
The Cyberbullying Threat Level Scale - Witnessing Form	(Kavuk-Kalender et al., 2018)	Development	17	3	Kids, Adolescents	304, 296	48.41	.93	-
Cyberbullying Behavior Scale	(Karaca, 2019)	Development	7	-	Football Audience	612	62.70	.93	-
E-Bullying Scale and E-Victimization Scale (for Smoking Addict Students)	(Çetin, Cantürk, & Dağalp, 2019)	Adaptation	11	2	University students	120	-	.83, .81	-
Cyber Bullying Scale	(Eraslan-Çapan, Bakioğlu, & Kirteke, 2020)	Adaptation	15	3	Adolescents	639	48	.94	-
Bullying and Cyber Bullying Scale for Adolescents	(Özbey & Başdaş, 2020)	Adaptation	10	3	Adolescents	600	-	.61 or more	-
Cyberbullying Inventory for University Students	(Tanrıkulu & Erdur-Baker, 2020)	Revision	11	-	University students	635, 1281	-	.72 or more	-

### Psychometric Properties of Internet Addiction / Problematic Internet Use Scales

Psychometric properties of internet addiction / problematic internet use scales were examined (see Table 3).

**Table 3. Psychometric properties of internet addiction / Problematic internet use scales**

Scales	Reference	Scale Type	Items	Subscale	Sample Group	Sample Size	Variance	$\alpha$	Cutoff Score
Internet Addiction Scale	(Bayraktar, 2001)	Adaptation	20	-	Adolescents	686	-	.91	Yes
Online Cognition Scale	(Özcan & Buzlu, 2005)	Adaptation	36	4	University students	148	-	.91	-
Problematic Internet Usage Scale	(Ceyhan, Ceyhan, & Gürcan, 2007)	Development	33	3	University students	1658	48.96	.94	-
Internet Addiction Test	(Çakır-Balta & Horzum, 2008)	Adaptation	19	3	University students	250	52.83	.90	-
Internet Addiction Scale	(Günüç, 2009; Günüç, & Kayri, 2010)	Development	35	4	Adolescents	754	47.46	.94	Yes
Internet Addiction Scale	(Kayri & Günüç, 2009)	Adaptation	30	-	University students	277	33.95	.93	Yes
Internet Addiction Scale	(Canan, Ataoğlu, Nichols, Yıldırım, & Öztürk, 2010)	Adaptation	27	-	Adolescents	300	43.2	.92	Yes
Internet Addiction Scale	(Kesici & Şahin, 2010)	Adaptation	26	5	University students	146, 240	63.83	.94, .88	Yes
Internet Addiction Scale	(Şahin & Korkmaz, 2011)	Adaptation	19	3	Individuals	468	68.09	.86	-
Problematic Internet Usage Scale	(Ceyhan & Ceyhan, 2014)	Revision	27	3	Adolescents	678	49.35	.93	-
Parent-Child Internet Addiction Scale	(Eşgi, 2014)	Adaptation	20	4	Parents	480	46.21	.91	-
The Addiction Profile Index Internet Addiction Form	(Ögel, Karadağ, Satgan, & Koç, 2015)	Development	18	3	Adolescents, University students	103	57.03	.88	Yes
The Generalized Problematic Internet Use Scale 2	(Deniz & Ünal, 2016)	Adaptation	15	4	University students	388	70.86	.89	-
Young's Internet Addiction Test Short Form	(Kutlu, Savcı, Demir, & Aysan, 2016)	Adaptation	12	-	Adolescents, University students	945, 1167	48.9, 39.5	.86, .91	-
Student Cyberwellness Scales - Internet Addiction Scale	(Mihçı & Çakmak, 2017)	Development	11	2	Kids	528	55.6	.85	Yes
The Internet Addiction Test	(Boysan, et al., 2017)	Adaptation	20	-	University students	455	44.94	.93	Yes
Problematic Internet Use Questionnaire - Short Form	(Göktaş et al., 2018)	Adaptation	6	3	University students	465	53.42	.82	Yes
Chen Internet Addiction Scale	(Ceyhan, Boysan, & Kadak, 2019)	Adaptation	26	5	University students	754	-	.76 or more	Yes

Internet Addiction Scale for Adolescents	(Taş, 2019)	Development	9	-	Adolescents	656	39.90	.81	-
The Generalized Problematic Internet Use Scale 2	(Canoğulları-Ayazseven & Cenkseven-Önder, 2019)	Adaptation	15	4	Adolescents	492	-	.51 or more	-

### Psychometric Properties of Smartphone Addiction / Problematic Smartphone Use Scales

Psychometric properties of smartphone addiction / problematic smartphone use scales were examined (see Table 4).

**Table 4. Psychometric properties of smartphone addiction / Problematic smartphone use scales**

Scales	Reference	Scale Type	Items	Subscale	Sample Group	Sample Size	Variance	$\alpha$	Cutoff Score
Problematic Mobile Phone Use Scale	(Güzeller & Cosguner, 2012)	Adaptation	18	3	Adolescents	950	55.5	.84	-
Problem Mobile Phone Use Scale	(Şar & Işıklar, 2012)	Adaptation	27	-	University students	300	-	.88	-
Problematic Mobile Phone Use Scale	(Tekin, 2012)	Adaptation	20	3	University students	387	45	.85	-
Smartphone Addiction Scale	(Demirci, Orhan, Demirdaş, Akpınar, & Sert, 2014)	Adaptation	33	7	University students	301	66.4	.95	-
Smartphone Addiction Scale - Short Version	(Noyan, Enez-Darçin, Nurmedov, Yılmaz, & Dilbaz, 2015)	Adaptation	10	-	University students	367	46.3	.87	-
Smart Phone Addiction Scale	(Şar, Ayas, & Horzum, 2015)	Development	30	4	Adolescents	234, 228	63.06	.96	Yes
Compulsive Texting Scale	(Adıgüzel, Erözkan, & Doğan, 2016)	Adaptation	14	3	Adolescents	335	-	.89	-
Problematic Mobile Phone Use Scale	(Pamuk & Atli, 2016)	Development	26	4	University students	725, 126	56.93	.92	-
Mobile Addiction Scale	(Fidan, 2016; 2018)	Development	24	6	Adolescents, Adults	284	67.68	.91	Yes
Smartphone Addiction Scale	(Şata, Çelik, Ertürk, & Taş, 2016)	Adaptation	33	6	Adolescents	456	-	.94	-
Technology Addiction Scale - Instant Messaging Addiction	(Aydın, 2017)	Development	24	4	University students	463	51.09	.81	Yes
Mobile Phone Addiction Scale	(Firat & Balcı-Çelik, 2017)	Adaptation	22	3	Adolescents	412	-	.92	-
Smartphone Addiction Scale-Short Version	(Şata & Karip, 2017)	Adaptation	10	-	Adolescents	244	-	.90	Yes
Smartphone Craving Scale	(Savcı, 2019)	Adaptation	5	-	University students	429	53.48	.77, .78	-

### Psychometric Properties of Online Game Addiction / Internet Gaming Disorder Scales

Psychometric properties of online game addiction / internet gaming disorder scales were examined (see Table 5).

**Table 5. Psychometric properties of online game addiction / Internet gaming disorder scales**

Scales	Reference	Scale Type	Items	Subscale	Sample Group	Sample Size	Variance	$\alpha$	Cutoff Score
Computer Game Addiction Scale for Children	(Horzum, Ayas, & Çakır Balta, 2008)	Development	21	4	Kids	460	45	.85	-
Online Game Addiction Scale	(Kaya, 2013)	Development	21	3	Adolescents	327	58.55	.91	-
Gaming Motivation Scale	(Akin, Kaya, & Demirci, 2015)	Adaptation	18	6	University students	400	79.77	.79, .89	-
Problematic Online Game Use Scale	(Akin et al., 2015)	Adaptation	20	5	University students	302	-	.94	-
Game Addiction Scale for Adolescents	(Ilgaz, 2015)	Adaptation	21	7	Adolescents	265	-	.92	-
Digital Game Addiction Scale	(Irmak & Erdoğan, 2015)	Adaptation	7	-	Adolescents	95	56.96	.72	-
Game Addiction Scale	(Baysak, Kaya, Dalgat, & Candansayar, 2016)	Development	21	7	Gamers	726	-	.96	Yes
Game Addiction Scale - Short Form	(Baysak, Kaya, Dalgat, & Candansayar, 2016)	Development	7	-	Gamers	726	-	.88	Yes
Technology Addiction Scale - Online Gaming Addiction	(Aydın, 2017)	Development	6	-	University students	463	65.94	.90	Yes
Internet Gaming Disorder Scale	(Evren, Dalbudak, Topçu, Kutlu, & Evren, 2017)	Adaptation	27	3	University students	261	60.20	.98	Yes
Internet Gaming Disorder Scale - Short Form	(Evren, et al., 2017)	Adaptation	9	-	University students	261	65.85	.93	Yes
Digital Game Addiction Scale for Children	(Hazar & Hazar, 2017)	Development	24	4	Kids	364	47.95	.90	Yes
Videogame Addiction Scale for Children	(Yılmaz, Griffiths, & Kan, 2017)	Development	21	4	Kids	780	55.7	.89	--
The Game Addiction Scale for Adolescents - Short Form	(Anlı & Taş, 2018)	Development	9	-	Adolescents	1022	42.80	.81	-
Internet Gaming Disorder Scale - Short Form	(Arıca, Dinç, Yay, & Griffiths, 2019)	Adaptation	9	-	Adolescents, Adults	455	-	.82	Yes
Online Game Addiction Scale	(Başol & Kaya, 2018)	Development	21	3	Adolescents	302	58.56	.91	Yes
Internet Gaming Disorder Scale-Short Form	(Evren & et al., 2018)	Adaptation	9	-	University students	1250	49.09	.89	Yes
Internet Gaming Disorder Scale	(Çakıroğlu, 2018)	Adaptation	20	6	Kids, Adolescents	549	-	.86	-

Turkish Craving for Internet Gaming Scale	(Savcı & Griffiths, 2019a)	Adaptation	5	-	Adolescents	368	73.66	.91, .88	-
Internet Gaming Disorder Scale	(Çakıroğlu & Soylu, 2019)	Adaptation	20	5	Kids, Adolescents	1161	-	.86	Yes
Digital Game Addiction Scale for University Students	(Hazar & Hazar, 2019)	Adaptation	21	3	University students	295	59.61	.92	-
Computer Game Addiction Scale	(Ünsal & Ulutaş, 2019)	Adaptation	20	2	Kids	150	82.5	.98	-
Online Gaming Questionnaire	(Evren, Evren, Dalbudak, Topçu, & Kutlu, 2020)	Development	27	6	Young Adults	752	75.58	.87 or more	-

### Psychometric Properties of Social Media Addiction / Problematic Social Media Use Scales

Psychometric properties of social media addiction / problematic social media use scales were examined (see Table 6).

**Table 6. Psychometric properties of social media addiction / Problematic social media use scales**

Scales	Reference	Scale Type	Items	Subscale	Sample Group	Sample Size	Variance	$\alpha$	Cutoff Score
Purposes of Facebook Usage Scale	(Mazman, 2009)	Development	11	3	Facebook users	606	-	.80	-
Facebook Adoption Scale	(Mazman, 2009)	Development	22	5	Facebook users	606	-	.91	-
Social Networks Adoption Scale	(Usluel & Mazman, 2009)	Development	21	5	Facebook users	606	69.3	.90	-
Social Network Sites Scale	(Karal & Kokoç, 2010)	Development	14	3	University students	315	56.42	.83	-
Facebook Addiction Scale	(Çam, 2012)	Adaptation	19	-	University students	1494	43.86	.93	-
The Social Networking Status Scale	(Arslan & Kırık, 2013)	Development	38	3	Social media users	650	45.03	.93	-
Facebook Connection Strategies Scale	(Aktürk, Çelik, Şahin, & Deniz, 2014)	Adaptation	13	3	University students	669	68.81	.80, .82, .89	-
Virtual Environment Loneliness Scale	(Korkmaz, Usta, & Kurt, 2014)	Development	20	3	Adults	354, 141	48.49	.82	-
Social Media Use Purposes Scale	(Şişman-Eren, 2014)	Development	12	2	Kids, Adolescents	388	59.45	.89	-
The Usage Purposes Scale of Social Networks	(Usluel, Demir, & Çınar, 2014)	Development	26	7	Social network users	236	-	.92	-
Social Media Use Integration Scale	(Akın, Özbay, & Baykut, 2015)	Adaptation	10	2	University students	247	-	.87	-
Social Media Attitude Scale	(Otrar & Arğın, 2015)	Development	23	4	Kids, Adolescents	302	56.65	.85	-
Facebook Usage Motivations Scale	(Tiryaki, 2015)	Development	20	4	Individuals	792	60.31	.89	Yes
Social Media Addiction Scale	(Tutgun-Ünal & Deniz, 2015)	Development	41	4	University students	775	59	.97	Yes
Facebook Addiction Scale	(Türkyılmaz, 2015)	Adaptation	18	6	Adolescents	325	74.55	.86	-

Facebook Jealousy Questionnaire	(Demirtaş-Madran, 2016)	Adaptation	27	-	University students	307	63.96	.95	-
Facebook Usage Anxiety in Education	(Hamutoğlu & Yıldız, 2016)	Development	8	3	University students	222	55.16	.72	-
Media and Technology Usage and Attitudes Scale	(Özgür, 2016)	Adaptation	60	15	University students	913	66.13	.71, .89	-
Scale of Expressing Emotions on Facebook	(Uçar, 2016)	Development	17	3	University students	322	52	.82	-
Facebook Addiction Scale	(Akın, Demirci, & Kara, 2017)	Adaptation	18	6	University students	400	-	.93	-
Technology Addiction Scale - Social Network Addiction Form	(Aydın, 2017)	Development	6	-	University students	463	44.11	.79	Yes
Purposes for Social Network Utilization Scale	(Karaca & Tamer, 2017)	Development	25	5	Adolescents	201	-	.74, .80	-
Facebook Intensity Scale	(Öztemel & Traş, 2017)	Adaptation	6	-	University students	362	56.75	.85	-
Social Media Addiction Scale - Adult Form	(Şahin & Yağcı, 2017)	Development	20	2	Adults	1047	59.17	.94	-
Social Media Addiction Scale Short Form	(Taş, 2017)	Adaptation	9	-	Adolescents	376	35.31	.76	Yes
AK-TEK Social Media Usage Scale	(Tekayak, 2017)	Development	19	5	Doctors	323, 208	60.38	.78	-
Bergen Facebook Addiction Scale	(Ülke, Noyan, & Dilbaz, 2017)	Adaptation	6	6	University students	300	100	.76	-
Social Media Addiction Scale	(Ağyar-Bakır & Uzun, 2018)	Development	26	3	University students	523	57.75	.95	-
Social Media Usage Habits and Motivations Scale	(İçirgin, 2018)	Adaptation	42	6	University students	339	-	.82	-
Social Media Disorder Scale	(Sarıçam & Adam-Karduz, 2018)	Adaptation	9	-	Adolescents	586	48.11	.75	-
Social Media Disorder Scale	(Savcı, Ercengiz, & Aysan, 2018)	Adaptation	9	-	Adolescents	553	50	.90	-
Social media addiction scale - Student Form	(Şahin, 2018)	Development	29	4	Adolescents, University students	998	53.16	.93	-
The Smart Phone Cyberloafing Scale in Classes	(Polat, 2018)	Adaptation	16	3	University students	217	56.6	.88	-
Social Media Craving Scale	(Savcı & Griffiths, 2019b)	Adaptation	5	-	University students	423	55.75	.79, .84, .82	-
Social Network Addiction Scale	(Karaca, Yıldırım, & Kulaksız, 2019)	Development	26	5	University students	285	63.58	.87, .95	-
Social Network Addiction Scale	(Gökdaş & Kuzucu, 2019)	Development	10	3	Adolescents, Adults	747	71.51, 70.96	.87, .84	-
Social Media Usage Scale	(Deniz & Tutgun-Ünal, 2019)	Development	8	2	Individuals	516	56.96	.82	-
Social Media Use Disorder Scale	(Aluç-Gülşen, 2019)	Adaptation	20	4	University students	360	70.88	.93	-



Psycho-Social Aspects of Facebook Use Scale	(Coşkunserçe & Aydoğdu, 2019)	Adaptation	42	5	University students	460	-	.91	-
Social Media Addiction Scale for Adolescents	(Özgenel, Canpolat, & Ekşi, 2019)	Development	9	-	Adolescents	634	56.79	.90	-
Bergen Social Media Addiction Scale	(Demirci, 2019)	Adaptation	6	-	Adolescents, University students, Employees	658	52.83	.83, .82	-
Social Media Privacy Protection Skills Scale	(Gelbal-Odabaş, 2019)	Development	27	3	Adolescents	640	46.33	.78, .90	-
Problematic Media Use Measure	(Furuncu, 2019)	Adaptation	27	-	Kids	324, 213	57.6	.97	-
Problematic Media Use Measure - Short Form	(Furuncu, 2019)	Adaptation	9	-	Kids	324, 213	62.8	.92	-
Adolescent Social Media Addiction Scale	(Orbatu et al., 2020)	Development	13	3	Adolescents	2020	58.89	.87	-

### Psychometric Properties of Scales in Another Category

Psychometric properties of scales in another category were examined (see Table 7).

**Table 7. Psychometric properties of scales in another category**

Scales	Reference	Scale Type	Items	Subscale	Sample Group	Sample Size	Variance	$\alpha$	Cutoff Score
Computer Anxiety Scale	(Ceyhan & Gürcan-Namlu, 2000)	Development	28	3	University students	1091	53	.94	-
Computer Anxiety Scale	(Çavuş & Günbatır, 2008)	Adaptation	20	2	University students	285	43.66	.89	-
Adolescent's Computer Addiction Scale	(Ayas, Çakır, & Horzum, 2011)	Development	54	2	Adolescents	471	48.62	.95	-
The Evaluation Scale of The Impacts of Computer Usage on 48-60-Month-Old Children	(Cömert, 2014)	Development	60	2	Parents	196	48.71, 49.57	.96	-
Scale of Perceived Online Risks for Children and Adolescents	(Dönmez, 2015)	Development	20	6	Candidate primary teachers	1890	61.62	.92	-
Technology Addiction Scale	(Güçlü, 2015)	Development	32	4	University students	487	53	.93	-
Attitude Scale for Digital Technology	(Cabı, 2016)	Development	39	8	Adolescents	689	54.55	.90	-
Fear of Missing out Scale	(Gökler, Aydın, Ünal, & Metintaş, 2016)	Adaptation	10	-	University students	200	39.4	.81	-
Nomophobia Questionnaire	(Yıldırım, Sumuer, Adnan, & Yıldırım, 2016)	Adaptation	20	4	University students	537	-	.92	-
Online Privacy Concern Scale	(Alakurt, 2017)	Adaptation	14	3	University students	315	62.46	.89	-

Technology Addiction Scale - Web Site Addiction Form	(Aydın, 2017)	Development	6	-	University students	463	54.94	.86	Yes
The Cyberloafing Scale	(Genç & Tozkoparan, 2017)	Development	11	3	University students	162, 477	60.8	.83	-
Virtual Identity Scale	(Kardaş, 2017)	Development	25	5	University students	942	58.07	.96	-
Student Cyberwellness Scale - Netiquette Form	(Mihçi & Çakmak, 2017)	Development	8	2	Kids	528	48.56	.71	Yes
Student Cyberwellness Scale - Online Privacy Form	(Mihçi & Çakmak, 2017)	Development	4	-	Kids	528	46.95	.61	Yes
Student Cyberwellness Scale - Inappropriate Online Content Form	(Mihçi & Çakmak, 2017)	Development	7	2	Kids	528	57.32	.76	Yes
Student Cyberwellness Scale - Copyright Form	(Mihçi & Çakmak, 2017)	Development	5	-	Kids	528	51.15	.76	Yes
Student Cyberwellness Scale - Cyber Security Form	(Mihçi & Çakmak, 2017)	Development	11	2	Kids	528	48.22	.68	Yes
Internet Attitude Scale	(Karadeniz & Akpınar, 2017)	Development	17	3	Kids	1300	44.58	.84	-
Virtual World Risk Perception Scale	(Arslankara & Usta, 2018)	Development	26	5	Adolescents	390	51.72	.82	-
Digital Parenting Attitude Scale	(İnan-Kaya, Mutlu-Bayraktar, & Yılmaz, 2018)	Development	12	2	Parents	355	46.10	.78, .72	-
Digital Addiction Scale	(Kesici & Tunç, 2018)	Development	19	5	University students	687	59.51	.84	-
Cyberchondria Severity Scale	(Uzun & Zencir, 2018)	Adaptation	33	5	Academic and administrative staff	2205	-	.89	-
The Cyberchondria Severity Scale	(Selvi, Turan, Sayın, Boysan, & Kandeger, 2018)	Adaptation	33	5	University students	337	-	.91	-
Cyberchondria Scale	(Durak-Batıgün, Gör, Kömürçü, & Şenkal-Ertürk, 2018)	Adaptation	27	5	Internet users	610	62.34	.80 or more	-
Cyber Human Values Scale	(Kılıçer, Özeke, & Çoklar, 2018)	Development	25	5	Social media users	2719	55.99	.90	-
Compulsive Online Shopping Scale	(Bozdağ & Yalçınkaya-Alkar, 2018)	Adaptation	28	5	Adults	272	74	.95	-
Online Gambling Symptom Assessment Scale	(Kalkan & Griffiths, 2018)	Adaptation	12	3	University students	326	68.58	.83	-
Cyber Dating Abuse Questionnaire	(Bakır & Kalkan, 2019)	Adaptation	20	2	Young adults	919	44.4, 44.7	.77 or more	-
Fear of Missing Out Scale	(Can & Satıcı, 2019)	Adaptation	10	-	Employees, Retired, Students	786	-	.79, .78, .86	-
General Phubbing Scale	(Yam & Kumcağız, 2020)	Adaptation	15	4	University students	327	-	.86, .87	-

### Scale Type Findings

Cyberpsychology scales were examined according to the scale type (see Table 8).

	Type	f	%
Cyberpsychology Scales	Development	82	49.10
	Adaptation	79	47.31
	Revision	6	3.59
	Total	167	100

The results show that 82 (49.10%) of the scales were developed for Turkish culture, 79 (47.31%) of the scales were adapted to Turkish culture, and 6 (3.59%) of the scales were revised for validity and reliability.

### Sample Group Findings

The cyberpsychology scales were examined according to the sample group (see Table 9).

	Kids	Adolescents	Young Adults	Adults	Elderliness	Other Groups
Cyberpsychology Scales	23	64	64	4	1	25
	12.71%	35.36%	35.36%	2.21%	.55%	13.81%
Total						181*

\*Note. Some scales have more than a sample group.

Young adults (including university students) were the most common sample group with 64 (35.36%) of the scales, and adolescents at 64 (35.36%) of the scales.

### Sample Size Findings

Cyberpsychology scales were examined according to sample size (see Table 10).

Cyberpsychology Scales	Sample Size			Total
	0-99	100-199	200 or more	
	1	11	173	185*
	.54%	5.95%	93.51%	100%

\*Note. Some scales have more than a sample size.

1 (.54%) of the scales had insufficient sample size, 11 (5.95%) of the scales had sufficient sample size, and 173 (93.51%) of the scales had a good sample size.

### Variance Findings

Cyberpsychology scales were examined according to variance (see Table 11).

Cyberpsychology Scales	Variance				Total
	% 0-29	% 30-50	% 50 and more	Unspecified	
	-	44	87	40	171*
	-	25.73%	50.88%	23.39%	100%

\*Note. Some scales have more than one variance value.

44 (25.73%) of the scales had sufficient variance, and 87 (50.88%) of the scales had good variance. In addition, the variance rates of 40 (23.39%) of the scales were not specified, and there was no scale with insufficient variance.

### Reliability Findings

Cyberpsychology scales were examined according to reliability (see Table 12).

**Table 12. Reliability findings**

	Cronbach's Alpha		Total
	Under .75	.75 and more	
Cyberpsychology Scales	15	178	193*
	7.77%	92.23%	100%

\* Note. Some scales have more than one Cronbach's Alpha.

15 (7.77%) of the scales had an internal consistency coefficient (Cronbach's alpha) under 0.75, while 178 (92.23%) of the scales had a coefficient of 0.75 or more.

### Cutoff Score Findings

The cyberpsychology scales were examined according to cutoff scores (see Table 13).

**Table 13. Cutoff score findings**

	Cutoff points		Total
	Yes	No	
Cyberpsychology Scales	37	130	167
	22.16%	77.84%	100%

37 (22.16%) of the scales had cutoff points.

## DISCUSSION, CONCLUSION & SUGGESTIONS

Turkish cyberpsychology scales were examined in terms of certain properties, and 167 scales were included. The scales were evaluated according to the scale types, sample size, variance, internal consistency, and cutoff scores. Approximately half of the scales were originally developed, and half were adaptations or revisions according to the first finding in the present study.

There are two main methods in obtaining scales including adapting existing scale and developing a new psychometric scale. The aim in scale adaptation studies is to adapt a measurement instrument that was developed in a different language to other languages and cultures by conducting validity and reliability studies (Karakoç & Dönmez, 2014). The reason why scales are adapted instead of newly developed in Turkey may be that less time and cost are required than new scale development.

Most of the samples (70.72%) consisted of adolescents and young adults studying at university according to the second finding in the present study. It is seen that adolescence and young adulthood are of critical importance for individuals because of the physical, psychological, and social aspects in adolescence. This could be why most of the studies included these life periods. Adolescents may exhibit more risky behavior or exposure during this period. Problems such as cyber bullying, problematic internet usage, and smartphone addiction can be seen as more intensive during adolescence. All these variables may have led researchers to develop or adapt more scales for adolescents. However, researchers may have easier access to the young adulthood period, which also includes university students.

It was determined that 93.51% of the sample groups in the studies had more than 200 participants according to the third finding in the present study. One of the issues to be considered in scale development or adaptation studies is the sample size (Güngör, 2016). The sample size affects the accuracy of statistical estimates (Thompson, 2004). It can be concluded that sample sizes are generally considered in the scale studies included in the present study. Most of the scales (76.61%) had sufficient or good

explanation power according to the fourth finding in the present study. It can be said that the researchers are careful about the rules regarding the variance rate. Most of the scales (92.23%) had good reliability values according to the fifth finding in the present study. There are various suggestions in the literature regarding the reliability value. In this study, a value of 0.75 was evaluated as a criterion. The reliability value is one of the most important indicators about the quality of a scale (DeVellis, 2012). Therefore, it can be said that researchers attach importance to the reliability of the measurement instrument. Cutoff scores were calculated for approximately one-fourth of the scales (22.16%) according to the sixth finding of the present study. The cutoff points of the scales emphasize the descriptive feature of the feature to be measured. The aim is to reveal the discrimination between groups. When evaluated in this context, it is considered especially important in terms of providing necessary information for the diagnosis and treatment of problems such as internet addiction and smartphone addiction. It can be valuable for mental health practitioners for scales in cyberpsychology to have higher cutoff scores in future research.

The final findings in this study, the scales used in Turkish culture were identified (see Tables from 2 to 7). The scales appear to focus on cyber bullies/victims, internet addiction / problematic internet use, smartphone addiction/problematic smartphone use, and social media addiction / problematic social media use. The studies on Turkish culture and literature were reviewed, and the scale development/adaptation studies that can be done in cyberpsychology in Turkish culture were summarized (see Appendix 2). Most of the measurement instruments used in Turkish culture were in the areas of internet addiction/problematic internet use, smartphone addiction/problematic smartphone use, social media addiction/problematic social media use, cyber bullying, cyber victims, and game addiction/online game playing disorder. However, scales could still be developed or adapted for “phubbing” (Karadağ et al., 2016), FOMO (Abel, Buff, & Burr, 2016), nomophobia (Yıldırım et al., 2016), e-sports (Seo & Green, 2008), obsessive online buying disorder (Manchiraju, Sadachar, & Ridgway, 2017), cyber pornography addiction (Grubbs et al., 2010), cyber gossip (Romera, Herrera-López, Casas, Ortega Ruiz, & Del Rey, 2018), obsessive use of YouTube (Klobas et al., 2018), problematic online gambling disorder (Arıcak, 2019; Kalkan & Griffiths, 2018), cyber dating violence inventory (Morelli, Bianchi, Chirumbolo, & Baiocco, 2018), cyber dating abuse scale (Borrajó, Gámez-Guadix, Pereda, & Calvete, 2015), and ringxiety (Kruger & Djerf, 2016).

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### Appendix-1

The Scale Evaluation Form			
1. Article Number	()		
2. Scale Name	()		
3. Scale Type	<input type="checkbox"/> Development	<input type="checkbox"/> Adaptation	<input type="checkbox"/> Revision
4. Sample	<input type="checkbox"/> Kid	<input type="checkbox"/> Adolescent	<input type="checkbox"/> Young Adult
	<input type="checkbox"/> Adult	<input type="checkbox"/> Elderliness	<input type="checkbox"/> Others
5. Sample Size	<input type="checkbox"/> 0-99	<input type="checkbox"/> 100-199	<input type="checkbox"/> 200 or more
6. Subscale	()		
7. Variance	<input type="checkbox"/> %0-29	<input type="checkbox"/> %30-50	
	<input type="checkbox"/> %50 or more	<input type="checkbox"/> Unspecified	
8. Cronbach's Alpha	<input type="checkbox"/> .75-	<input type="checkbox"/> .75+	
9. Cutoff Score	<input type="checkbox"/> Yes	<input type="checkbox"/> No	

### Appendix-2

Groups	Kids, Primary	Kids, Secondary	Adolescents	Young Adult	Adult	Late adulthood	Elderliness	Others
Internet Addiction / Problematic Internet Use	-	✓	✓	✓	✓	✓	-	✓
Smartphone Addiction / Problematic Smartphone Use	-	-	✓	✓	✓	-	-	-
Social Media Addiction / Problematic Social Media Use	-	-	✓	✓	✓	✓	-	✓
Cyber Bully / Cyber Victim	-	✓	✓	✓	-	-	-	✓
Game Addiction / Online Game Playing Disorder	✓	✓	✓	✓	✓	✓	-	✓
Technology Addiction / Problematic Technology Usage	-	-	-	✓	-	-	-	-
FOMO (Fear of Missing Out)	-	-	-	✓	✓	-	✓	-
Nomophobia	-	-	-	✓	-	-	-	-
Virtual Identity	-	-	-	✓	-	-	-	-
Phubbing	-	-	-	✓	-	-	-	-
Ringxiety	-	-	-	-	-	-	-	-
e-sports	-	-	-	-	-	-	-	-
Obsessive Online Buying Disorder / Online Buying Disorder	-	-	-	-	✓	-	-	-
Cyber Pornography Addiction	-	-	-	-	-	-	-	-
Problematic Online Gambling Disorder	-	-	-	-	-	-	-	-
Cyber Gossip	-	-	-	-	-	-	-	-
Cyberchondria	-	-	-	-	-	-	-	✓
Cyber Dating Violence / Cyber Dating	-	-	-	✓	-	-	-	-
Cyberloafing	-	-	-	✓	-	-	-	-
Cyber Dating Severity	-	-	-	-	-	-	-	-
Cyber Dating Abuse	-	-	-	-	-	-	-	-
Compulsive YouTube Usage	-	-	-	-	-	-	-	-

Note. The "✓" sign indicates that there are scales in the relevant fields, The "-" sign indicates future research areas.



### **About Authors**

**Fedai Kabadayı.** Fedai, PhD candidate, is a research assistant of Department of Counseling and Guidance at Recep Tayyip Erdogan University, Turkey. His research interests are counseling, REBT, and cyberpsychology.

### **Conflict of Interest**

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

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### **Ethical Statement**

This research was completed in line with the Helsinki Declaration. In the writing process of the work titled “**Psychometric Properties of Turkish CyberPsychology Scales**”, the scientific, ethical and citation rules were followed, there was no falsification on the data collected. I undertake that it has not been sent to another academic publishing medium for evaluation.

## RESEARCH

## Open Access

## ARAŞTIRMA

## Açık Erişim

## The Effect of Well-Star Psycho-Education Program on Wellness and Psychological Symptom

*İyilik Hali Yıldızı Psiko-Eğitim Programının İyilik Hali ve Psikolojik Belirti Düzeyleri Üzerindeki Etkisi*

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### ABSTRACT

The aim of this study is to investigate the effects of the Well-Star Psycho-Education Program (WS-PEP) on the levels of wellness (general, physical, emotional, social, cognitive, and target-oriented and making sense of life) and psychological symptoms. A 3x3 experimental design including pre-test, post-test and follow-up measurements with experimental, placebo and control group was used. The Well-Star Scale and Brief Symptom Inventory were used to collect the data of the study. In addition, qualitative data was collected through focus group interview. The quantitative findings showed that WS-PEP had no significant effect in increasing wellness. However, the findings of the focus group interview with the six students in the experimental group have shown that students believed they acquire new skills to improve their wellness. It was also found that WS-PEP was effective in reducing the psychological symptom levels of university students and this effect continued to be observed during the follow-up process.

### Article Information

#### Keywords

Wellness  
Psychological Symptoms  
Psycho-education  
Well-star Model  
Counseling

#### Anahtar Kelimeler

İyilik Hali  
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### ÖZET

Bu araştırmanın amacı İyilik Hali Yıldızı Psiko-eğitim Programının (İHY-PEP) iyilik hali (genel, fiziksel, duygusal, sosyal, bilişsel, yaşamı anlamlandırma ve hedef odaklı olma) ve psikolojik belirti düzeyleri üzerindeki etkilerini incelemektir. Deney, plasebo ve kontrol gruplu ön test, son test ve izleme ölçümlerini içeren 3x3'lük deneysel desen kullanılmıştır. Çalışmanın verileri İyilik Hali Yıldızı Ölçeği ve Kısa Semptom Envanteri ile toplanmıştır. Ayrıca, odak grup görüşmesi ile nitel veriler toplanmıştır. Nicel bulgular İHY-PEP'nin iyilik hali düzeyinin arttırılmasında istatistiksel olarak anlamlı bir etkisi olmadığını göstermiştir. Bununla birlikte, deney grubundaki altı öğrenci ile yapılan odak grup görüşmesinin bulguları, öğrencilerin psiko-eğitim sürecinde iyilik hallerini geliştirmek için yeni beceriler kazandıkları görüşüne sahip olduğunu göstermektedir. Ayrıca, İHY-PEP'nin üniversite öğrencilerinin psikolojik belirti düzeylerini azaltmada etkili olduğu ve bu etkinin 10 hafta boyunca devam ettiği bulunmuştur.

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## INTRODUCTION

The notion of wellness, which brings a holistic view of human development, draws attention. Health has defined not only as a deprivation of any disease but also as a holistic well-being in physical, social and spiritual terms by the World Health Organization since 1946 (Roscoe, 2009). Following this new perspective on the wellness, new opinions about wellness have begun to emerge in the field. In this context, wellness is also defined as a personality in which the sense of identity, the meaning of life, and the goals of life are integrated (Banks, 2015; Jones, 2011). In addition, the state of wellness is also expressed as a structure involving self-responsibility and love (Travis & Ryan, 1988). Thus, the concept of wellness, which was used primarily to express physical health in the medical field, has been redefined to include psychological and social areas (Fullen & Granello, 2018; Myers, Sweeney, & Witmer, 2000). When these definitions of wellness are examined, it is seen that wellness is viewed from different perspectives. While wellness is defined in different forms, researchers' common sense in their view of wellness is that they emphasize that wellness includes wellbeing in terms of social and psychological wellness, as well as not having a physical illness (Adams, Bezner, & Steinhardt, 1997; Edlin, Golanty, & Brown, 2000; Frazer, 2011; Myers & Sweeney, 2005). Efforts to explain wellness that started with these definitions continued with the development of models of wellness.

Several models of wellness have been developed (Adams, Bezner, & Steinhardt, 1997; Reese & Lewis, 2019; Renger et al., 2000; Sweeney, 2019). In these models, emotional, social, intellectual, spiritual and physical wellness are common components of wellness, whereas psychological, occupational and environmental wellness are considered as separate components in some models. These models, which have many aspects in common with each other as well as different aspects, are models developed by specialized researchers in the medical field. However, since the concept of wellness is not only the well-being for the individual in medical but also has a structure that also contains psychological factors, models have also been developed in the field of mental health-related to wellness.

One of the remarkable wellness models developed in the field of mental health is the Wheel of Wellness Model (Myers, Sweeney, & Witmer, 2000; Witmer & Sweeney, 1992). A new model of wellness with five factors has emerged, called "Indivisible Self", as a result of studies on Wheel of Wellness Model (Hattie, Myers, & Sweeney, 2004). According to the Indivisible Self Wellness Model, the self is in the center of wellness. There are five main factors around the self: creative, coping, social, essential and physical self, and these five factors also have sub-factors in themselves (Myers & Sweeney, 2005). Through the development of this model, the multidimensional and holistic structure of wellness has been confirmed (Myers & Sweeney, 2004; 2005). These models, which are frequently subject to research in the literature, have been developed for American culture.

The first studies for the development of a model of wellness for Turkish culture were carried out by Korkut-Owen and Owen (2012) and the Well-Star Model was created. This model consists of five dimensions of wellness as "physical", "emotional", "social", "cognitive" and "target-oriented and making sense of life" (Korkut-Owen et al., 2016). Physical wellness has characteristics such as healthy eating habits, regular exercise and sports, avoiding risky behaviours that may threaten health, and developing health protective habits. Emotional wellness is explained as being aware of an individual's emotions, being able to control their emotions, expressing their feelings and developing a realistic perspective on life events. Social wellness involves how effective relationships can be with other individuals and the social

support they provide from important individuals in their lives. Cognitive wellness includes qualities such as being intellectually active, willingness to learn new information, being steadfast in challenging learning tasks, and having problem-solving skills. Target-oriented and making sense of life wellness involves searching and creating meaning and purpose in life and actively striving to achieve the life goals it creates (Korkut-Owen & Çelik, 2018; Korkut-Owen, Demirbaş-Çelik, & Doğan, 2017a; Korkut-Owen, Demirbaş-Çelik, & Doğan, 2017b). While developing the Well-Star Model (WSM), many models previously developed in different cultures were examined and the strengths of these models were blended with Turkish culture and the well-star model was created (Korkut-Owen & Owen, 2012). For this reason, it can be said that the well-being model contains both the universal qualities and to the qualities of Turkish culture.

The metaphor of the star, which gives its name to the model, is used in the explanation and implementation of the model (Korkut-Owen & Owen, 2012). According to this, each arm of the starfish reflects a wellness dimension and when all the fields come together, a bright star can be obtained (Korkut-Owen et al., 2016; Korkut-Owen & Çelik, 2018). When all models developed about wellness are examined, it can be seen that all models have a multidimensional and holistic structure in accordance with the characteristics expressed in the definitions of wellness. In the framework of these models developed to facilitate understanding of wellness, researchers have begun to work on how to improve wellness of individuals.

There are various programs in the literature prepared to improve wellness of the individuals. It has proven that programs developed in this framework have increased levels of wellness among elementary school students (Perepiczka, 2009; Tuuri, et. al., 2009), college students (Christianson, et. al., 2018; Oğuz-Duran, 2006; Stalnaker-Shofner & Manyam, 2014) teachers (Harris, Jennings, Katz, Abenavoli, & Greenberg, 2016; Parker, 2019), adults and older adults (Fullen, 2016; Tanigoshi, Kontos, & Remley 2008). In addition, courses taught to improve wellness in the universities are also seen to increase levels of wellness (Askegaard, 2000; Conley, Travers, & Bryant, 2013; Kuruganti, 2014; Wharf-Higgins, Lauzon, Yew, Bratseth, & McLeod, 2010). In recent years, studies reviewing the wellness program, it is emphasized that the wellness programs improve wellness and provide serious savings on health care costs (Beauchemin, Gibbs, & Granello, 2018; Ott-Holland, Shepherd, & Ryan, 2019; Saliba & Barden, 2017). As a result, it is seen that many programs to improve wellness increased the level of wellness of the individuals.

Another thing that comes to mind when considering the success of programs to improve wellness is that secondary benefits can also be achieved by increasing levels of wellness among individuals. For example, when an individual's level of wellness increases, anger (Ağaoğlu, 2012), violence tendencies (Guerra, 2003), anxiety and stress (Özü, 2010) levels may decrease. Therefore, it can be said that with the increase of the level of wellness, the elements that threaten the physical and mental health can be eliminated (Doğan, 2008). Psychological symptoms, which are considered to be the opposite of being mentally healthy in this respect, may be reduced by increasing the level of wellness (Feldman, 2009). As a matter of fact, in a study that examines the relationship between wellness and psychological symptoms, wellness was found to be negatively related to somatization, depression, anxiety and anger /aggression (Doğan, 2008). In addition, psychoeducational program based on wellness reduced psychological symptoms such as depression, anxiety and perceived stress (McGuire, Stojanovic-Radic, Strober,

Chiaravalloti and DeLuca, 2015). These findings support the idea that improving wellness may contribute to reducing psychological symptoms that threaten mental health.

The years spent at university are one of the critical periods in terms of protecting and improving mental health. The university education years are considered as an important life period for transition from adolescence to adulthood. For this reason, in order to ensure that university students get through this important life period in a healthy way, as emphasized in the field of mental health, the use of the potential power of the individuals to develop themselves will strengthen them to cope with possible developmental problems in transition to adulthood. Indeed, with the promotion of the development of the positive aspects of human nature, it has emerged as a widely accepted view that the symptoms threatening mental health will disappear by themselves (Seligman & Csikszentmihalyi, 2014; Sheldon & King, 2001). In addition, it is not possible to distinguish between mental health and physical health, and the importance of treating them together is emphasized both in the psychology field (Myers & Sweeney, 2008) and in the medical field (Adams, Bezner, & Steinhardt, 1997). In this sense, researches on wellness have gained importance. In addition, this research seems to be important in terms of being the first study applying the well-star model. In order to improve wellness of individuals, it is necessary to first determine the needs of individuals to improve their wellness and to develop intervention programs that can improve wellness. In this context, in this research, it was aimed to develop a psycho-education program in the framework of the Well-Star Model and to investigate the effects of this program on the wellness and psychological symptom levels of university students in line with the needs of university students to improve their wellness.

## METHOD

### Research Model

In the study, a 3x3 experimental model including pre-test, post-test and follow-up measurements with experimental, placebo and control group was used. According to this design, 10 sessions of Psycho-education program based on Well-Star Model were applied to the experimental group; 10 sessions of group Counseling based on interpersonal interaction were applied to the placebo group and no treatment was done to control group within this 10-week period. In the study, pre-test measurements were taken one week prior to experimental treatment and placebo treatment, post-test measurements were taken two days after the experimental treatment and placebo treatment and the follow-up measurements were taken 10<sup>th</sup> week following the end of the experimental treatment and placebo treatment.

### Study Group

The subjects of the study consisted of 36 volunteer students studying at the faculties of Pharmacy, Education, Science and Health Sciences of Anadolu University in the fall semester of 2016-2017 academic year. Subjects participating in the study were assigned to the groups in an unbiased manner and care was taken to ensure that the students were evenly distributed in terms of gender and class levels. Accordingly, each of the experimental, placebo and control groups consisted of 12 students. During the experiment, one female subject from the experimental group and two male subjects and one female from the placebo group decided to quit the study. Additionally, one female subject from the control group could not be contacted. Therefore, data on these members were not included in the analysis. Descriptive statistics on gender distribution and age of the groups are given in Table 1.

**Table 1. Descriptive statistics of groups by gender and age**

	Gender		Age	
	Female	Male	Mean	Standard deviation
Experiment group	6	5	20.09	1.22
Placebo Group	5	4	20	1.41
Experiment group	5	6	20.09	1.22

Table 1 shows that the gender distribution in the groups is balanced. In addition, the mean age and standard deviation of age of the subjects in the groups were found to be almost the same. Attention was also paid to the inclusion of subjects from all class levels and from different disciplines in each group in the formation of groups. In this context, at least one student from the social science, science, health sciences, and fine arts and students at all class levels was also present in the three groups. Thus, the participation of the students with different profiles to the groups was ensured and homogeneous groups were tried to be formed in terms of subject profiles.

### **Ethical Statement**

This research was completed in accordance with the Helsinki Declaration. In accordance with this, the study was examined and allowed by Anadolu University Scientific Research and Ethical Review Board (REF: 28299). Furthermore, instruments in the study were just appropriated to volunteer participants. All participants provided informed consent. Additionally, participants were informed that they could drop out from the study at any time during data collection.

### **Data Collection Tools**

**Well-Star Scale (WSS).** WSS was developed by Korkut-Owen et al. (2016) to determine the wellness levels of individuals based on the Well-Star Model. The WSS consists of five subscales and 24 items rated on a 5-point Likert scale. These subscales are named as "physical", "emotional", "social", "cognitive" and "target-oriented and making sense of life" wellness. High scores indicate that the level of wellness increases. According to the results of exploratory factor analysis conducted with university students, a five-factor structure with a factor load ranging between .40 and .76 emerged. According to confirmatory factor analysis results conducted with a different group of university students, the adaptation wellness indexes were calculated as  $\chi^2$  (239, N=156) = 490.28,  $p < 0.01$ , CFI=.90, IFI=.90, RMSEA=.082 and SRMR = .085 and the factor loads of the articles ranged from .47 to .91. In addition, Healthy Lifestyle Behaviours Scale (HLBS) was used for the similar scale validity of the scale. As a result of these analyses, a significant positive correlation was found between the WSS and the HLBS at a level of .76 (Korkut-Owen et al., 2016). Internal consistency coefficient was calculated as .84 for the total score of scale, .57 for physical, .60 for emotional, .65 for social, .72 for cognitive, .83 for target-oriented and making sense of life.

**Brief Symptom Inventory (BSI).** BSI was developed by Derogatis (1992). BSI was adapted to Turkish culture by Şahin and Durak (1994) As a result of the analyses made on the Turkish version of BSI, it was found that the scale had 5 factors including anxiety, depression, interpersonal sensitivity, somatization and hostility. The scale consists of 53 items rated on a 4-point Likert scale. High scores indicate that the level of psychological symptoms increases According to the analyses performed to determine the criterion-dependent validity of BSI, the general symptom level and the symptom levels of all subscales had significant correlation ranging from -.14 and -.34 with Social Comparison Scale; .16 and

.42 with Submissiveness Scale; .24 and .36 with Stress Audit 4.2-OS; .34 and -.57 with Offer Loneliness Scale; .13 and .36 with UCLA Loneliness Scale; .34 and .70 for Beck Depression Scale. The general symptom score obtained from BSI and internal consistency coefficients calculated in two different samples were found to be .95 and .96. In addition, internal consistency coefficients for subscales of BSI were calculated as .88 for depression, .87 for anxiety, .75 for somatization, .76 for hostility and .87 for negative self (Şahin & Durak, 1994).

**Personal Information Survey.** The Personal Information Survey created by the researchers was created to collect information about the subjects such as gender, age, class level, faculties and departments. The survey also included a timeline in which students can mark the appropriate days and times to attend group work. Focus group interview form. Ten weeks after the end of the group work, a focus group interview to assess their wellness levels was conducted with six subjects who participated in the experimental group. The focus group interview form prepared for this purpose comprised of seven questions. The form included questions on what skills they generally used to maintain and improve their wellness (e.g. What are you currently doing about improving your wellness?) and how they benefited from group work (e.g. Which of the activities and sharing processes over the course of our group sessions were good for you /beneficial to you most?).

### **Process**

**Pre-Experimental Procedures:** Firstly, in order to determine the needs of the university students the literature was reviewed with regard to wellness and semi-structured personal interviews were conducted with 14 students (8 females, 6 males), using "Wellness Interview Form" consisting of 16 questions. Invitations for the students to participate in the interview were made in the classroom by the first author. These students were studying in the field of sciences (2 students), social sciences (4 students), health sciences (4 students) and fine arts (4 students). Before conducting the interviews, in order to ensure that the students participated in the study willingly, they were asked to sign a consent form stating that the data collected would be used for only scientific purposes. In addition, the participants were informed that there would be audio recording but that all audio records would be deleted after the research was reported, that no information to expose their identities would be included in the research report and that they had the right to leave the study at any point. During these interviews, the voice recordings were taken with the permission of the participants and voice recordings were transcribed. Investigators who studied the transcripts in detail with the NVIVO program produced various themes on the wellness of university students.

Coding was conducted according to the themes related to the physical, emotional, social, cognitive and target-oriented and making sense of life dimensions of the WSM. Information on the main themes of good memory, wellness improvement, willingness to participate in group counseling practices, and lifestyle were also coded in the first stage besides the dimensions of the WSM. Following the coding of main themes, the researcher created subthemes by thoroughly examining the main themes.

Physical wellness was examined under three main themes: sports, nutrition, and health check-ups. Emotional wellness was examined through seven main themes: mental health protection and coping with stress, problematic areas, conflict resolution, emotional expression, emotional control, self-perception, and emotional intensity. Social wellness was examined through five main themes: family relations, friendship, emotional/romantic relationships, contribution of social relations to wellness, and

improvement of social relations. Cognitive wellness was evaluated through three main themes: academic skills, free-time activities, and attitudes toward acquiring new knowledge. Wellness dimensions of target-oriented and making sense of life were discussed in two main themes based on the values adopted by students and their participation in artistic activities. Therefore, detailed views and needs of university students about wellness were evaluated and then the study proceeded to the program development stage.

***Process of Creating the Program:*** It was decided to create a psycho-education program with 10 sessions in the course of the creation of the program. In this context, while the contents of the program were being created, the general objectives of the program and the specific objectives of each session were first determined in order. Activities to be carried out in each session were then planned in accordance with these objectives. Well-Star Model, Cognitive Behavioural Psychology Approaches, group Counseling principles were taken as a basis while planning activities and psycho-dramatic activities were utilized. Also, the information obtained from personal interviews with 14 students was utilized in the creation of the program. Thus, a draft program with 10 sessions was prepared.

The draft program was presented to five faculty members in the field of Counseling and sent to the researcher who developed the WSM by e-mail and expert opinions were obtained. In line with these opinions taken from the experts, the program was rearranged and made ready for pilot study. In line with expert opinion, new procedures to improve the clarity of instructions given for activities, to better motivate group members to participate and to make the order of sessions more cohesive were followed. Pilot study was completed in 6 weeks in total with the participation of 10 university students. As a result of the pilot study, the program was rearranged and finalized. After the pilot study, changes were made to the program regarding the duration of the activities. Thus, Well-Star Psycho-Education Program (WS-PEP) was created. The final content of the program is summarized in Table 2.



**Table 2. Content of WS-PEP**

Season	Issues	Purpose of Season
Season 1	Meeting, Introduction of WS-PEP, Evaluation of wellness level	To ensure that members get to know themselves in a physical, emotional, social and cognitive wellness as well as in terms of being able to make sense of life and become goal-oriented.
Season 2	Physical Wellness	To help members develop their skills of improving physical wellness (including exploring nutrition, playing sport and having regular check-ups) and to comprehend the relationship between physical and other aspects of wellness.
Season 3	Emotional Wellness	To help members develop skills of improving their emotional wellness (including expressing and controlling emotions, developing realistic beliefs and engaging in stress management.)
Season 4		
Season 5	Social Wellness	To help members develop skills for improving their own social wellness (including developing good relationships with family, friends and other individuals, improving on the capacity to express oneself and being aware of available sources of social support.)
Season 6		
Season 7	Cognitive Wellness	To help members develop skills for improving cognitive wellness (including fulfilling academic responsibilities, organizing leisure activities, remaining mentally active and improving time management skills.)
Season 8		
Season 9	Target-oriented and making sense of life Wellness	To help members develop skills for improving their wellness state of making sense of life and being goal-oriented (including considering the meaning of life, participating in art activities and recognizing the values they adopt when questioning the meaning of life)
Season 10	Evaluation of group process and termination	To encourage group members to maintain the life they lead in order that they can continue to improve their wellness after the group sessions have ended.

***Determination of Subjects and Assignment to Groups:*** During the process of determining the students to participate in the experimental study, the information about the purpose of the research was verbally explained by the first author in the Faculty of Education, Science, Health Sciences and Pharmacy of Anadolu University and the scale set consisting of WSS, BSI and Personal Information Form was applied to the volunteer students. A total of 497 students were reached during the implementation of the scale set.

A separate file was created for the data of the students who indicated that they would voluntarily participate (149 students) in the experimental study with the group within the scale set, and this file was used to create the groups. For the gender distribution to be equal in the groups to be formed, the women and men were divided into two groups and sorted from the highest to the lowest according to the scores obtained from the WSS. First, pre-interviews were held starting from the students with the lowest score. Thirty-six students, who did not have a psychiatric diagnosis, did not use psychiatric medication, and did not have any conditions that could prevent them from attending group sessions, were determined. After the preliminary interview, the subjects were randomly assigned as 12 members in each of the experimental, placebo and control groups. Before starting the group studies, during pre-interviews, each member of both experimental and placebo groups was informed about the nature of group sessions, taught the basic principles of group Counseling and told that they were permitted to leave the study whenever they wanted to, with approval forms being provided. It was also recorded that this information had been shared with the members. Control group students were informed during pre-interviews that

information would be collected from them through scale sets and that they would be taken into the group study during the 2016-2017 spring academic term.

After the groups were formed, the scores they obtained from the scale sets that the group members completed in the course of identifying the subjects were accepted as pre-test and they were examined as to whether they were equal in terms of wellness and psychological symptoms. According to the Kruskal Wallis H Test, it was understood that the experiment, placebo and control groups did not show any significant difference in terms of total scores of wellness, scores of wellness dimensions, and scores of psychological symptoms.

**Experimental Procedures:** Ten sessions WS-PEP was applied to the experimental group. Psychological Counseling with group of 10 sessions was applied to the placebo group based on interpersonal interaction. For the control group, no procedure was performed during this 10-weeks period.

**Post-Test Procedures:** It is recommended to use non-parametric tests for data analysis when the number of participants is below 30 (Erkuş, 2009). For this reason, non-parametric tests were used in the analysis of the data to be collected because the experimental, placebo and control groups in the study would be composed of 12 students. In this frame of study, the Freidman Rank Test, Wilcoxon Signed-Rank Test, Kruskal Wallis H Test and Mann Whitney U Test were used. Besides these, descriptive statistics were used in the research. In addition, observed power values and effect size indices (Epsilon square and Kendall's W) were reported.

There was one subject loss in the experiment group, three in the placebo group and one in the control group in the experimental treatment process. For this reason, the data related to these students were excluded from the research. After removing these data from the study, pre-test scores were compared again to determine whether there was a difference between groups in terms of wellness and psychological symptom levels. As a result, it was also found that the experimental, placebo and control groups were equal in terms of wellness and psychological symptom levels before the experimental procedure.

After the experimental process, a focus group interview was conducted to gather quantitative information as well as information on how the students who participated in the experimental group viewed themselves in terms of wellness and how they benefited from the psycho-educational process. Six (3 females, 3 males) volunteer group members participated in this interview. Thus, by taking advantage of the in-depth knowledge about the research topic of the interview technique, attempts were made to obtain detailed information about the effect of the WS-PEP on the wellness levels of the students (Heppner, Wampold, & Kivlighan, 2008; Merriam, 2013; Seggie & Bayyurt, 2015). Qualitative data were analysed using content analysis method. Content analysis was carried out by the authors and common opinions were reached. Then, content analysis results were evaluated by a Counseling field expert in terms of the suitability of the themes and the final form of the analysis was given. The information obtained from these interviews was presented in the results.

### **Power Limitation**

Power analysis was conducted with G\*Power (Faul, Erdfelder, Lang, & Buchner, 2007) to see the number of subjects necessary to obtain a statistical power of 0.80 at an alpha level of 0.05. It was seen that in order to reach a moderate effect size (i.e., partial eta squared of 0.06 or above; Huck, 2012) a total

of 90 subjects were required. As seen, the results of power analysis indicate that it is appropriate to conduct the research with at least 90 subjects. However, this study was conducted with 31 students due to the ideal number of members for psycho-educational groups being 10-15 (Brown, 2018), the requirement that students with low levels of well-being be selected as group members and subject losses in the experimental process.

## RESULTS

### Results Related to Wellness

Intragroup and intergroup comparisons were made in the 3x3 experimental design frame used in the research. In this context, the findings obtained from the intragroup and intergroup comparisons of the total wellness scores and the wellness subscale scores obtained by the WSS are summarized in Table 3.

**Table 3. Findings related to the levels of wellness**

<b>INTRAGROUP</b>	General W	Physical W	Emotional W	Social W	Cognitive W	TOML W
Experimental	NSD	NSD	NSD	NSD	NSD	NSD
Placebo	NSD	NSD	NSD	NSD	NSD	NSD
Control	NSD	Pre=Post<Fo	NSD	NSD	NSD	NSD
<b>INTERGROUP</b>						
Experimental-Placebo	NSD	NSD	NSD	NSD	NSD	NSD
Experimental-Control	NSD	Experimental post >Control post	NSD	NSD	NSD	NSD
Placebo-Control	NSD	-	NSD	NSD	NSD	NSD

W=Wellness, TOML= Target-oriented and making sense of life, Pre=Pre-test, Post= Post-test, Fo= follow up test, NSD=There is no significant difference.

According to the results of the Friedman Rank Test as seen in Table 3, regarding the experimental group, there was no significant difference among the general wellness ( $x^2 = .61, p > .05$ ), physical wellness ( $x^2 = 1.60, p > .05$ ), emotional wellness ( $x^2 = 1.59, p > .05$ ), social wellness ( $x^2 = 1.59, p > .05$ ), cognitive wellness ( $x^2 = 1.59, p > .05$ ) and target-oriented and making sense of life wellness ( $x^2 = 1.59, p > .05$ ) pre-test, post-test and follow-up test scores. At the same time, according to the analysis results, regarding the placebo group, there was no significant difference among the general wellness ( $x^2 = .51, p > .05$ ), physical wellness ( $x^2 = 1.69, p > .05$ ), emotional wellness ( $x^2 = 1.88, p > .05$ ), social wellness ( $x^2 = .19, p > .05$ ), cognitive wellness ( $x^2 = 1.41, p > .05$ ) and target-oriented and making sense of life wellness ( $x^2 = .42, p > .05$ ) pre-test, post-test and follow-up test scores. And, according to the analysis results, regarding the control group, there was no significant difference among the general wellness ( $x^2 = 2.36, p > .05$ ), emotional wellness ( $x^2 = 2.88, p > .05$ ), social wellness ( $x^2 = 2.71, p > .05$ ), cognitive wellness ( $x^2 = .81, p > .05$ ) and target-oriented and making sense of life wellness ( $x^2 = 1.85, p > .05$ ) pre-test, post-test and follow-up test scores but there was a significant difference between the physical wellness pre-test, post-test and follow-up test scores of the control group ( $x^2 = 8.27, p < .05$ ).

According to the results of the Wilcoxon Signed Ranks Test conducted to determine in which measures the difference between the physical wellness pre-test, post-test and follow-up test scores of the

control group was, there was no significant difference between the pre-test and post-test scores of the control group's physical wellness. ( $z = 1.84, p > .05$ ). On the other hand, the control group's physical wellness pre-test and follow-up test ( $z = 2.50, p < .05$ ) and post-test and follow-up test ( $z = 2.05, p < .05$ ) scores were significantly different.

The post-test and follow-up test scores of the experimental, placebo and control groups at the group level were compared with each other. In this context, regarding the Kruskal Wallis H Test, there was no significant difference between the scores of the general wellness ( $\chi^2 = 2.661, p < .05$ ), emotional wellness ( $\chi^2 = .856, p < .05$ ), social wellness ( $\chi^2 = 1.612, p < .05$ ), cognitive wellness ( $\chi^2 = 1.245, p < .05$ ) and target-oriented and making sense of life wellness ( $\chi^2 = .536, p < .05$ ) post-test. On the other hand, the post-test scores of the physical wellness of the groups differed significantly ( $\chi^2 = 6.719, p < .05$ ). Man Whitney U test results were used to determine the difference between these groups, and the experimental and placebo groups ( $U = 24, z = 1.963, p > .05$ ), and placebo and control groups ( $U = 42, z = .582, p > .05$ ) were not significantly different in terms of physical wellness post-test scores. On the other hand, when the post-test scores of the experimental and control groups were compared, there was a significant difference between these scores ( $U = 25, z = 2.351, p < .05$ ). When the averages of the ranks were examined, it was seen that the physical wellness post-test score (14.73) of the experimental group was higher than the physical wellness post-test score of the control group (8.27).

According to the Kruskal Wallis H Test performed for comparison of the follow-up test scores of the experimental, placebo and control groups, there was no significant difference in terms of the scores of the general wellness ( $\chi^2 = 1.588, p > .05$ ), physical wellness ( $\chi^2 = 3.243, p > .05$ ), emotional wellness ( $\chi^2 = .408, p > .05$ ), social wellness ( $\chi^2 = 1.001, p > .05$ ), cognitive wellness ( $\chi^2 = 1.596, p > .05$ ) and target-oriented and making sense of life wellness ( $\chi^2 = .696, p > .05$ ) post-test. Results of focus group interview.

In the focus group interview, information was gathered on how the students benefited from the WS-PEP to improve their wellness levels. Two main themes have emerged in the framework of this information: "wellness behaviour" and "therapeutic conditions". Sub-themes were created under these two main themes. In this context, the main theme of wellness behaviours is based on the sub-dimensions of the WSM and it is assessed how the students acquire skills in order to improve their physical, emotional, social, cognitive and target-oriented and making sense of life wellness levels.

### ***Wellness Behaviour***

According to the findings obtained from the focus group interview, the students believed that improved their behaviour in terms of physical wellness, eating regularly, doing sports regularly and sleep patterns. In emotional wellness, students have gained the ability to empathize, motivate themselves for putting into practice the plans they postponed, recognize their emotions, express their feelings, control their emotions and change their unrealistic thoughts. In terms of social wellness, students have developed skills such as improving friendship relationships, empathizing and adapting to new social environments. In terms of cognitive wellness, students have learned to manage their own strengths and weaknesses, acquire behaviors such as self-management, participating in the activities that they enjoy but they have mental difficulties, ensuring developments academically as a result of their increased interest in their lessons. Lastly, in terms of understanding target-oriented and making sense of life wellness, students stated that they tend towards artistic activities they liked like poetry and music.

Given these findings, the opinion of the students was that they were improving their wellness levels in all wellness dimensions. In this regard, students stated that they were engaging in conscious behaviors such as doing physical exercises, thinking about their emotions, trying to understand and improve their relationships with others, attending courses to enhance their academic skills, and being involved in arts such as poetry and music to maintain and improve their wellness levels.

### ***Therapeutic Conditions***

In the study, information about the effect of the WSPEP on the wellness of university students was also obtained through a focus group interview. In the focus group interview, the students also provided information on therapeutic conditions as to how they benefited from the group process in order to improve their wellness. Within this framework, under the main theme of the therapeutic conditions, self-awareness, gaining different perspectives, trusting others and accepting them were established. If these themes are to be explained briefly; the students said that they realized the aspects they did not notice until now, that they developed new perspectives from the sharing of the other group members, they accepted that their own shares were being heard by the other members and that they were accepted because they were not judged by other members and they developed confidence in the other members. Given these findings, therapeutic conditions such as trust, acceptance, self-knowledge, and awareness have been established throughout the implementation of the group program. In this context, it can also be said that students think that these conditions contribute to the improvement of their wellness levels.

### **Results Related to The Psychological Symptom**

In addition to the level of wellness in the research, the effects of WS-PEP on psychological symptom levels of university students were also examined. In this context, findings obtained from intra-group and inter-group comparisons of psychological symptom scores obtained with BSI are summarized in Table 4.

**Table 4. Findings related to psychological symptoms**

<b>INTRAGROUP</b>	Psychological Symptoms
Experiment	Pre-test > Post-test = follow-up test
Placebo	NSD
Control	NSD
<b>INTERGROUP</b>	
Experiment -Placebo	NSD
Experiment -Control	Experimental post-test < Control post-test Experimental follow-up test < Control follow-up test
Placebo-Control	Placebo follow-up test < Control follow-up test

NSD = There is no significant difference.

When Table 4 is viewed, it is seen that there are some differences in psychological symptom levels as a result of intra-group and inter-group comparison. According to this, Friedman Ranks Test results showed that there was a significant difference between pre-test, post-test and follow-up test scores of the psychological symptom level of the experiment group students ( $\chi^2 = 11.49$ ,  $p < .05$ , Kendall's  $W = 0.61$ ). According to the results of Wilcoxon Signed Ranks Test, which is used to determine the difference between these measurements, the post-test scores of the experimental group students ( $z = 2.847$ ,  $p < .05$ ) and follow-up test scores ( $z = 2.845$ ,  $p < .05$ ) seem to be significantly lower than the pre-test scores. There was no significant difference between post-test and follow-up test scores ( $z = .877$ ,  $p > .05$ ). In addition,

there was no significant difference between the general symptom level pre-test, post-test and follow-up test scores of students in placebo ( $x^2 = .889$ ,  $p > .05$ ) and control group ( $x^2 = .605$ ,  $p > .05$ ).

According to the Kruskal Wallis H test results in the context of the group comparison of psychological symptom levels, the psychological symptom level post-test scores ( $x^2 = 6.969$ ,  $p < .05$ ,  $\epsilon^2 = 0.23$ ) of the experimental, placebo and control groups were significantly different from each other. According to Man Whitney U Test results, there was no significant difference between the general psychological symptom post-test scores of the experiment and placebo groups ( $z = .608$ ,  $p > .05$ ). A significant difference was found between the psychological symptom post-test scores of the experimental and control groups ( $z = 2.992$ ,  $p < .05$ ). Accordingly, when the average of the groups was examined, it was seen that the students of the experimental group (7.95) had psychological symptom levels significantly lower than control group students (15.05) at the end of the experimental process. When the psychological symptom level post-test scores ( $z = 1.749$ ,  $p > .05$ ) of the placebo and control group students were examined, it was found that these students did not significantly differ in the psychological symptom levels at the end of the experimental process.

It was found that the scores of psychological symptom level follow-up test ( $x^2 = 10.675$ ,  $p < .05$ ,  $\epsilon^2 = 0.36$ ) in experimental, placebo and control groups were different according to the results of Kruskal Wallis H Test. According to the Man Whitney U Test results for determining which groups this difference is between, there was no significant difference between the psychological symptom follow-up test scores of the experimental and placebo groups ( $z = 1.709$ ,  $p > .05$ ). A significant difference was found between the psychological symptom follow-up test scores of the experimental and control groups ( $z = 2.922$ ,  $p < .05$ ). Accordingly, when the average of the groups was examined, it was found that the psychological symptom levels of the experimental group (7.45) after 10 weeks from the experimental process were significantly lower than the psychological symptom levels of the control group (15.55). When the psychological symptom level follow-up test scores of the placebo and control group was examined ( $z = 2.922$ ,  $p < .05$ ), it was seen that the psychological symptom levels of these groups after 10 weeks from the experimental process were significantly different. In this context, the psychological symptom follow-up test scores of the placebo group (7.44) were significantly lower than the psychological symptom follow-up test scores of the control group (13.00).

## **DISCUSSION, CONCLUSION & SUGGESTIONS**

According to the findings of the study, the level of wellness of the students in the experimental group increased in comparison with the placebo and control groups in terms of pre-test, post-test and follow-up test scores between themselves and in the inter-group comparison. However, it seems that this increase is not statically significant. The pre-test, post-test and follow-up test scores of the experimental, placebo and control groups were found to be not significantly different from the control group except for physical wellness scores. In this context, according to the quantitative findings of the research, it is shown that the WS-PEP is not effective in increasing the wellness levels of the university students.

There are some studies that show that wellness programs are effective in increasing wellness in general, though not in terms of all aspects of wellness (e.g. Askegaard, 2000; Christianson, et. al., 2018; Fullen, 2016; Oğuz-Duran, 2006; Stalnaker-Shofner & Manyam, 2014). However, quantitative findings of this study show that there is not a significant difference in terms of improvement of the wellness of university students by the wellness program. When the findings of the study were viewed, it was observed

that the experimental group had some increase in the level of wellness, but this increase was not significant. This can be attributed to the fact that some of the students in the experimental group showed a significant increase in the level of wellness and some showed a slight increase or decrease. Therefore, some students may benefit less and some students may benefit more from WS-PEP in terms of improvement in the context of the specificity of wellness. This may be due to the fact that wellness is unique to every individual (Corbin, Lindsey, & Welk, 2000). In other words, the individuality of wellness may result in different variations in students participating in the same program.

The effectiveness of WS-PEP on the wellness of university students was examined through focus group interview. Findings from the focus group interview show that students believed they have new skills in recognizing their feelings, expressing their emotions, controlling their emotions, empathizing, developing friendship relations, performing mental activities, realizing their strengths and weaknesses, regular nutrition, sleeping and doing sports. Moreover, students expressed that they mostly used the Emotions Prohibited, Tangram, Self-management and ABC Model activities in WS-PEP about how they have acquired these new skills. In conclusion, it can be said findings from focus group interviews have shown that WS-PEP is effective in gaining new skills and thus improving levels of wellness for students.

Considering the new gains of the students in improving the wellness levels with the findings from the focus group interview, the content of the WS-PEP seems to meet the needs of the university students in terms of improving their wellness. In this context, if the content of WS-PEP is viewed, it is seen that the program focuses on (1) the nutrition, sport and health promoting behaviours for the improvement of the physical wellness (regular health checks, alcohol and tobacco use, etc.), (2) on the awareness of emotions and relationships between feelings, thoughts and behaviours for the improvement of emotional wellness, (3) on social relationships network and social awareness, providing social support and receiving social support for the improvement of social wellness, (4) on being mentally active and time/self-management for the improvement of cognitive wellness, and (5) on the recognition and improvement of adopted values for understanding the target-oriented and making sense of life wellness. Therefore, it can be stated that university students have various needs in terms of improving themselves in terms of all wellness areas and that they have improved their level of wellness when appropriate environments are provided for meeting these needs.

According to the findings of the research, it has been revealed that there is no placebo effect in increasing the wellness levels of university students. This finding is similar to the findings of another researcher in the literature (Özü, 2010). Therefore, it can be said that there is a need for structured psycho-education or group Counseling programs to increase the level of wellness of university students.

When the pre-test, post-test and follow-up test scores of the control group were compared, it was found that there was no significant difference in terms of wellness regarding general, emotional, social, cognitive and target-oriented and making sense of life sub-dimensions. On the other hand, there was no significant difference in terms of the physical wellness pre-test and post-test scores of the control group, but the follow-up test scores were found to be significantly higher the pre-test and post-test scores. Thus, this finding, which is contrary to other research findings in the literature (Oğuz-Duran, 2006; Chappelle et. al., 2000; Özü, 2010), can be considered that in the 10-week period after the end of the experimental process in the research period, the physical wellness levels of the control group students changed due to environmental variables that could not be controlled in the study and /or maturation.

In this context, it is suggested that as a maturation effect, the level of importance and motivation of the control group students in relation to regular nutrition and sports is increased and environmental influences may be due to the fact that the spring is approaching and the weather is getting hotter, and the students may have been able to regulate these habits with the influence of the social circle, especially by increasing the sports activities in the natural environment and establishing friendships with people who have regular eating and sports habits.

There was no significant difference between the physical wellness pre-test and post-test scores of the control group students and when the physical wellness post-test scores of the experimental and control group students were compared, the physical wellness levels of the experimental group were found to be significantly higher than the control group students. However, since the control group students showed an increase in maturity and/or uncontrollable environmental effects at week 10 following the end of the experimental program, the change in favour of the experimental group students in terms of post-test scores was not observed in terms of follow-up test scores. Therefore, it can be said that WS-PEP is effective in increasing the physical wellness levels of university students when there is no change according to maturation and/or environmental factors.

In summary, although quantitative research shows that WS-PEP is not effective in improving the wellness of university students, qualitative findings obtained from the students of the experiment group by focus group interviews indicate that WS-PEP can be effective in improving the wellness levels of university students. As a result, when all the findings of the research are considered together, it can be said that WS-PEP can meet the needs of university students to improve their wellness levels and increase their wellness levels.

When the findings of the pre-test, post-test and follow-up test scores in the experimental, placebo and control groups were compared in terms of psychological symptom levels, the psychological symptom levels of the experimental group students at the end of the experiment and at the 10th week after the experiment were significantly lower than before the experiment. In addition, both the placebo and control group students' psychological symptom levels at the end of the experiment and at the 10th week after the experiment did not show a significant change compared to the psychological symptom levels before the experiment.

When the results of the study were examined, it was found that there was no significant difference between the post-test and follow-up test scores of the experimental and placebo group students. There is, however, a significant difference between the follow-up test scores of the control group and the placebo group. On the other hand, it was found that there was a difference between the post-test and follow-up test scores of the students in the experimental and control groups in favour of the experimental group as expected. According to these findings, it was seen that the psychological symptom levels of the experimental group students at the end of the experiment and at the 10th week after the experiment were significantly lower than the psychological symptom levels of the control group students. Also, the psychological symptom levels of the placebo group students at the 10th week after the experiment were significantly lower than the psychological symptom levels of the control group students.

When all the findings related to the psychological symptoms are taken into account, it can be said that WS-PEP is effective in lowering psychological symptom levels of university students and this effect lasts for 10 weeks. Because the WS-PEP is a psycho-education program based on the improvement of



wellness, the effect of reducing the psychological symptom levels of the program can be considered as an indirect effect based on the improvement of wellness. How this indirect effect emerged can be explained by the content of WS-PEP. In this context, activities and shares in group sessions to recognize and express emotions in order to improve the level of emotional wellness of students may have contributed to the reduction of psychological symptoms especially related to emotions. As a matter of fact, it is stated that the psychological symptom levels of individuals with a high level of alexithymia, which is explained as emotions and expressed as a strong, are also high (Durak-Batıgün & Büyükaşahin, 2008).

It was tried to increase the level of utilization of the social support resources of the students in WS-PEP. In this context, it can be said that social support may also be effective in reducing psychological symptoms in terms of stress (Cohen, Sherrod, & Clark, 1986), post-traumatic stress disorder (Feder et.al., 2013), suicidal tendency (Kleiman & Liu, 2013), prevention effect in coping with psychological problems (Cohen, 2004). Study findings showing that there is a negative relation between social support and psychological symptoms and, family support are negatively predicted depression, anxiety and anger/aggression symptoms (Doğan, 2008) also support our findings. In this context, it can be said that the social support activities applied to improve wellness in WS-PEP are effective in reducing psychological symptom levels.

Within the framework of the improvement of physical wellness, in WS-PEP, it was tried to make students gain habits to overcome these obstacles and improve their physical wellness levels by recognizing the obstacles they set against themselves providing nutrition, sports and sleeping order (Hall, 2015). Regular nutrition (Republic of Turkey Ministry of Health, 2016) and sports (Hall, 2015) are important factors for health promotion and improvement. In this context, it can be thought that regular nutrition and sports are useful for psychological health as well as physical health. Indeed, research findings that malnutrition leads to physical disturbances and reduces the morale of the patients in terms of healing (Soeters, et. al. 2017; Stenvinkel et al., 1999) and findings showing that regular physical activity increases quality of life (Genç et al., 2011; Vatansever et al., 2015) also suggest that regular nutrition and physical activity are important in terms of improving mental health.

For the improvement of cognitive wellness, WS-PEP includes content to help students become mentally active in their own lives and to identify their weaknesses and strengths, especially in time/self-management. In the focus group interview, the students stated that they developed problem solving skills. Psychological symptom levels decrease when university students increase their confidence in problem solving skills (Başa, 2011). In this context, it can be considered that the fact that the students of the experimental group developed problem solving skills that was effective in reducing the psychological symptom levels. There is also content in the program about how to make sense of life and improve being target-oriented, and to understand what the meanings of these values in their lives are. Spiritual wellness in the frame of the meaning of life and purpose are the negative predictors of depression, which is among the psychological symptoms, at a significant level (Briggs & Shofner, 2006; Graybill & Esquivel, 2012). From here it can be said that the students' awareness of the meanings and values of their lives helped to reduce the psychological symptom.

Significant differences between the scores of the post-test and follow-up test of the experimental and placebo groups students indicate that there may be a placebo effect in reducing psychological

symptom. However, the lack of significant differences between the pre-test, post-test, and follow-up test scores of the placebo group students suggests that the possible placebo effect may be a limited effect. A study in the field shows that there is no placebo effect in reducing psychological symptom (Akdoğan, 2012). In addition, the pre-test scores of post-test and follow-up test scores of the experimental group were significantly lower, indicating that WS-PEP is more effective than the placebo effect in reducing the psychological symptom of university students. The fact that the follow-up test scores of the placebo group students are significantly lower than the follow-up test scores of the control group students indicates that there is a change in the psychological symptom levels of these two group students after the experiment. It may be thought that this change is due to personal or environmental factors that cannot be controlled in the post-test period, rather than the placebo effect, since the change developed in the period after the experiment process has been completed, without any intervention in the group members.

According to the quantitative findings of the research, it is shown that the WS-PEP is not effective in increasing the wellness levels of the university students. On the other hand, qualitative findings of the research showed that students in experimental group believed they improved their wellness level and gained new skills such as recognizing their feelings, expressing their feelings, controlling their feelings, empathizing, developing friendship relations, being in mental activities, realizing their strengths and weaknesses, regular nutrition, sleeping and doing sports. Therefore, while effects of the WS-PEP on wellness investigate it will be useful to use qualitative methods. Furthermore, some findings of the research indicate that there is a placebo effect in reducing psychological symptoms, but this effect appears to be limited. In this respect, it can be said that WS-PEP is effective in reducing psychological symptoms.

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### **Author Contributions**

ARK, Research idea and design, literature review, data collection and analysis, interpretation of findings and writing of the manuscript.

AAC, Research idea and design, interpretation of findings, final review of the research report, supervise the first author in all processes of the research.

### **Conflict of Interest**

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

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### **Ethical Statement**

This research was completed in line with the Helsinki Declaration. In line with this, the study was investigated and permitted by Anadolu University Scientific Research and Ethical Review Board. Additionally, data tools in the study were only distributed to volunteer participants. All participants provided informed consent. Additionally, participants were informed that they could withdraw from the study at any time during data collection.

**Ethics Committee Name:** Anadolu University Scientific Research and Ethical Review Board.

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## RESEARCH

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## ARAŞTIRMA

Açık Erişim

## The Evaluation of The Relationships Between Subjective Well-Being Level of Married Individuals, Humor Styles, Satisfaction of Basic Psychological Needs, and Marital Adjustment

*Evlü Bireylerin Öznel İyi Oluş Düzeyleri ile Mizah Tarzları, Temel Psikolojik İhtiyaçlarının Doyumu ve Evlilik Uyumu Arasındaki İlişkilerin İncelenmesi*

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**ABSTRACT**

The main purpose of this study is to investigate the relationship between subjective well-being in married individuals, humor styles, and basic psychological satisfaction with marital adjustment. The data of the research group were collected from 698 married individuals working in the public and private sector in 2018. In collecting the research data, Life Satisfaction Scale, Positive-Negative Affectivity Scale, Humor Styles Scale, Basic Psychological Needs Satisfaction Scale, Marital Adjustment Scale are used. In the findings, there is a full mediator role in both marital adjustment and psychological need satisfaction in the relationship between compatible humor sense and subjective well-being. There is also a total mediator role both in marital adjustment and psychological satisfaction in the relationship between incompatible humor style and subjective well-being. The results were evaluated and discussed in the context of theoretical knowledge.

**Article Information****Keywords**

Subjective Well-Being  
Humor Styles  
Marital Adjustment  
Basic Psychological Needs

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**ÖZET**

Bu çalışmanın temel amacı; evli bireylerde öznel iyi oluş ve mizah tarzları, temel psikolojik ihtiyaçların doyumu ile evlilik uyumu arasındaki ilişkileri incelemektir. Araştırma grubunun verileri, 2018 yılında Yalova ilinde yaşayan, kamu ve özel sektörde çalışan 698 evli bireyden toplanmıştır. Verilerin toplanmasında, Yaşam Doyumu Ölçeği, Olumlu-Olumsuz Duygulanım Ölçeği, Mizah Tarzları Ölçeği, Temel Psikolojik İhtiyaçlar Doyumu Ölçeği ve Evlilik Uyumu Ölçeği kullanılmıştır. Elde edilen bulgular; uyumlu mizah tarzları ile öznel iyi oluş arasındaki ilişkide hem evlilik uyumu hem de psikolojik ihtiyaç doyumunun tam aracı rolü olduğu, ayrıca uyumsuz mizah tarzları ile öznel iyi oluş arasındaki ilişkide de hem evlilik uyumunun hem de psikolojik ihtiyaç doyumunun tam aracı olduğu şeklindedir. Sonuçlar, kuramsal bilgiler ve yapılan araştırmalar bağlamında değerlendirilip tartışılmıştır.

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**Ethical Statement:** The authors declare that they have carried out the research within the framework of the Helsinki Declaration and with the participation of volunteer participants.



## INTRODUCTION

Millions of people live together in the world. They exist in the relationships that define each other in social environments. Marriage can be defined as one of these social relationships. The need of being in a relationship for man and woman extends over to the existence of primitive humans. Both genders have a feeling of finding a partner they would love to spend their life. For centuries, the dream of many women and men has been to have a marital relationship that they can both love and be loved. Being a spouse to someone enables people to feel more valuable than anyone. Also, it helps them to feel close, be considered important, and to experience a sense of belonging. It allows emotions to be experienced strongly. In addition to this, needs like an economical budget, obtaining a status, having children, mutual love, creating an environment of trust, and planning life together are met through marriage. Although it is known that weaknesses and disruptions can be experienced during this whole process, marriage is the lifestyle preferred by individuals to achieve gains. In this way of life, the basic wishes of individuals are to live in a harmonious relationship.

When marital harmony is examined in a broad frame; it is seen that marriage is a phenomenon that contains all concepts like marital strength, marital process, marital relations, marital satisfaction, quality of marriage, and all of these are included in its definition. Therefore, marital adjustment (Fincham, Hall, & Beach, 2006), which is important for ensuring the happiness of married individuals, is considered as a crucial factor in determining the subjective well-being of married individuals. Although individuals want their marriage to continue, recent research carried out shows that there is a significant increase in divorce rates (Turkey Statistical Institute, 2015). Although the visible part of the divorce is attributed to economic reasons, the invisible part is attributed to the spouses' not knowing about communication and marriage itself (Tarhan, 2014). Similarly, 96.7% of divorces are due to marital conflict (Turkey Statistical Institute, 2012). It is important to investigate the factors affecting the happiness / subjective well-being of married individuals. The goal is to reveal couples' needs in a marital relationship and to obtain information about the ways of ensuring harmonious partnerships.

How married individuals feel, whether they have a good mood or not is just important for their minds but it is also a crucial element for the continuation of the marriage. Ensuring happiness in marriage can help married individuals to have a better mood, to increase their life satisfaction and overall content. Therefore, the effect of the marital adjustment on subjective well-being was investigated in the study. Marital adjustment has an important place in the literature as a factor affecting the subjective well-being process. Subjective well-being; is a concept that examines the emotional evaluations of individuals, focuses on their satisfaction. Also, it carries a universal provision of life satisfaction (Diener, Suh, Robert, Lucas, & Smith, 1999). When the studies carried in Turkey about subjective well-being are taken into consideration, it was determined that there are almost no studies done about married individuals (Sancaktar 2016; Harmless, 2016).

Communication between spouses also plays an important role in marriages. If there is good communication between spouses, it can be an important feature that enables harmony and feelings of happiness in the relationship. Forming pleasant relations between spouses is related to emotions and thoughts shared positively. Destructive communication has been reported to occur with low marital satisfaction and high divorce rates (Gottman & Notarius, 2000). Although there are many different methods to support married individuals to cope with difficult and stressful situations, it is thought that it

would be beneficial to consider positive humor styles in which good humor is used as a feature that will facilitate the harmony and happiness of married individuals.

Humor can make individuals feel happy and it helps to establish stronger and better relationships and to support creativity (Lyubomirsky, King, & Diener, 2005). For this reason, there is an increasing interest in studies that examine humor styles and adjustment between spouses (Cann and Collette, 2014). Humor is a characteristic feature that affects the individual's self, the world s/he lives in, experiences s/he has, and the life process s/he creates through these experiences. Referring to studies conducted in Turkey, there found to be a very limited number of research about humor styles and marital adjustment (Fidanoğlu, 2006; İlhan Güngör, 2008).

Meeting the basic psychological needs can be an effective factor for increasing subjective well being. Therefore individuals whose basic psychological needs are met seem happier, more self- confident, and motivated. In return for this, it is stated that individuals whose basic psychological needs are not adequately met, their mental health deteriorates, their happiness and quality of life decrease, and they perceive themselves as passive and inadequate in society (Deci & Ryan, 2000). When these needs are met sufficiently, individuals feel happy and their level of well-being tends to increase (Ryan & Deci, 2000). The satisfaction of psychological and physiological needs is one of the factors influencing the concept of subjective well-being. Individuals primarily meet their physiological needs with marriage, and after they are met, the situation of meeting psychological needs becomes possibly the most important factor (Maslow, 1943). Concepts like marital adjustment, life satisfaction, and live content are directly related to individuals' needs satisfaction. Marital quality is directly related to the physiological well-being of married individuals, and marital adjustment can significantly affect physiological well-being (Kim & Meckenry, 2002). Although it is stated in researches that the basic needs of individuals and meeting these needs are very important for mental health, it is not known how meeting the need for autonomy, competence, and being in a relationship affects one's subjective well-being and also the marriage itself in Turkish society.

Considering that the adaptation of married individuals depends on different variables if basic needs have cared for in the marital relationship, it helps them to feel happy, reach happiness, and make positive connections with their spouses. These are considered as the main factors that affect the increase of well-being of married people. It is expected to reveal the effect of knowing whether married individuals are happy or not and meeting basic needs on subjective well-being. Besides, it is expected that researching the effects of positive humor on marital adjustment and subjective well being can contribute to married individuals for solving problems and ensuring harmonious marriages. It is also expected that the research to contribute experts, therapists works in this field and future research to be done.

### **The Goal of the Research**

The research tried to find an answer to the question of to what extent subjective wellbeing is predicted by the variables of compatible humor styles, incompatible humor styles, psychological need satisfaction, and marital adjustment. In this context, the hypotheses of the research are listed below:

1. Compatible humor style does not affect the satisfaction of the psychological need.
2. Incompatible humor style does not affect the satisfaction of psychological needs.
3. Compatible humor style does not affect marital adjustment.
4. Incompatible humor style does not affect marital adjustment.

5. Psychological needs satisfaction does not affect subjective well-being.
6. Marital adjustment affects subjective well-being.

## METHOD

### Research Model

The conceptual model designed within the context of research has been examined with the structural equation model. The mediating role of marital adjustment and psychological need satisfaction in the relationship between compatible humor styles and incompatible humor styles and subjective well-being was analyzed using the structural equation model technique. Structural equation modeling (SEM); is used by scientists in many different fields (Bentler & Yuan, 1999; Raykov & Marcoulides, 2006) to test the relationship between observed and latent variables in line with a theoretical basis (Jöreskog & Sörbom, 1993) (Leech, Barrett & Morgan, 2005). There a son why SEM has been using in a wide range of areas is that it considers measuring errors belong to variables. It also has effects reaching from one variable to another. It provides the opportunity to develop, predict, and test multivariate models that contain indirect effects between two variables due to the effect of an intermediary variable (Stevens, 2009).

In this study, scores obtained from incompatible humor styles and compatible humor styles were determined as independent variables, scores from the satisfaction of basic psychological needs and marital adjustment scales as mediating variables, and cores from subjective well-being scales as dependent variables.

### Study Group

The research group is consists sum of 698 married individuals, 355 women (51%), and 343 men (49%), who voluntarily agreed to participate in the study and living in the province of Yalova with an accessible sampling method.

**Table 1. Demographic characteristics of the individuals in the research group**

Variable	Group	N	%
Gender	Women	355	51
	Men	343	49
Age Range	20-30	57	8
	31-40	269	39
	41-50	271	39
	50-upper	98	14
Educational Status	Middle School and Lower	29	4
	High School and Upper	657	94

### Ethical Statement

The authors declare that they have carried out the research within the framework of the Helsinki Declaration and with the participation of volunteer participants.

## Data Collection Tools

Research data were collected through Life Satisfaction Scale (LSS), Positive-Negative Affectivity Scale (PNAS), Humor Styles Scale (HSS), Basic Psychological Needs Satisfaction Scale (BPNSS), and Marital Adjustment Scale (MAS).

**Life Satisfaction Scale (LSS).** The scale was developed by Diener et.al. and adapted to Turkish by Yetim (1993). The scale, which consists of five items in total, is the Likert type and scored between 1-7. Life Satisfaction Scale measures three components of subjective well-being (life satisfaction, positive and negative aspects of subjective well-being) based on the individual's assessment. To test the reliability of the scale, two applications were made with three-week intervals, and the test-retest reliability coefficient of the scale and it was found to be .85. In the item analysis study, the correlation coefficient between the item scores of the scale and the total scores was calculated with the Pearson Moments Multiplication Correlation coefficient. Besides, the Cronbach's-alpha reliability coefficient was found as .76 in the study conducted on reliability of the scale. In the life satisfaction scale, the sum score is obtained by adding the values of the items. The score varies between 1-35. The increase in scores indicates an increase in life satisfaction. Cronbach Alpha reliability coefficient of the scale was found .85 for his study. As a result of the CFA analysis conducted to determine the validity of the scale ( $\chi^2$ : 35.927; Sd: 5, / Sd: 7.185 NFI: .98, CFI: .98, RMSEA: .06, SRMR = .060), it was determined that the scale had a good fit.

**Positive-Negative Affectivity Scale (PNAS).** The scale developed by Watson et al. (1988) was adapted to Turkish by Genz (2000). The scale includes 10 positive and 10 negative emotion items and is evaluated according to a 5-point Likert type. Attend ants are asked to mark the option that fits best to them (None 1, Some 2, Moderate 3, Quite 4, Too much 5). Each item of the Positive-Negative Emotion Scale is scored between 1-5 points. Since the scale measures two different types of emotion, positive and negative emotions cores are calculated separately. Total positive and negatives cores range from 6 to 30. In the adaptation study of the scale, the Cronbach's Alpha ( $\alpha$ ) internal consistency coefficient was found to be .83 for Negative Emotion and .86 for Positive Emotion. According to the repetition reliability calculation of the test, a correlation coefficient of .40 for Negative Emotion and .54 for Positive Emotion was obtained (Gençöz, 2000). To get a total score from positive and negative emotions, negative emotion problems were reverse coded and the total PANAS score was obtained (Kim & Hatfield, 2004). Within the context of this study, the Cronbach Alpha reliability coefficient of the scale was found as .74. As a result of the CFA analysis which is conducted to determine the validity of the scale ( $\chi^2$ : 1071,103; Sd: 169,  $\chi^2$  / Sd: 6.638, NFI: .91, CFI: .94, RMSEA: .08, SRMR = .07) proved itself to be well-suited.

**Humor Styles Scale (HSS).** The scale was developed by Rod Martin and Patricia Doris (2003) to measure individual differences in humor styles. The scale classifies humor styles in four sub-dimensions. These are Self-Enhancing Humor, Participatory Humor, Self-Destructive Humor, and Aggressive Humor. These four dimensions are grouped as compatible humor styles (Self Enhancing and Participatory Humor) and incompatible humor styles (Self-Destructive and Aggressive Humor). The scale measures two main factors for humor. The first factor measures if humor is used to develop the self or to increase relationships with other people. The second factor measures if humor is useful or harmful and destructive. The combination of these factors creates four different humor styles: Participatory Humor, Self-Enhancing Humor, Aggressive Humor, and Self-Destructive Humor. Humor Styles Scale was adapted to Turkish by Yerlikaya (2003). Factor analysis was performed to test the

construct validity of the scale, and a four-factor structure, each consisting of eight items, was obtained like the original. The obtained factors explained 36.88% of the variance of humor styles. The internal consistency (Cronbach Alfa) coefficient of the humor styles scale, respectively; .78 for self-enhancing humor, .74 for participatory humor, .69 for aggressive humor, and .67 for self-destructive humor. As a result of the CFA analysis conducted to determine the validity of the scale ( $\chi^2$ : 1972,242; Sd: 458,  $\chi^2$  / Sd: 4.306, NFI: .90, CFI: .90, RMSEA: .07, SRMR = .07) has been determined itself to be good fit.

**Basic Psychological Needs Satisfaction Scale (BPNSS).** Based on the theory of self-determination, this scale indicates three universal psychological needs (autonomy, competence, and relevance), and it is emphasized that these needs must be met continuously for people to perform at their best and their well-being. Deci & Ryan, 2000). Basic Psychological Needs Satisfaction Scale evaluates to what extent people meet these three needs. The scale developed by Deci and Ryan (1991) was adapted into Turkish by Bozgeyikli, Bak, Sünbül, and Üre (2003). There are three subscales in which an individual's satisfaction for each of the three needs (autonomy, competence, and relevance) is examined. The internal consistency coefficients of the scale for the total score and subscales were calculated using the Cronbach Alpha method on a total of 250 students. The internal consistency coefficients of the scale are .71, .60, and .74 for the subscales, respectively, and .83 in total. Explanatory (EFA) and confirmatory factor analysis (CFA) were performed to test the construct validity of the scale, and a three-factor structure was obtained as in the original. According to the results of the reliability analysis, the Cronbach-Alpha coefficients were .82 for the autonomy subscale, .80 for the competence subscale, and .81 for the relevance subscale. Within the context of this study, the Cronbach Alpha reliability coefficient of the scale was found to be .77. As a result of the CFA analysis conducted to determine the validity of the scale ( $\chi^2$ : 1200,042; Sd: 183,  $\chi^2$  / Sd: 6.558, NFI: .90, CFI: .91, RMSEA: .075, SRMR = .062.) it can be said that that the scale itself is well-suited.

**Marital Adjustment Scale (MAS).** It was developed by Locke and Wallace (1959) to measure the marital adjustment of the married couple. The validity and reliability study of the scale was conducted by Tutarel-Kışlak (1999). The first factor includes the first 9 items. These items seem to be related to an agreement in situations such as general harmony, emotion, sexuality, social rules. The last 6 items in the second factor are related to relationship styles such as leisure time activities, conflict resolution, and trust. Scores on the scale increase from non-conformance to conformance. Within the context of this study, the Cronbach's alpha reliability coefficient of the scale was calculated as .87. CFA analysis ( $\chi^2$ : 323.985; Sd: 89,  $\chi^2$  / Sd: 3.640, NFI: .90, CFI: .94, RMSEA: .062, SRMR = .040) shows that the scale is well fit.

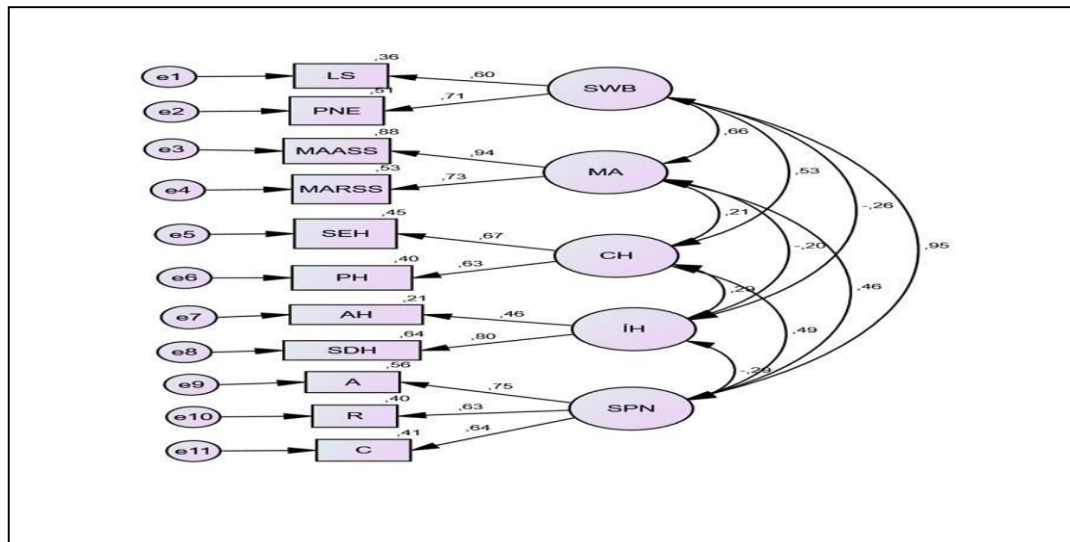
### **Data Analysis**

The role of psychological need satisfaction and marital adjustment was tested using the two-step structural equation analysis procedure. First, an analysis was conducted to reveal their representativeness of each of the measurement model latent variables by the observed variables. After the measurement model values were found to be suitable, the structural model was tested using the maximum likelihood estimation in AMOS Graphics.

## RESULTS

### Examination of the Entire Measurement Model.

The entire measurement model has been analyzed and presented in figure 1. There are five latent (compatible humor, incompatible humor, psychological need satisfaction, marital adjustment, and subjective well-being) and also eleven observed variables in the measurement model. Measurement Model fit indices:  $\chi^2$ : 130,765; Sd: 34,  $\chi^2$ / Sd: 3.846, NFI: .94, CFI: .95, RMSEA: .064 (LO = .05, HI = .07), SRMR: .054. When the fit indices are evaluated after the analysis, it is has found that the measurement model formed complies well with the data obtained (Bayram, 2013; Tabachnick & Fidell, 2014). If the measurement model fails to provide valid goodness of fit values, it will not make sense to switch to the structural model (Şimşek, 2007). After the measurement model was determined to have good fit values, the structural model was started. The measurement model is shown in Figure 1.



**Figure 1. Measurement model: Standardized path coefficients calculated for the measurement model.**

e: error rate; CH: Compatible Humor; PH: Participatory Humor; SEH: Self-Enhancing Humor; IH: Incompatible Humor; AH: Aggressive Humor; SDH: Self-Destructive Humor; SPN: Satisfaction of Psychological Needs; R: Being Related; C: Need for Competence; A: Need for Autonomy; SWB: Subjective Well-Being; LS: Life Satisfaction; PNE: Positive and Negative Emotions; MA: Marriage Adjustment; MASS: Marriage Agreement Sub-Scale; MARSS: Marital Adjustment Relationship Subscale.

When the measurement model is examined, psychological need satisfaction is the variance explained by the sub-dimensions of the latent variable .40 and .41. The variance explained by the sub-dimensions of subjective well-being latent variable is between .36 and .51, the variance explained by the sub-dimensions of the latent variable of marital adjustment is .53 and .88, and the incompatible humor styles are the variance explained by the sub-dimensions of the latent-variable. 21 and .64 and the variance explained by the compatible humor styles sub-dimensions is between .40 and .45. On the other hand, the standardized regression weights of the indicators in the measurement model change between .46 and .94.

### Testing the Structural Model

After the analysis of the measurement model, the structural equation model test was formed and tested to test the mediating role of marital adjustment and psychological need satisfaction between harmonious and incompatible humor and subjective well-being. This examination can be taken as the goal of the study. As the criterion in the evaluation of the model; goodness of fit values were examined. In the frame of examining the structural model, firstly, the full mediation model shown in Figure 2 was tested.

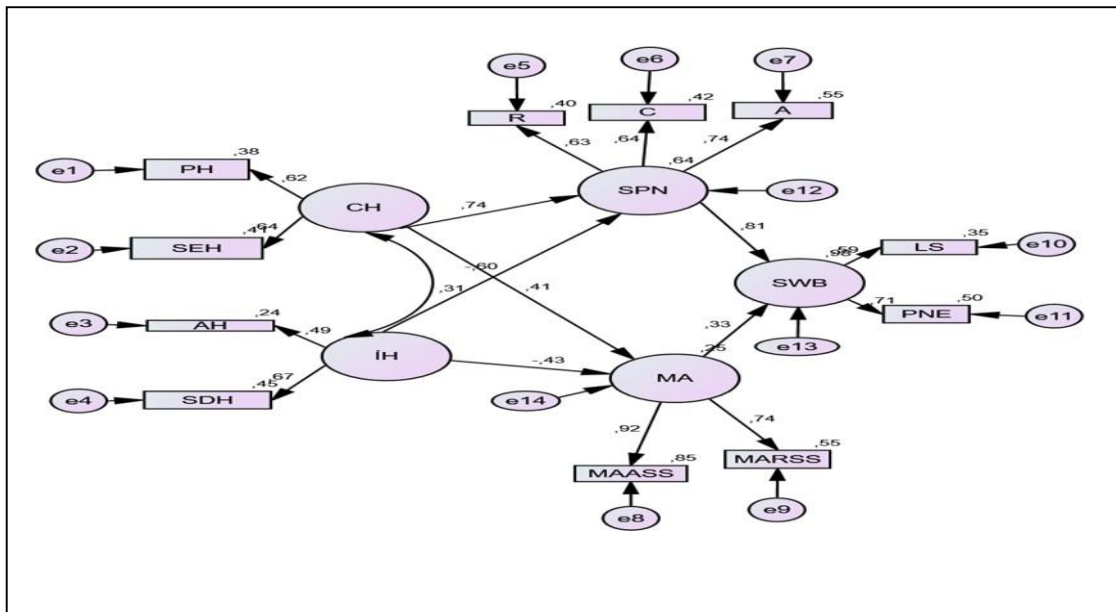


Figure 2. Standardized path coefficients calculated for the first structural model.

Fit indices for the structural model: After the analysis, the fit indices of the model ( $\chi^2 = 149.486$ ,  $sd = 37$ ,  $\chi^2 / sd (37) = 4.04$ , NFI: .93, CFI: .95, RMSEA: .066 (LO = .06, HI = .08), SRMR: .051. These values emphasize that the model fits well (Bayram, 2013; Meydan & Şeşen, 2007; Tabachnick & Fidell, 2014). There is no statistically non-significance in the tested structural model.

### Psychological Needs Satisfaction and Mediating Effect of Marriage Adjustment

Within the framework of structural equation modeling analysis; The mediating role of psychological need satisfaction and marital adjustment in the relationship between compatible and incompatible humor styles of married individuals and their well-being was aimed to be examined. For this, firstly, the model in which psychological need satisfaction and marital adjustment is the complete mediator was tested. It is seen that the findings obtained from the model fit well. After this stage, it was wanted to determine whether the mediator variables were full mediators or partial mediators. For this, paths were drawn from the compatible humor styles and incompatible humor styles, which are the independent variables of the research, to the subjective well-being as the dependent variable, and bootstrap analysis was performed. After the analyzes were made in this way, the model was tested again. The chi-square difference test was not seen necessary because there was no improvement in the obtained goodness of fit values and the paths drawn were not significant (Şimşek, 2007). The fit values of the compared models are given in Table 2.

**Table 2. The goodness of fit values and chi-square difference test results obtained from mediation analyzes**

	1	2	3	4	5	6	7	8
SPN	1							
LS	.453**	1						
PNE	.585**	.424**	1					
PH	.338**	.160**	.199**	1				
SHE	.219**	.174**	.207**	.394**	1			
AH	-.228**	-.169**	-.119**	.094*	.098*	1		
SDH	-.162**	-.086*	-.162**	.128**	.133**	.332**	1	
MA	.355**	.435**	.402**	.114**	.141**	-.201**	-.123**	1

p <.05 \*, p <.01 \*\*, N: 698.

Findings from mediation analysis; It is seen that both marital adjustment and psychological need satisfaction play a fully mediating role in the relationship between compatible humor and age. It can be said that both marital adjustment and psychological satisfaction are exact mediates in their relationship incompatible humor styles -which is another independent variable-and well-being. When parts of the paths are seen in the model after his mediation tool analysis. The model obtained on the theoretical basis of the research remained the same. Fit indexes of the model ( $\chi^2 = 149.486$ ,  $sd = 37$ ,  $\chi^2 / sd (37) = 4.04$ , NFI: .93, CFI: .95, RMSEA: .066 (LO = .06, HI = .08), SRMR :. 051. These values indicate that the model fits well (Bayram, 2013; Meydan & Şeşen, 2011; Tabachnick & Fidell, 2014) There is no insignificant way to see the proposed model in the tested model. Parameter estimates including data, direct effect, indirect effect, and total impact and bootstrap confidence intervals are presented in Table 3.

**Table 3. Parameter estimates obtained for the structural model**

Ways	Non-standardized Regression Coefficients	Standardized Regression Coefficients	S. Error	Critical Ratio	Bootstrap Confidence Interval of Standardized Path Coefficients
SEH-CH	1.000	.640	---	---	(.548, .724)**
PH-CH	.959	.616	.101	9.522**	(.511, .712)**
SDH-İH	1.000	.671	---	---	(.532, .826)**
AH-İH	.697	.495	.100	6.971**	(.382, .614)**
R-SPN	1.000	.635	---	---	(.575, .687)**
C-SPN	.721	.645	.055	13.222**	(.576, .707)**
A-SPN	1.052	.742	.072	14.563**	(.688, .789)**
MARSS-MA	1.000	.740	---	---	(.663, .805)**
MASS-MA	3.805	.923	.280	13.566**	(.861, .995)**
LS-SWB	1.000	.595	---	---	(.529, .657)**
PNE-SWB	1.405	.707	.101	13.961**	(.644, .764)**
<b>Direct Effect</b>					
SPN-İH	-.339	-.604	.054	-6.301**	(-.792, -.449)**
MA-İH	-.139	-.433	.025	-5.468**	(-.564, -.300)**
SWB-MA	.802	.329	.125	6.395**	(.215, .438)**
SWB-SPN	1.130	.813	.100	11.358**	(.722, .906)**



SPN-CH	.409	.744	.053	7.702**	(.599, .922)**
MA-CH	.128	.408	.021	6.198**	(.271, .545)**
<b>Indirect Effect</b>					
SWB-CH	.564	.739	---	---	(.579, .917)**
SWB-İH	-.495	-.633	---	---	(-.810, -.482)**
<b>Total Effect</b>					
SWB-CH	.564	.739	---	---	(.579, .917)**
SWB-İH	-.495	-.633	---	---	(-.810, -.482)**
SWB-MA	.802	.329	---	---	(.215, .438)**
SWB-SPN	1.130	.813	---	---	(.722, .906)**

p < .01 \*\*

When the effect sizes of the standardized coefficients in structural equation modeling studies are examined, values less than .10 for the standardized path coefficient ( $\beta$ ) show a "small" effect; .30 and close values are reported to show a "moderate" effect, and values of .50 or more show "large" effect values (Cohen, 1992). Within the framework of these criteria, it is seen that there are medium and large effects in the model. As seen in Figure 2, it was found that harmonious humor styles significantly affect psychological need satisfaction ( $\beta = .74$ ,  $p = .000$ ) and marital adjustment ( $\beta = .41$ ,  $p = .000$ ) moderately. On the other hand, incompatible humor styles affect psychological need satisfaction ( $\beta = -.60$ ,  $p = .000$ ), while affecting marital adjustment ( $\beta = -.43$ ,  $p = .000$ ) moderately. When the analyzes are examined, compatible, and incompatible humor styles affect psychological need satisfaction. It is seen that the set variables explain 64% of the change in psychological need satisfaction ( $R^2 = .64$ ). As a result of the analysis made, it can be said that marital adjustment is affected by compatible and incompatible humor styles, and these two variables explain 25% of the change in marital adjustment ( $R^2 = .25$ ).

One variable whose direct effect on subjective well-being was examined in the analysis process is a marital adjustment and the other is psychological need satisfaction. When the findings obtained from the path analysis are examined, while marital adjustment affects subjective well-being ( $\beta = .33$ ,  $p = .000$ ) moderately, psychological need satisfaction affects subjective well-being ( $\beta = .81$ ,  $p = .000$ ) to a large extent. When the analysis process is examined, it is obtained that the total effect of the marital adjustment on subjective well-being is  $d = .33$ , and the total effect of psychological need satisfaction on subjective well-being is  $d = .81$ . Besides, it was determined that compatible humor styles ( $d = .74$ ) and incompatible humor styles ( $d = -.63$ ) have indirect effects on subjective well-being. As seen from the findings, some variables have direct and indirect effects on subjective well-being.

Compatible humor styles and incompatible humor styles that have indirect effects on subjective well-being together with marital adjustment and psychological need satisfaction, which have a direct effect on subjective well-being, explain 98% of the change in subjective well-being ( $R^2 = .98$ ). Considering these criteria, it shows that as compatible humor styles increase, psychological need satisfaction and marital adjustment will increase, as incompatible humor styles decrease, psychological need satisfaction and marital adjustment will increase, and an increase in marital adjustment and psychological need satisfaction will increase subjective well-being.

## DISCUSSION, CONCLUSION & SUGGESTIONS

### **Effects of Compatible Humor Styles on Psychological Needs Satisfaction, Marital Adjustment, and Subjective Well-Being**

Compatible humor styles significantly and positively affect the satisfaction of psychological needs. This finding shows that compatible humor is an important variable in the satisfaction of married individuals' basic psychological needs. In other words, the use of compatible humor styles by married individuals helps to increase the satisfaction of basic psychological needs and marital adjustment. It was found that compatible humor styles significantly affect marital adjustment moderately and positively. Married individuals' use of compatible humor styles, can be accepted as effective variables in satisfaction of basic psychological needs, marital harmony, and increasing subjective well-being. Compatible humor relaxingly affects individuals, causes positive emotions, strengthens relationships by bringing individuals closer. Therefore, it is thought to help both marital adjustment and the satisfaction of basic psychological needs. This study reveals the importance of the satisfaction of the basic psychological needs of married individuals and shows that the humor style used by married individuals has effects on the satisfaction of basic psychological needs. The ability of married individuals to make their own decisions, to express their feelings and thoughts comfortably, in other words, to meet the need for autonomy, to feel competent and successful by overcoming responsibilities, to establish good and close relationships with the environment can be seen as the main factors affecting marital harmony. It has been determined that the use of self-enhancing and participatory humor style by married individuals is effective in the satisfaction of psychological needs. This finding draws attention to the effect of the communication style of married individuals on the satisfaction of basic psychological needs. While the positive and compatible communication style increases the general happiness perception, the negative and incompatible communication leads to a decrease in the perception of happiness of the individuals. Also, incompatible humor affects marital adjustment and satisfaction of basic psychological needs negatively. Although self-determination theory differs from culture to culture, it can be said based on the findings of this study that basic psychological needs have an important place in Turkish culture. Cihangir Çankaya (2009) states that the self-determination model is valid for Turkish culture concerning his research. It is reported that the satisfaction of psychological needs, which are defined as competence, autonomy, relatedness in the self-determination theory, supports motivation and well-being in all cultures (Deci et al., 2001).

Although the relationship between the adjustment of married individuals and many variables has been examined, no study in the literature examines the variables of humor styles, subjective well-being, and married individuals' basic psychological needs satisfaction. Referring to studies conducted in Turkey, very few studies about the humor styles of married individuals (Fidanoglu, 2006; and Ilhan Güngör, 2008) were found. When the results of the researches were evaluated, it was concluded that compatible humor styles positively affect marital adjustment. Regarding these findings, it can be understood that the results are similar to the research conducted. In a study conducted by Çankaya and Canbulat (2014) on subjective well-being and marital adjustment in the domestic literature, subjective well-being levels of married individuals were clarified by considering different variables. In the findings obtained from the research; 31.4% of married individuals' subjective well-being levels are formed by marital problem-solving skills, marital satisfaction, and locus of control independent variables. Many different variables explain the subjective well-being level of married individuals. However, based on research findings, the variables of

humor styles, the satisfaction of basic psychological needs, and marital adjustment explain 98% of the subjective well-being level of married individuals. According to this result, using compatible humor positively affects the satisfaction of basic psychological needs and marital adjustment, and all variables together help to explain a large part of subjective well-being. Married individuals' feeling good about themselves, having positive words and behaviors, expressing themselves, caring about their feelings and thoughts, and receiving positive feedback greatly affect their happiness. These findings show that the variables mentioned effects powerfully when explaining married individuals' subjective well-being level.

There are many separate studies on humor, the satisfaction of psychological needs, and subjective well-being in married individuals abroad. Among these studies, the physiological benefits of humor and laughter (Eisenbraun, 2009) have been proven, it has been revealed that humor enhances the relationship with other people, and the effect of humor on social relationships and communication established with minimal discussion (Ziv, 1984). In the study of Fenwick and Bierama (2008), it was mentioned that laughter and humor have a positive effect on physical health, and the importance of humor in mental and emotional health, establishing relationships with people. Didomenico (2012) explained that humor positively affects the marital relationship. Also, humor in issues such as family satisfaction, communication with the environment, and personal and couple satisfaction provides an effect that facilitates the handling of events (Didomenico, 2012). Mcbrien (1993) revealed that laughter and humor strengthen relationships, guide couples in encouraging success, and thus couples form their humor techniques. Ziv and Gaddish (1988) concluded that understanding the humor of marriage partners positively affects marital satisfaction. Besides, it has been determined that a positive interpersonal relationship style predicts marital satisfaction and marital self-efficacy. Also, it has been showing that self-efficacy in marriage plays a partial mediating role in the relationship between positive interpersonal relationship style and marital satisfaction (Kasapoğlu, Kutlu, & Durmuş, 2017). While the positive contributions of humor to individuals are expressed in the studies conducted, it is seen that the finding that compatible humor increases the satisfaction of basic psychological needs and marital adjustment is also supported. Considering that compatible humor facilitates communication, facilitates coping with difficulties, and positively affects physical and mental health thanks to laughing action, it can be said that compatible humor has positive contributions to married individuals.

Considering the studies on marital adjustment and satisfaction of basic psychological needs, there is no study on the satisfaction of the basic psychological needs of married individuals in the domestic literature. In the international literature on the satisfaction of the basic psychological needs of married individuals examined, it can be seen that the adaptation/satisfaction of individuals, meeting their physiological needs, revealing the goals that will create their motivations, meeting the expectations of marriage, and establishing a family relationship on the conditions affect satisfaction according to Ercegovic and Bubic (2015). Furthermore, they also indicate that the need for relatedness affects adaptation and social acceptance of individuals. It has been determined that their self-definition helps them to reach satisfaction. The need for autonomy plays an important predictive role in ideal marriage prospects. Meeting simple physiological and psychological needs affect the perception of the relationship, attitude, satisfaction, and marriage. Married individuals can be extremely critical of both themselves and their environment due to their high expectations (Young & Klosko, 2016). It has been stated in the studies that married individuals can not get satisfied with their marriage when they can not perform as expected (Koerner, Tallon, & Kusec, 2015; Yan, Wang, Yu, He, & Oei, 2018). Leary and Baumeister

(1995) concluded that connecting and social acceptance needs affect subjective well-being. Meeting social needs provides satisfaction and harmony in relationships. Accordingly, the sense of belonging has an impressive, fundamental, and strong effect on motivation and harmony. The importance of meeting basic psychological needs has been expressed in many studies. The fact that these needs are innate makes them crucial to meet for each person. It is also necessary to meet basic psychological needs, primarily to protect the mental health of individuals. It is thought that individuals with good mental health will have more harmonious and happy marriages.

In another study investigating whether marriage affects physiological well-being, it was found that there is a relationship between marital status and mental health. Ensuring the quality/harmony of marriage and meeting physiological needs positively affects the physiology and mental health of people (Gove et al., 1983). It has been demonstrated that psychological satisfaction is achieved when autonomy, trust, and relatedness occur. When these characteristics meet, mental health and psychological needs are met (Ryan & Deci, 2000). They found that there is a strong link between marital adjustment and friendship and that meeting the need for social acceptance positively affects marital adjustment. (Voss, Doyle, & Markiewicz, 1999). Shackelford (2001) reported that meeting simple needs in marriage, economic conditions and high purchasing power are among the factors that affect marital adjustment/satisfaction. As stated in all these studies, meeting the basic psychological needs of married individuals can be considered as an indispensable element for marital adjustment and happiness of individuals.

### **The Effect of Incompatible Humor Styles on Psychological Needs Satisfaction, Marital Adjustment and Subjective Well-Being**

It was concluded that incompatible humor styles significantly and negatively affects the satisfaction of psychological needs. According to this finding, psychological needs satisfaction levels of married individuals using incompatible humor tend to decrease. The use of incompatible humor styles plays a very effective role in decreasing the satisfaction of psychological needs and marital adjustment. Incompatible humor styles, on the other hand, were found to significantly affect marital adjustment moderately and negatively. Using incompatible humor styles leads to a decrease in the satisfaction of psychological needs as well as a decrease in marital adjustment. The use of incompatible humor styles is indirectly effective in decreasing the subjective well-being level of married individuals. The satisfaction of psychological needs and marital adjustment is a complete tool in predicting subjective well-being with incompatible humor. This is compatible with the theoretical framework and reveals similar results with the studies conducted.

In researches, destructive communication has been found to be associated with low marital satisfaction and a high divorce rate (Gottman & Notarius, 2000). Furthermore, humor styles are defined as a significant predictor for physiological and psychological subjective well-being (Ruch & Heintz 2012), and marriage quality is associated with interpersonal interaction. It has been demonstrated that the quality of marriage depends on relationship satisfaction, mutual communication, and chat (Fincham & Bradbury, 1986). According to the study by Hampes (2005), the individual causes loneliness by inadequate social skills and using self-destructive humor. It is stated that there is a significant negative relationship between social isolation, insecurity, emotional deprivation, and marital satisfaction (Esmaili, Mohammadi, & Hakami, 2016). In another study by Cann, Zabatta, and Davis (2011), it was revealed

that humor styles have a predictive feature in establishing and deciding to establish a relationship. Among the reasons why marriages result in divorce, the spouses do not know how to communicate with each other during the marriage.

Cann, Zabatta, and Davis (2011), it was revealed that humor styles have a predictive feature in establishing and deciding to establish a relationship. Among the reasons why marriages result in divorce, the spouses do not know how to communicate with each other during the marriage. Besides, marital interaction and marital satisfaction are among the factors that affect each other positively and increase marital adjustment. (Tarhan, 2014). Gottman and Krokoff (1989) revealed results that marital distress is a communicative phenomenon in their studies. Again according to this research; negative interaction is more common in unhappy and incompatible marriages. Research shows that incompatible humor styles and negative communication negatively affect marital adjustment. These results support the research conducted.

Although it is possible to experience incompatibilities during the marriage process with the effect of many variables, the realization of the variables that lead to incompatibility can change the direction of the marriage. When the results of the studies conducted in this direction are examined, it is possible to recognize the problems in marriage and overcome these problems. It has been determined that couples can have negative emotions when they experience high conflict, but if the problems are overcome with long-term stress management skills and couples reach the marital harmony, the satisfaction, and content in the marriage increases (Krokoff & Gottman, 1989). Besides, it was concluded that as the quality of interaction in marriage increases, marital satisfaction increases. In case the satisfaction is achieved, marital adjustment is also positively affected (Williams, 1977). Miller, Hollis, Olsen, and Law (2013) reported that individuals who try to reach marital happiness and to achieve harmony tend to have better physiological health. The efforts of couples for marital harmony affect the negative and positive feelings experienced during the marriage process. If they wish, couples can change the life-long marriage process in the direction they want and redefine their attitudes towards marriage.

Based on these results, it is likely that married individuals whose personal needs and psychological needs are ignored and unsatisfied, have lower subjective well-being levels. Married individuals care about each other, appreciate each other, meet their needs, support each other in the difficulties encountered in marriage, try to understand, show that they love, and be loved as very important for them to feel happy. It is not easy for people who do not understand, blame, and humiliate each other and also use incompatible humor styles to overcome the difficulties experienced during the marriage process. The accumulation of negative emotions and experiences can cause or relationship deterioration, feeling not close to each other, and marital breakdown. However, because difficulties in marriage are inevitable, the results of the research show that using more positive language towards each other, supporting each other in duties and responsibilities, exhibiting more harmonious behavior will increase both marital harmony and happiness of individuals. Every married individual wants their marriage to continue happily and harmoniously. Therefore, the results should be taken into consideration both by married individuals and professionals providing psychological support to married individuals. Ensuring the happiness of married individuals is essential for a happy and mentally healthy society. Considering that the incompatibilities and problems in the family affect children deeply, it is one of the most important social duties to create solutions to ensure the happiness of married individuals for the healthy upbringing of future generations.

In this context, the variables affecting the happiness of married individuals have been revealed to a great extent with the study.

### **The Effect of Psychological Needs Satisfaction and Marital Adjustment on Subjective Well-Being**

While the satisfaction of psychological needs affects subjective well-being to a large extent and positively, marital adjustment affects subjective well-being moderately and positively. Among the findings of this study, subjective well-being level increases when the needs are met and the desired goals are achieved in marriage. Meeting the needs of married individuals for autonomy, competence, and being related positively affects marital adjustment. It can be said that being able to make their own decisions, successfully overcoming the responsibilities they take, and establishing positive relationships with their environment radically affect the happiness of the individual and marriage. Supporting the spouse to meet all these needs is effective in increasing harmony and happiness. Although Turkish society is accepted as a patriarchal society, it turns out that individuals need to express themselves, share their ideas, and be social. It is thought that meeting these needs for women and men is extremely important. The research was carried out in Yalova, which is located in the Marmara region. Because of the reason that this region is accepted as a developed region might have effects on the results obtained from the research. Researching in provinces with different regions and cultures can contribute to understanding the place of self-determination theory in Turkish society. Besides, considering the dynamic, socio-cultural, and geopolitical structure of Turkish society, determining the subjective well-being level is considered very important to reveal the happiness and mental health of individuals living in society.

When the results of the studies were evaluated, it was stated that subjective well-being increases life satisfaction and helps to establish a happy marriage and also physical and emotional well-being manifest sit self positively in all stages of life (Carr, Freedman, Cornman, NorbertSchwarz, 2014). It has stated in many studies that the relationship between the perception of unity and togetherness between spouses and subjective well-being is positive and societies are among the Dynamics affecting subjective well-being (Beach, Katz, Kim, & Brody, 2013; Carr, Freedman, Cornman, & NorbertSchwarz, 2014; Whisman, Uebelackerand Weinstock, 2004). Life satisfaction, marital quality, and harmony may so depend on the couples' subjective well-being during this process (Kahneman, 2006). Shapiro, Keyes, and Lee (2008) reported that individuals in marital status are subjectively happier. In a study investigating the effects of the psychological well- being of married and single people on meeting their needs; It is concluded that single individuals are psychologically weaker (Soulsby & Bennett, 2015). In another study investigating the effect of marriage on psychological well-being; It has been demonstrated that the early stages of marriage have a very serious effect on psychological well-being, and this satisfaction increases seven more after having children. In this wise, it has revealed that married couples achieve harmony in their marriage (Woo & Kelly, 2009).

Considering the results of all these studies, it is understood that even being married alone is effective in increasing subjective well-being. However, failure to achieve expected marital harmony and happiness over time and other factors affecting subjective well-being lead to a decrease in the subjective well-being of married individuals. Therefore, supporting marriage that starts well and improves subjective well-being, informing spouses about the problems they will encounter in marital life, and giving them possible solutions can ensure the continuity of subjective well-being. As research and other studies have

stated jointly, it is that what happened during the marriage process affects the harmony and that the increase of positive feelings in marriage is an important factor for increasing subjective well-being. When the results of other studies are examined, it has been determined that individuals with high marital happiness have higher psychological well-being and depression symptoms are less than those with low marital happiness and moderate marital happiness (Dush, Taylor, & Kroeger, 2013). In a study by Washworth (2016), it has been determined that married individuals have higher levels of happiness and achieve higher life satisfaction than never-married individuals. Carr, Freedman, Cornman, and Schwatz (2014) in their study on subjective well-being and marriage; they state that couples increase each other's well-being, marital satisfaction is directly related to life satisfaction. Also, married couples tend to have happy memories more than others. Veldrole, Broadfordand Vail (2010) indicates in their studies, individual communication and subjective well-being have predictive properties on marital adjustment. They concluded that subjective well-being level is effective in the correction of the marriage in cases where the marriage is interrupted, deteriorated, or requires correction again. It is seen that subjective well-being has an important place in research as a factor affecting the marital adjustment process.

When domestic studies are examined, no study has been found on marital adjustment or subjective well-being of the basic psychological needs of married individuals. With this research, although important findings of the basic psychological needs satisfaction of married individuals have been reached, it is thought that new studies should be conducted to fill the gaps in the domestic literature. Because one of the findings obtained through the research is that satisfaction of basic psychological needs has positive effects on subjective well-being. When the studies conducted abroad are evaluated, some studies indirectly support the research findings. Chmielaska (2012), in his research investigating marriage quality and interpersonal addiction; he emphasized that the addiction phenomenon is lower in high marital quality. The same finding has been reported by other studies (Amato, Johnson, Booth, Rogers, 2003; Jankowiak, 2007; Ko, 2012; Plopa, 2008). The results of studies with high marital quality can be interpreted as the effect of meeting married individuals' autonomy needs, competence, and being related. Other studies support these findings. Among them, Adams (1996), in his research on marital status and happiness; indicated that married men and women are happy and their happiness increases, as there as on for this is marriage provides social control, social support, and psychological reward to individuals.

In conclusion, when compared with both the theoretical knowledge and the results of the studies, it is revealed that the variables discussed in the study have an important place in explaining the adjustment and subjective well-being of married individuals. For this reason, it is predicted that it will be beneficial for researchers and workers in this field to consider obtained results from conducted research and information newly added.

Along with the important results it presents, this study has some limitations. The first of the limitations is that the research is limited to married individuals living in the province of Yalova and working in private and public sectors. Broader information can be obtained and generalizations can be made by researching with married individuals living in different provinces and regions with different socioeconomic status. The second of the limitations is that quantitative measurements based on self-report are made. More detailed information can be provided by repeating the study supported by quantitative and qualitative measurements. The results obtained from the study showed that positive humor styles increase the satisfaction of basic psychological needs and marital adjustment, and all these

results have an important effect on the increase of subjective well-being. These findings can be used in counseling and therapy services for married individuals. 80% of the married individuals participating in the study are high school and above graduates. In our country, the lifestyles between the high-education and low-education segments differ from each other.

Considering that these differences affect the marital adjustment of individuals, meeting psychological needs, and subjective well-being levels, it may be important to conduct studies on married individuals with different education levels for comparisons. Other variables that may affect the subjective well-being of married individuals (economic income, number of children, cultural factors, duration of the marriage, physical health, personality structure, living standards, natural resources, age, etc.) can be included in the studies to be conducted.



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### **Author Contributions**

**MKD:** Idea and design, data collection and analysis, interpretation of findings, reporting of the article.

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### **Conflict of Interest**

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

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In the writing process of the work titled "**The Evaluation of The Relationships Between Subjective Well-Being Level of Married Individuals, Humor Styles, Satisfaction of Basic Psychological Needs, and Marital Adjustment**", the scientific, ethical and citation rules were followed, there was no falsification on the data collected, the "Turkish Psychological Counseling and Guidance Journal Editorial Board" had no responsibility for all ethical violations, and all the responsibility belongs to the authors. I undertake that it has not been sent to another academic publishing medium for evaluation.

## RESEARCH

Open Access

## ARAŞTIRMA

Açık Erişim

## The Mediator Role of Self-Control in the Relationship Between Insecure Attachment Styles and Problematic Smartphone Use in Adolescents

*Ergenlerde Güvensiz Bağlanma Stilleri İle Problemlı Akıllı Telefon Kullanımı Arasındaki İlişkide Öz Kontrolün Aracı Rolü*

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### ABSTRACT

The aim of this study is to examine the mediating role of self-control in the relationship between the fearful, dismissive, and preoccupied attachment styles of adolescents and their problematic smartphone use. In line with this purpose, the data were carried out with the participation of 221 high school students (47% male). The research was carried out with a predictive correlational method, which is one of the quantitative research patterns. Relationship scales questionnaire, smartphone addiction scale-short form and self-control scales were used to collect data. Structural equation modeling was used in the analysis of the data. As a result of the analysis, all three attachment styles were found to be negative predictors of self-control and self-control as negative predictors of problematic smartphone use. In addition, it has been found that self-control is fully mediated in the relationship between insecure attachment styles and problematic smartphone use.

### Article Information

#### Keywords

Insecure Attachment Styles  
Self-Control  
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### ÖZET

Bu çalışmanın amacı, ergenlerin korkulu, kayıtsız ve saplantılı bağlanma özellikleri ile problemlı akıllı telefon kullanımı arasındaki ilişkide öz kontrolün aracılık rolünü incelemektir. Bu amaç doğrultusunda veriler 221 lise öğrencisinin (% 47 erkek) katılımı ile gerçekleştirilmiştir. Araştırma nicel araştırma desenlerinden ilişkisel yordayıcı desen ile yürütülmüştür. Veriler; İlişki Ölçekleri Anketi, Akıllı Telefon Bağımlılığı Ölçeği-Kısa Form ve Öz Kontrol ölçekleri kullanılarak gerçekleştirilmiştir. Verilerin analizinde yapısal eşitlik modellemesi kullanılmıştır. Analizler sonucunda, her üç bağlanma stili de öz kontrolün negatif yordayıcısı, öz kontrol de problemlı akıllı telefon kullanımının negatif yordayıcısı olarak bulunmuştur. Ayrıca güvensiz bağlanma stilleri ile problemlı akıllı telefon kullanımı arasındaki ilişkide öz kontrolünün tam aracı olduğu bulunmuştur.

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## INTRODUCTION

Smartphones with internet access, which replace computers, have become an integral part of life. This is natural because it makes people's lives much easier. Even when we are alone, it offers opportunities to maintain communication with many people, to be informed about the world and to order. Unfortunately, there are various negative effects besides these positive features. Therefore, smartphones use can be problematic (Yang, Asbury, & Griffiths, 2018).

### **Problematic Smartphone Use**

Today, it is called information and computer age. Technological and scientific advances in this age have caused important changes in all areas of people's lives. Most important indicators of this are that access to information is easier and computers are widely used in all areas of life. Indeed, there have been significant increases in internet technology and smartphone usage areas and times. With the production of smart phones, computer and internet access has become even easier without time and space limits. In fact, 67% of the world's population, 92% of Turkey's population uses mobile phones (Kemp, 2020).

Smartphones can now be considered pocket computers. Because these phones not only provide communication facilities, they also provide access to social networks, access to information, internet use, taking photos and performing many corporate functions (Şakiroğlu & Akyol, 2018). In addition, thanks to various applications that can be installed on the phone, it facilitates life in different subjects such as banking, food and beverage, shopping, and location, and becomes an indispensable part of our lives (Kuyucu, 2017). Using smart phones, facilitating lives of people and giving pleasure can serve as an important reinforcement and cause problematic use (Shar and Lights, 2012). As a matter of fact, problematic smartphone use is also defined as a form of addiction that harms the social relations of users due to excessive and uncontrolled use (Özen & Topçu, 2017). For this reason, with the increasing popularity of the use of smartphones among young people, the issue that continuous and intensive use may cause various physical and psychological problems has been raised (Cha & Seo, 2018).

People with smartphone addiction have an increased risk of depression (Kim, Jang, Lee, Lee, & Kim, 2018), life satisfaction decreases (Lachmann et al. 2018), and they experience academic stress (Gökçearslan, Uluyol, & Şahin 2018). Problematic smartphone use decreases sleep quality in young people (Lemola, Perkinson-Gloor, Brand, Dewald-Kaufmann, & Grob, 2015), causing mental and physical problems (Xie, Dong, & Wang, 2018). For example, long-term unhealthy use appears to cause functional disorders in muscles, bones and joints (Yılmaz, Çınar, & Özyazıcıoğlu, 2017), dry eyes and visual impairments (Kim, 2013). Problematic smartphone use can be a problem for any age group. However, since today's adolescents are exposed to internet and smartphone use from a young age, this group is considered to be at greater risk. 57% of smartphone addiction of adolescents in Turkey is reported to be at risk (Stop & Seferoğlu, 2018).

There are different explanations about why people develop such an addiction. One of the most prominent of these is the explanation made in the perspective of psychoanalytic theory. According to this statement, addiction is related to attachment disorder. As a matter of fact, addiction are more common in individuals with insecure attachment (Kassel et al. 2007).

### **Attachment Styles and Problematic Smartphone Use**

Attachment occurs between the baby and the person who cares for him (mostly the mother). Depending on the consistent and sufficient fulfillment of the baby's need, it tends to evaluate the world as a safe or unreliable place (Bowlby, 1973). People who are regularly and adequately interested in infancy are expected to develop secure attachment. People who have secure attachment can manage their feelings and desires better because they evaluate themselves and the world as reliable (Mikulincer, 1998). They are also successful in establishing close relationships, managing their stress and seeking support (Pistole & Arricale, 2003).

If the baby is subjected to the caregiver's repudiative and indifferent attitude, they are expected to develop dismissive attachment. Persons who have had a dismissive attachment have a strong ego, but do not establish close relationships with other people because they do not trust others. (Bookwala, 2002). Due to the indifference of caregivers, individuals can also develop fearful attachment. People who develop fearful attachment do not have self-confidence; they consider themselves and those around them worthless. For this reason, they always have anxiety in establishing close relationships with others and fail to overcome problems (Ward, Hudson, & Marshall, 1996). Another type of insecure attachment is preoccupied attachment. The most typical feature of preoccupied attachment is that people consider themselves worthless and others are overvalued. Therefore, they are extremely sensitive to the wishes of others. It can also be said that they are passive because they tend to live dependent on others (Collins and Feeney, 2000).

Since attachment is a strong bond that begins early in life and develops with the influence of the social environment (Özer, Yıldırım, & Erkoç, 2015), it has a significant impact on emotions, thoughts and behaviors in every period of life (Bowlby, 1969). Therefore, the lives of individuals who have insecure attachment may be more problematic. Those who cannot secure attachment tend towards non-human goals such as religious belief, animals and objects that make them feel good (Keefer, Landau, & Sulliva, 2014). For this purpose, it is stated that people can turn to their phones when they need support (Konok, Gigler, Bereczky, & Miklósi, 2016). As a matter of fact, it is stated in various studies that attachment styles are an important factor in problematic smartphone use (Choi & Seo, 2015; Muo, 2017). Similarly, in one study, internet addiction was found to be significantly associated with anxious and avoidant attachment style (Shin, Kim, & Jang, 2011), and in another study, with dismissive and preoccupied attachment styles (Odacı & Çıkrıkçı, 2014). Moreover, insecure attachment has been found to be an important determinant of nomophobia (Büyükçöplan, 2019). These findings indicate that there may be a relationship between insecure attachment styles and problematic smartphone use. However, these studies are far from explaining the mechanism of functioning between attachment styles and problematic smartphone use. That is because; people's desire for safe space is insufficient to explain the reason for problematic smartphone use behavior. Therefore, it is necessary to determine the variables that provide a link between these two variables.

Adolescents, who have an insecure attachment, experience more problems in their social relationships, get involved in social crime, have difficulties in close relationships with their environment and feel loneliness intensely (Ünlü, 2015). Because people who have insecure attachment evaluate themselves and the world as unreliable, they are inadequate in managing their emotions and coping with stress (Kim, Kim, & Cho, 2017). This indicates that insecure attachment styles and self-control feature

may be related. Because Jiang and Zhao (2016) claims that self-control is related to impulsivity, it will also be a determining factor for problematic smartphone use.

H1: Insecure attachment styles (fearful, dismissive, and preoccupied) are predictors of problematic smartphone use.

### **The Mediating Role of Self Control**

Self-control is defined as the ability of individuals to consciously direct their own behavior by controlling their impulsive, automatic habits (Baumeister, Vohs, & Tice, 2007). It is stated that people with high self-control have the ability to postpone behavior contrary to their primary goals, to control their emotions and thoughts (Mao et al., 2018), and to display harmonious behaviors (De Ridder & Gillebaart, 2017). However, it is stated that people with low self-control are more prone to develop addictive behaviors (Cho, Kim, & Park, 2017).

It seems that there are a lot of studies that reveal the relationship between self-control and problematic behaviors. For example, it is stated that impulsivity, which is a sign of insufficiency of self-control feature, increases problematic smartphone and social media use (Rozgonjuk, Kattago, & Täht, 2018). It is stated that self-control is an important factor in determining problematic smartphone use (Kalecik, 2016; Kaymaz & Şakiroğlu, 2020), and adolescents with low control perception have higher smartphone addictions (AICI, 2017).

There are several studies showing that self-control is an important factor in reducing the problematic smartphone use of young people (Han, Geng, Jou, Gao, & Yang, 2017; Zhou, Liu, & Chen, 2015), and preventing problematic behaviors such as smartphone and internet addiction (Özdemir, Kuzucu, & Ak, 2014). It is also stated that self-control mediates the effect of stress on smartphone addiction (Cho, Kim, & Park, 2017). These study findings show that adolescents with low self-control will have higher problematic smartphone use.

H2: Self-control is a predictor of problematic smartphone use.

In addition to this, there are studies showing the relationship between attachment styles and self-control. For example, Fearon, Bakermans-Kranenburg, Van IJzendoorn, Lapsley, and Roisman (2010) found that attachment styles are related to self-control. While self-control skills of those who performed secure attachment were higher, self-control was found lower than those who performed dismissive, fearful, and preoccupied attachment (Kara, 2016). Similarly, individuals with insecure attachment styles were found to have low self-control skills (Tangney, Baumeister, & Boone, 2004). These findings show that there is a relationship between attachment styles and self-control.

H3: Insecure attachment styles (fearful, dismissive, and preoccupied) are predictors of self-control.

As regards the relationship between attachment styles and self-control, people with insecure attachment styles are more likely to have low level of self-control. Getting self-control and problematic smartphone use, people with low level of self-control mostly fail to regulate their smartphone use behavior. Further studies are needed to investigate the possible mediator role of self-control between attachment styles and problematic smartphone use.



H4: Self-control has a mediator effect between insecure attachment styles (fearful, dismissive, and preoccupied) and problematic smartphone use.

The aim of this study is to determine the relationship between fearful, dismissive, and preoccupied insecure attachment styles, and problematic smartphone use, and the mediating role of self-control in this relationship.

## METHOD

### Research Model

The aim of this study is to examine the mediating role of self-control in the relationship between insecure attachment styles and problematic smartphone use in adolescents. For this purpose, the predictive relational screening pattern, which is one of the quantitative research patterns, was preferred in conducting the study. This model allows making predictions about future behaviors and situations in the light of information obtained about a variable (Creswell, 2012).

### Study Group

A total of 250 adolescents were surveyed based on convenience sampling. 221 students responded the forms appropriately, 53% of participants were female. All participants recruited from seven different high schools in Kahramanmaraş, Turkey. Of the participants, 83 students were recruited from vocational high school, 30 students were from religious vocational high school, 30 students were from science high school and 82 students were Anatolian high school. Among the participants, there were 53 ninth-grade students, 91 tenth-grade, 14 eleventh-grade and 63 twelfth-grade students. Parents of 21 students are divorced or live separated from his/her spouse.

### Ethical Statement

This study was completed in accordance with the Helsinki Declaration. In line with this, the study was permitted by Kahramanmaraş Sütçü İmam University, Social and Humanities Ethics Committee (REF: 72321963-020-E.15489). The informed sheet on the questionnaire was given to all individual participants and no identifying details (name, surname, and dates of birth, identity numbers, and other information) of the participants has been gathered and collected. Additionally, data tools in the study were only distributed to volunteer participants. Additionally, participants were informed that they could withdraw from the study at any time during data collection. Researchers don't have an opportunity to identify any specific participant.

### Data Collection Tools

The research data were obtained with Smartphone Addiction Scale-Short Form, The Relationship Scales Questionnaire and Brief Self-control Scale. Detailed information about the data collection tools is given below.

**The Relationship Scales Questionnaire** developed by Griffin and Bartholomew (1994) was used to measure the attachment styles of the participants. The scale consisting of thirty items measures safe, fearful, dismissive and preoccupied attachment styles. Total points are obtained for four different attachment styles. The scale was adapted to Turkish culture by Sümer and Güngör (1999), and Cronbach alpha values were between .27 and .61 and test-retest reliability was .78. Researchers stated that the low Cronbach's alpha values were caused by measuring both for the person and others (Griffin and

Bartholomew, 1994). In this study sample, the scale is sufficiently valid ( $\chi^2/df = 1.65$ , CFI = .92, TLI = .90, NFI = .84 and RMSEA = .05) and reliable ( $\alpha = .52$  for safety;  $\alpha = .73$  for fearful;  $\alpha = .61$  for dismissive;  $\alpha = .55$  for preoccupied).

**Smartphone Addiction Scale-Short Form** is a 10-item scale developed by Kwon, Kim, Cho, and Yang (2013) to measure the risk of smartphone addiction in adolescents. The internal consistency Cronbach's alpha coefficient of the original form is .91. The scale was adapted to Turkish by Noyan, Enez Darçın, Nurmedov, Yılmaz, and Dilbaz (2015), and its validity and reliability were determined and the Chronbach alpha coefficient was determined as .87. In this study sample, the scale was found to have sufficient valid ( $\chi^2/df = 1.25$ , CFI = .99, TLI = .99, NFI = .99 and RMSEA = .03) and reliable ( $\alpha = .88$ ) features. The increase in the scores obtained from the scale indicates that the risk of phone addiction increases.

**The Brief Self-Control Scale** developed by Tangney, Baumeister and Boone (2004) was used to measure the self-control levels of the participants. In the original of the scale, the number of items was determined as 36 and the reliability coefficient was found as .89. Adaptation study of Turkish culture was done by Coşkan (2010). According to the results of factor analysis of the short form of the scale made by Nebioğlu, Konuk, Akbaba, and Eroğlu (2012), Cronbach's alpha internal consistency coefficient was found to be .83. In this study sample, the scale was found to have sufficient valid ( $\chi^2/df = 1.86$ , CFI = .98, TLI = .96, NFI = .97 and RMSEA = .06) and reliable ( $\alpha = .70$ ) features. In this study, the short form of the scale was used. The increase in the scores obtained from the scale indicates that the self-control skill has increased.

### **Process**

The data were collected by applying the booklets created with the personal information form and scales mentioned above to the students face to face. High schools were randomly selected, school administration and teachers were interviewed, and volunteers from the students answered the forms at the appropriate time of the class. Filling the forms took an average of 10 minutes.

### **Data Analysis**

Before analyzing the data, forms that were not filled in according to the directive or left too blank were excluded from the study. The normality of the data was evaluated using skewness and kurtosis based on the submission of George and Mallery (2010) that the values of skewness and kurtosis should be within the range of  $-/+2$  for the response to be considered normally distributed.

In the process of data analysis, the descriptive statistics of the variables and the correlation between the variables were determined first. Pearson moments correlation coefficient was calculated to reveal relationships between variables. The mediating effect of self-control in the predictive effect of attachment styles on problematic smartphone use was examined by structural equation modeling (SEM). Since the scales are one-dimensional, artificial factors are created for each scale by grouping the items according to the factor loads. Because, reducing the number of variables observed is suggested to increase normal distribution and reliability (Nasser-Abu Alhija, & Wisenbaker, 2006). In addition, compared to using each item as the observed variable, parceling includes stronger psychometric features such as less parameter, more reliability and more precise definition of latent variables (Kline, 2015). At the end of this process, SEM analyzes were performed with three latent variables and 15 observed variables. A range

of fit indices are used to test whether the models are confirmed or not. These include the chi-square degree of freedom ratio ( $\chi^2/df$ ) and RMSEA values. Acceptable threshold values were determined as  $\chi^2/df < 5$  (Bollen, 1989); CFI, NFI and TLI  $> 0.90$  (Bentler & Bonett, 1980; Hooper, Coughlan, & Mullen, 2008); and RMSEA  $< 0.08$  (Brown & Cudeck, 1993; Schreiber, Nora, Stage, Barlow, & King, 2006). In addition, the bootstrapping method was used to determine whether the mediating effect of self-control is significant. The significance of direct and indirect effects is tested with this method (MacKinnon, 2008; Preacher & Hayes, 2008).

## RESULTS

In this section, descriptive statistics about the variables of the research, the correlation between the variables and the findings obtained in accordance with the hypotheses of the research are presented. Firstly, the mean, standard deviation skewness-kurtosis and correlation analysis of the variables were made and the results are presented in Table 1.

**Table 1. Descriptive and correlation statistics (n=221)**

Correlation	1	2	3	4	5
1.PSU	-				
2.SC	-.48*	-			
3.FA	.35*	-.33*	-		
4.DA	.27*	-.22*	.49*	-	
5.PA	.27*	-.33*	.54*	.25*	-
Descriptive					
Mean	24	39.18	25.44	22.18	7.95
Sd	9.49	7.04	7.12	5.37	2.89
Skewness	.561	-.183	.034	-.457	.054
Kurtosis	-.362	-.781	-.463	.103	-.731

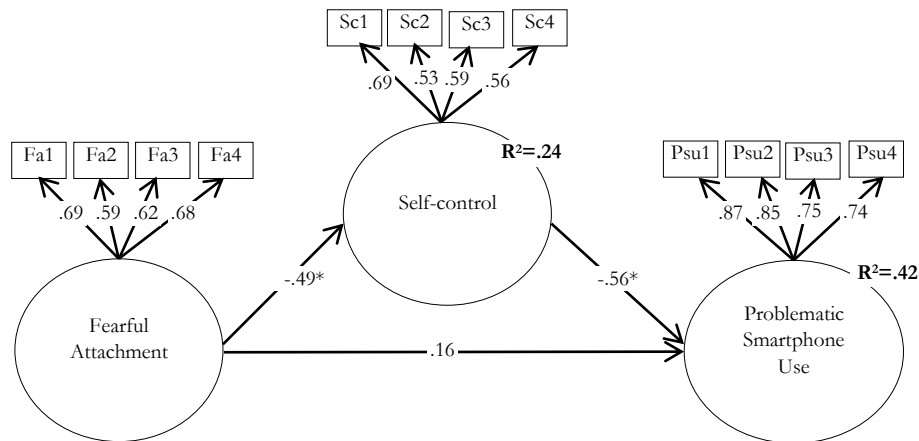
*PSU: Problematic smartphone use, SC: Self-control, FA: Fearful attachment, DA: Dismissive attachment, PA: Preoccupied attachment*

\* $p \leq .001$

As can be seen in Table 1, the kurtosis and skewness values of the variables are within acceptable limits. For this reason, it can be said that the data show normal distribution and it is appropriate to perform parametric tests. In addition, one of the prerequisites for structural equation modeling is that variables should be related to each other. As can be seen in the table, there are significant correlations among all variables.

The mediation analysis procedure of Baron and Kenny (1986) was used to determine whether self-control (mediator variable) mediated the relationship between insecure attachment styles (independent variable) and problematic smartphone use (dependent variable). Accordingly (1) independent variables and dependent variables should have a significant relationship; (2) independent variables and mediator variables should have a significant relationship; (3) mediator variables and dependent variables should have a significant relationship, (4) when the mediator variable is added to the model along with the independent variable, the effect of the independent variable on the dependent variable should decrease. As a result of the analysis, the decrease in the relationship between the independent and the dependent variable and the fact that the mediator variable has a significant effect on the dependent variable indicate partial mediation; and the complete disappearance of the relationship indicates the full mediation relationship. In the mediation test, the significance of the indirect effect was tested using the bootstrapping process. Three attachment styles were examined with three separate SEMs,

and the results regarding the mediating role of self-control in the relationship between fearful attachment and problematic smartphone use are given in Figure 1.



**Figure 1. Mediator effect of self-control between fearful attachment and problematic smartphone use**

\*  $p < .01$

When the goodness of fit indices for mediating model in Figure 1 are investigated, all had acceptable levels [ $\chi^2/df = 1.61$ , CFI = .97, IFI = .97, TLI = .96 and RMSEA = .05]. As seen in the model, self-control, which is the mediator variable, significantly predicted problematic smartphone use ( $\beta = -.56$ ,  $p < .01$ ). In addition, fearful attachment, an independent variable, significantly predicted the self-control-mediator variable ( $\beta = -.49$ ,  $p < .01$ ). However, fearful attachment is not a direct predictor of problematic smartphone use ( $\beta = .16$ ,  $p > .05$ ), but indirectly predictor through self-control ( $\beta = .27$ ,  $p < .01$ ). According to this finding, self-control played a full mediating role in the relationship between fearful attachment and problematic smartphone use. However, the bootstrapping method was used to determine whether the indirect effect of fearful attachment on problematic smartphone use was statistically significant.

The bootstrapping procedures method was used to test the significance of the mediating models. We generated 5,000 samples by random sampling of the original dataset ( $N = 221$ ). If the 95% confidence interval for the outcome of the mediation effect did not contain zero, the mediation effect would be significant at the 0.05 level.

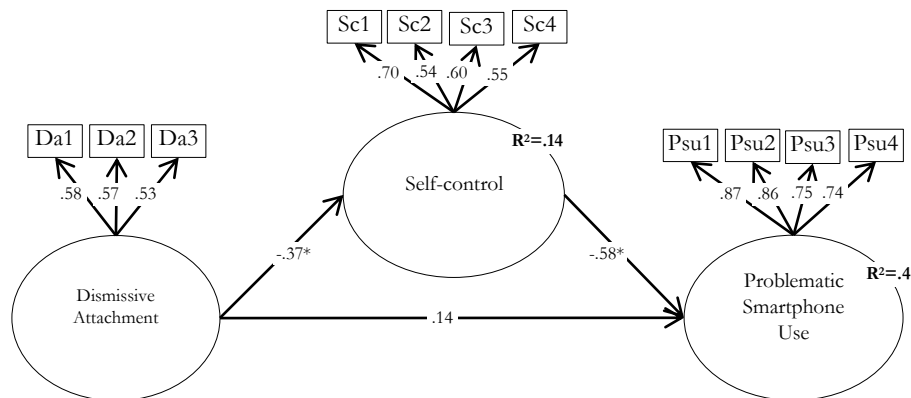
Bootstrapping analysis results showed that fearful attachment has an indirect effect on problematic smartphone use through self-control, and this effect is also significant ( $\beta = .27$  95% CI [.14 - .48],  $p < .01$ ). When the model was analyzed as a whole, it was found that fearful attachment and self-control explained 42% of problematic smartphone use together. Coefficients for direct and indirect effects and confidence intervals for these coefficients are presented in Table 2.

**Table 2. Bootstrapping parameters for the model**

Path	$\beta$	95% CI (5000 bootstraps)		SE	p
		Lower	Upper		
Direct Effect					
FA-->SC	-.49	-.67	-.27	.10	.001
SC-->PSU	-.56	-.76	-.36	.16	.001
FA-->PSU	.16	-.08	.34	.14	.08
Indirect Effect					
FA-->SC-->PSU	.27	.14	.48	.08	.001

FA= Fearful Attachment, SC= Self-Control, PSU= Problematic Smartphone Use

The mediating role of self-control in the relationship between dismissive attachment and problematic smartphone use regarding the second hypothesis of the study was examined and the results are presented in Figure 2.



**Figure 2. Mediator effect of self-control between dismissive attachment and problematic smartphone use**

\* p<.01

When the goodness of fit indices for the mediating model in Figure 2 are investigated, all had acceptable levels [ $\chi^2/df=2.07$ , CFI=.95, IFI= .95, TLI=.95 and RMSEA=.07]. As seen in the model, self-control significantly predicted problematic smartphone use ( $\beta = -.58$ ,  $p < .01$ ). In addition, dismissive attachment predicted self-control significantly ( $\beta = -.37$ ,  $p < .01$ ). Lastly, dismissive attachment is not a direct significant predictor of problematic smartphone use ( $\beta = .14$ ,  $p > .05$ ), but indirectly predictor through self-control ( $\beta = .21$ ,  $p < .01$ ). According to this finding, self-control played a fully mediating role in the relationship between dismissive attachment and problematic smartphone use. However, the bootstrapping method was used to determine whether the indirect effect of dismissive attachment on problematic smartphone use was statistically significant.

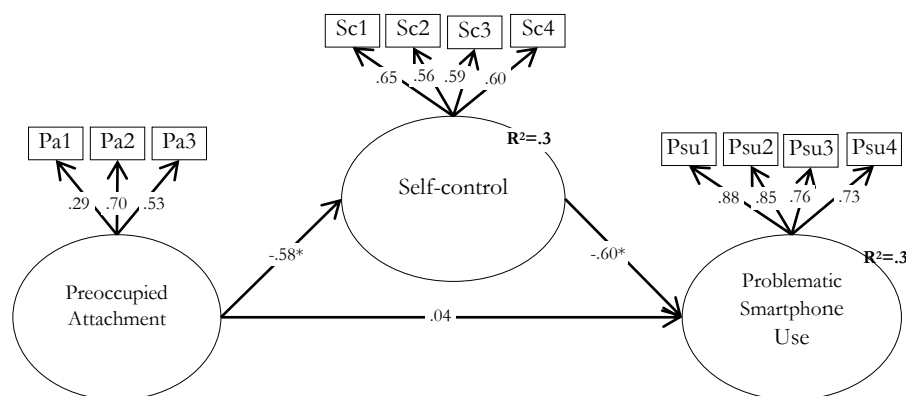
Bootstrapping analysis results showed that dismissive attachment has an indirect effect on problematic smartphone use through self-control and this effect is also significant ( $\beta = .21$ , 95% CI [.06 - .42],  $p < .01$ ). When the model is analyzed as a whole, it was found that dismissive attachment and self-control together explained 42% of problematic smartphone use. Coefficients for direct and indirect effects and confidence intervals for these coefficients are presented in Table 3.

**Table 3. Bootstrapping parameters for the model**

Path	$\beta$	95% CI (5000 bootstraps)		SE	p
		Lower	Upper		
Direct Effect					
DA-->SC	-.37	-.59	-.09	.13	.01
SC-->PSU	-.58	-.77	-.39	.16	.001
DA-->PSU	.14	-.08	.34	.16	.20
Indirect Effect					
DA-->SC-->PSU	.21	.06	.42	.09	.008

DA= Dismissive Attachment, SC= Self-Control, PSU= Problematic Smartphone Use

In line with the third hypothesis of the research, the mediating role of self-control in the relationship between preoccupied attachment and problematic smartphone use was examined and the results are presented in Figure 3.



**Figure 3. Mediator effect of self-control between preoccupied attachment and problematic smartphone use**

\*  $p < .01$

When the goodness of fit indices for mediating model in Figure 3 are investigated, all had acceptable levels [ $\chi^2/df = 2.00$ , CFI = .95, IFI = .95, TLI = .93 and RMSEA = .06]. As can be seen in the model, self-control significantly predicted problematic smartphone use ( $\beta = -.60$ ,  $p < .01$ ). In addition, preoccupied attachment significantly predicted self-control which is the mediator variable ( $\beta = -.58$ ,  $p < .01$ ). Lastly, preoccupied attachment is not a direct predictor on problematic smartphone use ( $\beta = .04$ ,  $p > .05$ ), but indirectly predictor through self-control ( $\beta = .35$ ,  $p < .01$ ). According to this finding, self-control played a fully mediating role in the relationship between preoccupied attachment and problematic smartphone use. However, the bootstrapping method was used to determine whether the indirect effect of preoccupied attachment on problematic smartphone use was statistically significant.

Bootstrapping analysis results showed that preoccupied attachment has an indirect effect on problematic smartphone use through self-control and this effect is also significant ( $\beta = .35$ , 95% CI [.20 - .66],  $p < .01$ ). When the model is analyzed as a whole, it was found that obsessive connection and self-control together explained 42% of problematic smartphone use. Coefficients for direct and indirect effects and confidence intervals for these coefficients are presented in Table 4.

**Table 4. Bootstrapping parameters for the model**

Path	$\beta$	%95 CI (5000 bootstraps)		SE	p
		Lower	Upper		
Direct Effect					
PA-->SC	-.58	-.80	-.34	.12	.001
SC-->PSU	-.60	-.84	-.33	.13	.001
PA-->PSU	.04	-.23	.32	.15	.83
Indirect Effect					
PA-->SC-->PSU	.35	.20	.66	.11	.001

PA= Preoccupied Attachment, SC= Self-Control, PSU= Problematic Smartphone Use

## DISCUSSION, CONCLUSION & SUGGESTIONS

The aim of this study is to investigate the relationship between insecure attachment styles (fearful, dismissive and preoccupied) and problematic smartphone use and the mediating role of self-control in this relationship. As a result of the analysis, it was found that fearful, dismissive, and preoccupied attachment styles (hereinafter referred to as insecure attachment styles) significantly predicted self-control. Self-control has also been found to significantly predict problematic smartphone use. Finally, it was found that insecure attachment styles were significant indirect predictor of problematic smartphone use through self-control and self-control had a fully mediating role in this relationship.

In the research, it was found that all of the insecure attachment styles, which are independent variables, are significant predictors of self-control, and as adolescents' insecure attachment levels increase their self-control decreases. Considering similar studies in the literature, it was found that self-control was associated with attachment styles (Fearon et al., 2010), and people with high attachment anxiety had lower self-control (Hibbard, 2015). In fact, self-control was found to be lower in those who performed dismissive, fearful, and preoccupied attachment (Kara, 2016). It is also observed that adolescents who have insecure attachment are involved in social crime and have problems in close relationships (Ünlü, 2015). Looking at the characteristics of people who have insecure attachments, it is stated that they fail to manage their feelings because they consider themselves and the world unreliable (Kim, Kim, & Cho, 2017). Considering these findings as a whole, self-control is thought to be low as adolescents who have insecure attachment fail to control their emotions and behaviors.

In the second finding of the study, self-control was found to be a significant predictor for problematic smartphone use, and as the self-control level of adolescents increased, their problematic smartphone use decreased. In literature, there are a lot of studies that support this research finding. For example, people with low self-control skills were found to have high problematic smartphone and social media use (Rozgonjuk, Kattago, & Täht, 2018). Similarly, low self-control has been found to be associated with various types of addiction and is an important factor in increasing problematic smartphone use (Cho et al. 2017). One of the most distinctive features of people with low self-control is that they are impulsive (Jiang and Zhao, 2016). Because they are impulsive, they tend to perform instant actions that give them pleasure without controlling their behavior (Billieux, Maurage, Lopez-Fernandez, Kuss, & Griffiths, 2015). Since the use of smartphones also contains pleasurable content, it can be said that the use of smart phones will be problematic. Indeed, it is stated that self-control has a preventive role in smartphone addiction (Brand, Young, Laier, Wölfling, & Potenza, 2016). As a result, since adolescents with low self-

control skills cannot control their own behavior and postpone delightful risky actions, they tend to use smartphones. When this joyful smartphone usage increases to an abnormal level, problematic smartphone usage levels increase.

Finally, insecure attachment styles have been found to have an indirect effect on problematic smartphone use through self-control. In the literature, adolescents who are insecure to the mother and father are found to have high smartphone addictions (Görür, 2019). Similarly, it is stated that those who have high attachment anxiety use social media more (Oldmeadow, Quinn, & Kowert, 2013). Those without secure attachment tend towards nonhuman beings that make them feel good (Keefer, Landau, & Sulliva, 2014). Since smartphones function as a pleasure and entertain function, a connection takes place (Konok, Gigler, Bereczky, & Miklósi, 2016). As a matter of fact, attachment styles were found to be an important factor in problematic smartphone use (Choi & Seo, 2015; Muo, 2017) and even insecure attachment is an important determinant for nomophobia (Büyükçöplan, 2019). However, self-control has a full mediating role in the relationship between insecure attachment and problematic smartphone use. In other words, since people with insecure attachments have low self-control skills, their problematic smartphone use behaviors increase. As a result, as adolescents' insecure attachment level increases, self-control skills decrease; as self-control skills decrease, problematic smartphone usage behavior increases.

In line with the findings of the research, various suggestions can be made for researchers and practitioners. First of all, adolescents with problematic smartphone use behaviors should be looked into their attachment style and self-control skills, and support can be provided if needed. As the attachment styles can be more difficult to change, the self-control skill can be a primary goal. In this research, two important factors related to problematic smartphone usage are revealed. However, new studies can be made for the larger part that is not explained. In addition, this study reveals a hypothetical cause-effect relationship. The relationship between these variables can be more reliably demonstrated by experimental studies.

This study has several strengths and limitations. While generalizing the research findings, it should be treated with caution and it should be taken into consideration that the sample consists of high school students. While establishing a cause-effect relationship between the variables, the fact that this study is a hypothetical model is limited in showing the real cause-effect relationship. Since five variables were examined together in this study, it can be said that their findings fill a gap in the literature. In addition, since the participants were selected from different school types, this situation provided a richness in terms of data diversity.



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### **Author Contributions**

Contributions of author İY: Study design, Data collection, Statistical analysis, Data interpretation, Manuscript preparation, Literature search and Funds collection.

### **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 Kahramanmaraş Sütçü İmam University, Social and Humanities Ethics Committee. Informed sheet on the questionnaire was given to all individual participants and no identifying details (name, surname, and dates of birth, identity numbers, and other information) of the participants has been gathered and collected. Additionally, data tools in the study were only distributed to volunteer participants. Additionally, participants were informed that they could withdraw from the study at any time during data collection. Researchers don't have any opportunity to identify any specific participant.

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## RESEARCH

## Open Access

## ARAŞTIRMA

## Açık Erişim

## The Prediction Power of Attachment to Friends and Positive Character Strengths for Subjective Well-Being of Adolescents in School

*Ergenlerde Arkadaşa Bağlanma ve Pozitif Karakter Güçlerinin Okul Öznel İyi Oluşu Yordama Gücü*

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### ABSTRACT

The aim of this study is to investigate the predictive power of attachment to friends and positive character strengths in relation to subjective well-being of adolescents in school. The sample of the study is composed of 400 volunteers of high-school students in İstanbul European Side. Data are collected through Brief Adolescents' Subjective Well-Being in School Scale, Adolescent Friendship Attachment Scale and Character Growth Index. The results indicated that there was no significant difference in subjective well-being according to gender but the difference was noted according to socio-economical factors and school attendance levels of adolescents. According the result of the multiple regression analysis, the secure attachment to friend and optimism as character strength significantly predict %13 of the difference in the school subjective well-being levels of adolescents. Additionally, secure attachment and closeness as character strength significantly predict %9 of the change in the school subjective well-being. The findings were then discussed in line with the literature.

### Article Information

#### Keywords

Attachment  
School Subjective Well-Being  
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#### Anahtar Kelimeler

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### ÖZET

Bu araştırmanın amacı ergenlerin arkadaşına bağlanma ve pozitif karakter güçlerinin okul öznel iyi oluşu yordama gücünü incelemektir. Araştırma grubunu, İstanbul ili Avrupa yakasında öğrenim gören 240'ı kız 160'ı erkek toplam 400 lise öğrencisi oluşturmaktadır. Araştırmada Ergenler için Okul Öznel İyi Oluş Ölçeği Kısa Formu, Ergenler için Arkadaşa Bağlanma Ölçeği, Karakter Gelişim İndeksi kullanılmıştır. Araştırma bulguları incelendiğinde, ergenlerin okul öznel iyi oluş düzeyleri cinsiyete göre manidar bir farklılık göstermezken, sosyoekonomik düzey ve okul devamsızlık durumunda manidar bir farklılık tespit edilmiştir. Ergenlerin okul öznel iyi oluş düzeylerindeki değişikliğin %13'ü arkadaşına güvenli bağlanma ile iyimserlik karakter gücünden kaynaklandığı tespit edilirken, %9'u arkadaşına güvenli bağlanma ile yakınlık/sevgi karakter gücünden kaynaklandığı gözlenmiştir. Elde edilen bulgular literatür ışığında tartışılmıştır.

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**Ethical Statement:** The authors declare that they have carried out the research within the framework of the Helsinki Declaration and with the participation of volunteer students.

## INTRODUCTION

Schools play a significant role in the cognitive, affective and behavioral development of students as individuals since they are the places where students spend most of their time (Demir, 2007). Studies show how schools' effect on students in cognitive, affective and behavioral terms is determined by variables as a wide range of aspects from some factors related to family, school experiences and peers to legislation (Asıcı & İkiz, 2018; Gül, Kıran & Nasirsi, 2016; Kaya & Sezgin, 2017; Sakınç, 2013; White, 2010). Although these factors draw a general framework for students' relationship with school, studies conducted reveal that the students in Turkey have a much more complicated relationship with school. The study by Özdemir and Akkaya (2013), in which high school students' perceptions of school are analyzed through metaphors is an example of that. In this study, most of the participants, while using a negative metaphor such as 'prison' in the first place to describe the school, in the second place, they used a positive metaphor such as 'home/family'. Although the metaphors used are different, students define the school to be bothersome with authority and discipline and as reassuring as home and family (Özdemir & Akkaya, 2013). Another example of this is, when compared to peers taking part in PISA exams, students Turkey like their schools and feel belonged to school, however, they feel a high level of stress at school (Sunar, 2016). In order to decrease this negative affect, which causes school dropout, absenteeism and behavioral problems, the positive effect in the school should be increased (Ross, Shochet & Ballair, 2010). Having a life satisfaction where positive emotions are dominant and negative emotions are experienced less is defined as subjective well-being (Diener, 1984). In other words, subjective well-being expresses the positive evaluation of a person's quality of life as a whole and how much they love their life (Veenhoven, 1984; act. Diener, 1994). The high subjective well-being of the individual shows the predominance of positive thoughts and feelings about the person's life (Myers & Diener, 1995). How the adolescents experience their subjective life in the school environment and what emotional processes they experience is expressed with the concept of subjective well-being in school (Tian, 2008). This concept consists of 3 sub-categories; school satisfaction, positive emotion at school and negative emotion at school. School satisfaction is defined as the student's cognitive assessment of school life based on their own standards in various areas related to school. Positive emotion at school; expresses the positive feelings that students experience at school, such as feeling relaxed, feeling pleasant or happy. Negative emotion at school is expressed as students experiencing negative emotions such as depression, sadness and distress at school (Tian, 2008). In the literature, the concept of subjective well-being in school has similarities with the concept of school quality of life. School life quality is expressed as a general well-being resulting from the integration of individuals with school life (Karatzias, Papadioti-Athanasidou, Power & Swanson, 2001). However, while the concept of subjective well-being in school only shows a characteristic to determine the general emotion and general satisfaction of the student for the school, it is used as a concept closer to the school climate, which is aimed at evaluating school life in multi-dimensional (Büyükcebeci, 2017).

There are different factors that affect the subjective well-being of adolescents at school. When the literature is analyzed, positive school climate (Borkar, 2016), was observed to be related to emotional imbalance, responsibility and extroversion with personality traits (Eryilmaz & Oren, 2010), the level of meeting psychological needs (Tian, Chen & Heubner, 2014), and self-efficacy (Asıcı & Twin, 2018; Telef & Ergün, 2013). According to some studies, having warm and friendly teachers and to be provided a good learning environment are effective on the subjective well-being of the adolescent at school,

however, it has been found that the support and closeness perceived by adolescents from their friends have more effects on their subjective well-being at school (Tian, Tian, & Huebner, 2016). There are many factors effect adolescents to have positive peer relationships. The quality of the relationship established with parents in childhood determines the quality of peer relationships (Santrock, 2014). Studies conducted on adolescents show that secure attachment to parents and peers fulfills important functions in adolescents' compliance and well-being (Baytemir, 2014). Secure attachment to parent and peer was found to be significantly associated in a positive way with competence in social relationships and recognition in social circles (Little, 2003) and subjective well-being (Ma & Huebner, 2008; Raja, McGee & Stanton, 1992). The concept of subjective well-being, which is associated with individuals' attachment style, is defined as a general assessment style of individuals' life satisfaction and emotional states (Diener, 1984). The concept of attachment is defined as the first social behavior seen in the early stages of life, the first connection between the caregiver and the baby (Morgan, 1991). Bowlby (1973) defines the concept of attachment as a strong and emotional relationship that individuals develop towards people who are important in their lives such as mothers and caregivers. As a result of this relationship, individuals develop mental representations about the world. Attachment orientations reflect the individuals' internal working models about themselves, the other, and the relationship (Barthemow & Horowitz, 1991). Bowlby (1982) argues that in the first years of life, while individuals whose experiences with the caregiver are warm, secure and encouraging the autonomy, tend to attach 'securely' in adulthood, he argues that individuals whose caregivers avoid closeness and who have experience with abandonment and anxiety tend to have "insecure attachment". While secure attachment individuals believe that their needs will be met from those who are 'safe harbors' when they need it, those who have insecure attachments think that these ports are unreachable (Hazan & Shaver, 1987). Bartholomew and Horowitz (1991) developed a quadruple model according to the positive and negative perception of Bowlby's (1973) models of self and other mentioned above (Çeçen-Eroğul & Yurtal, 2014). In recent years, it has been observed that examining the basic dimensions instead of attachment categories gives more valid results and it has been determined that avoidance of attachment and anxiety about attachment represent two basic dimensions (Sümer, 2006). Individuals with high attachment anxiety are characterized by being anxious, sticky/clingy; dependent on people they are in a relationship with, afraid of abandonment and negative self-Fperception. Individuals with high attachment avoidance exhibit obsessive self-reliance, avoiding deepening their relationships, distrust of others, and liking to be alone (Lavy & Littmann, 2011).

The most basic principle of attachment theory is that the bond that develops between the infant and the caregiver is not limited to the childhood period, but also affects the social relations of the baby in adolescence and adulthood (Ainsworth, 1989; Arend, Gove, & Sroufe, 1979; Bowlby, 1973; Bowlby, 1982; Zimmermann & Becker-Stoll, 2002). Individuals with a secure attachment style experience less psychological problems than individuals with insecure attachment styles and are mentally healthier (Bonab & Koohsar, 2011). Individuals who have an insecure attachment styles, on the other hand, find it more difficult to establish social relationships or their relationships do not have healthy qualities (Yücelten, 2016). These individuals usually experience feelings of low self-esteem, jealousy, fear, and anxiety in the relationships they establish and accordingly, they increase the probability of deterioration of their relationships (Collins & Read, 1990).

According to Ainsworth (1989), attachment systems get changed in adolescence with the effect of hormonal changes Similar to Ainsworth, Weiss (1982) stated that attachment in infancy and attachment in adolescence & adulthood show different characteristics (cited in Hazan & Shaver, 1994).



Adolescence is also a transitional period for attachment theory (Allen & Land, 1999). That's because of the nature of relationships changes with adolescence. In this period, adolescents, who make an intense effort to gain independence and create a new identity, move away from the family and approach their peer groups for meeting their social needs (Allen & Land, 1999; Ausubel, 1954; Doğan, Karaman, Çoban & Çok, 2012; Raja, McGee, & Stanton., 1992; Sullivan, 1953; cited in Santrock, 2015). Therefore, attachment functions to parents gradually pass on to peers. In this transition period, attachment starts with the search for closeness. In the early stages of adolescence, the search for closeness provides an environment that includes support-seeking behavior (Gottman, 1983; Hazan & Shaver, 1994; Steinberg & Silverber, 1986).

Studies on the concept of attachment have shown that attachment anxiety and avoidance are associated with high levels of emotional distress and negative sensation (Simpson, 1990), depression, anxiety, and low levels of emotional well-being (Priel & Shamai, 1995), and high levels of loneliness, hostility, and psychosomatic symptoms. (Hazan & Shaver, 1990).

Subjective well-being is influenced by the individuals' own personal characteristics as well as by their environment (Asıcı & İkiz, 2018; Eryılmaz & Öğmiş, 2010). One of these traits is character strengths. Character strengths are defined as positive traits reflected by emotions, thoughts and behaviors (Peterson & Seligman, 2004). In other studies on character strengths, it was found that subjective well-being was closely related to personality traits (Diener, Suh, Lucas & Smith, 1999; DeNeve & Cooper, 1998; Steel, Schmidt, & Shultz, 2008) and character strengths (Gillham, Adams-Deutsch, Werner, Reivich, Coulter-Heindl, Linkins & Contero, 2011; Toner, Haslam, Robinson & Williams, 2012; Shoshani & Slone, 2013) defined as character strengths by Peterson and Seligman (2004). Character strengths have the potential to reveal the positive characteristics of the individual, increase well-being and prevent psychopathology (Gillham et al., 2011). For example, interpersonal character strengths focused on others can increase making friends and social support. And social support can increase positive experiences that indirectly lead to happiness and protect from affective disorders (Ekşi, Demirci, Kaya, & Ekşi, 2017). It has been determined that individuals who are able to establish safe social relationships and who are connected in their social environment have higher levels of subjective well-being (Bandura, 2008; Canbay, 2010; Du & Wei, 2015; Jose, Ryan, & Pryor, 2012). It has been stated that character practices applied in schools have a preventive function in students' risky behaviors and contribute to their level of well-feeling (Dilmaç & Ulusoy, 2016). It has been found in the literature that friend attachment styles and positive character strengths have an effect on students' subjective well-being in school. However, although studies on the subjective well-being in school of adolescents in our country are quite limited, are no studies have been met examining these three factors together. What has been written thus far about the sources of subjective well-being has shown that this concept is predominantly associated with positive social relationships and positive affect. Therefore in this research, the predictive level of the strength of character of optimism, which refers to feeling positive, hopeful, safe and enthusiastic about the future, character strengths of intimacy/love, which refers to good relationships with others based on trust and satisfaction, and secure attachment to friends on subjective well-being at school will be examined. It is thought that the study carried out in this direction will contribute to the literature.

## METHOD

### Research Model

This research is descriptive research questioning the current situation. In this research, which examines the role of adolescents' friend attachment and positive character strengths in predicting subjective well-being in school, the relational scanning model, one of the quantitative research types, was used. Relational survey models are research models that aim to determine the presence and / or degree of change between two or more variables (Karasar, 2010). Since the study aimed to examine the relationship between attachment to a friend, positive character strengths independent variables and the subjective well-being in school dependent variable without any intervention to these variables, it has been determined that the relational screening model is a suitable design for the research (Büyüköztürk, Kılıç Çakmak, Akgün, Karadeniz, & Demirel, 2016).

### Study Group

The research group consists of 400 high school students studying in Anatolian vocational high schools and Anatolian high schools in the European side of Istanbul in the 2018-2019 academic year. The information about the demographic variables of the students who create the study group of the study is given in Table 1.

Variable	Category	f	%
School Type	Anatolian High School	323	80.8
	Vocational High School	77	19.2
Gender	Female	240	60.0
	Male	160	40.0
Class Level	9th-grade	0	0.0
	10th-grade	128	32.0
	11th-grade	226	56.5
	12th-grade	46	11.5

According to Table 1, 240 (60.0%) of the participants are female and 160 (40.0%) of them are male. While 323 of the participants (80.8%) continue their education in Anatolian high school, 77 (19.2%) of them study at vocational high schools. When the grade levels of the participants are examined, it is seen that 128 (32.0%) of them are 10th-grade students, 226 (56.5%) of them are 11th-grade students and 46 (11.5%) of them are 12th-grade students.

### Ethical Statement

Indicate if there is ethics committee approval. Stating that you have carried out the research within the framework of the Helsinki Declaration; participants are volunteers, informed consent is obtained, etc. Indicate whatever measures are taken regarding ethics.

### Data Collection Tools

To determine the subjective well-being in the school of adolescents " Subjective Well-being in School Scale for Adolescents, Short Form", to determine friend attachment styles "Friend Attachment Scale for Adolescents" , and finally to determine positive character strengths "Character Development Index" were used in the study.

***Subjective Well-being in School Scale for Adolescents-Short Form.*** Subjective well-being in school scale for adolescents was developed by Tian Wang and Huebner (2015) to measure subjective well-being at school by considering both cognitive and affective structure. Adaptation of the scale to Turkish, validity and reliability studies were conducted by Akın, Çetin and Özen (2017). The scale consists of 8 items in total and 2 sub-dimensions: school satisfaction (6 items) and school emotion (2 items). A 6-point Likert rating key is used in answering the items (1 = Never, 6 = Always). There is 1 reverse item in the scale, and the total score that can be obtained ranges between 8 and 48. High scores obtained from the scale indicate that individuals' subjective well-being in school is at a high level. In the exploratory factor analysis applied for the construct validity of the validity studies of the scale, a two-factor structure which is listed between .59 and .82 and explains 54.6% of the total variance was obtained. The Cronbach Alpha internal consistency coefficient for the reliability studies of the scale was determined as .82. In addition, the coefficient obtained was tested with the reliability test-retest method and was determined as .71.

***Friend Attachment Scale for Adolescents.*** Friend Attachment Scale for Adolescents was developed by Wilkinson (2008) to measure adolescents' friend attachment styles. The adaptation of the scale to Turkish, validity and reliability studies were conducted by Ercan (2015). The scale consists of 23 items in total and 3 sub-dimensions: secure attachment, avoidant attachment, and anxious-indecisive attachment. A 5-point Likert rating key is used in answering the items (1 = I never agree, 5 = I totally agree). Items 2, 10, 16 and 19 of the scale are reverse scored and the score that can be obtained from the scale ranges between 23 and 115. High scores from each sub-dimension of the scale indicate the intensity of the mentioned attachment style. In the criterion validity analysis of the validity studies of the scale, a correlation in the expected direction was achieved between the Friend Attachment for Adolescents and Relationship Scales Questionnaire. The test - retest process values performed for the reliability studies of the scale were found to be .81 - .83. And the Cronbach Alpha internal consistency coefficient was determined as .60- .89.

***Character Development Index.*** Character Development Index was developed by Liston (2014) in order to evaluate the character development characteristics of adolescents. The adaptation of the scale to Turkish, validity and reliability studies were carried out by Ekşi, Demirci, Kaya and Ekşi (2017). The scale consists of 55 items in total and 11 sub-dimensions (determination, modesty, optimism, kindness, closeness, calmness, courage, wisdom, spirituality, forgiveness, and honesty). A 5-point Likert rating key is used to answer the items (1 = I never agree, 5 = I totally agree). There is no reverse item in the scale. High scores obtained from each sub-dimension of the scale indicate that the individual has the feature evaluated by the relevant sub-dimension. Since the contents of the scale are different from each other and have opposite characteristics in some cases, it is recommended that the scale be evaluated according to the subscale scores as in the original study. In line with the validity studies of the scale, the correlation coefficients with the Human Values Scale subscale scores vary between .30 and .65. In accordance with the validity studies of the scale, the correlation coefficients with the Human Values Scale subscale scores vary between .30 and .65.

### **Data Analysis**

Since the study was aimed to examine the predictive level of subjective well-being in school of adolescents' friend attachment and positive character strengths, in other words, as there was one

predicted (subjective well-being in school) and more than one predictor (friend attachment & positive character strengths), multiple linear regression analysis was used. The situation of providing the assumptions of the multiple linear regression analysis of the obtained data was examined. Accordingly, it was determined that the data obtained predicted the normal distribution (Skewness, Kurtosis coefficients) and provided the assumptions of linearity hypothesis (scatter diagram), constant variance, absence of autocorrelation (Durbin-Watson coefficients: 2.020, 2.024), and absence of multiple connections (Tolerance: 0.91, 0.66 --VIF). : 1.09, 1.50). In addition, since the study aimed to test the significance of the difference between the variables of gender, school attendance and socioeconomic level, which were thought to affect the subjective well-being in school of adolescents, and as it was determined that the obtained data provided the normality assumption, independent groups t-test and one-way analysis of variance (ANOVA) were used.

## RESULTS

In this section, the data were analyzed statistically in accordance with the purpose of the research, and the obtained findings were summarized in tables.

**Table 2. Descriptive statistics results of the variables in the research**

Variable	Category	$\bar{x}$	sd	Skewness	Kurtosis
Subjective Well Being in School		31.95	7.43	-.438	.062
Secure Friend Attachment		40.30	7.50	-1.077	1.301
Positive Character Strengths	Optimism	3.45	0.92	-.342	-.235
	Closeness/Affection	4.16	0.63	-.983	1.466
Gender	Female	31.70	7.76	-.363	-.027
	Male	32.34	6.90	-.556	.203
School Attendance	1-5	33.13	7.21	-.635	.634
	6-10	29.98	6.81	.002	-.031
	11-15	29.22	9.67	-.267	-1.171
	16-20	32.12	6.99	-.027	-.316
	21+	28.46	7.80	-.301	-.238
Socioeconomic Status	Low	25.14	6.39	-.093	-.592
	Lower Middle	30.19	7.94	-.111	.090
	Middle	31.80	7.25	-.495	.158
	Upper Middle	34.67	6.95	-.512	.315
	High	30.16	7.09	-1.569	3.339

Note. N=400

The data obtained according to Table 2 support the normal distribution assumption, the skewness and kurtosis values of all data except the high socioeconomic level are between +3 and -3. According to Tabachnick and Fidell (2007), when the skewness and kurtosis values of z scores are in the range of  $\pm 3.29$ , it is interpreted that the data is normally distributed. Kalaycı (2010) stated that the skewness-kurtosis coefficients being in the  $\pm 3$  range can be evaluated within normality.

**Table 3. Independent groups t-test results regarding subjective well-being in school of adolescents by gender variable**

Gender	n	$\bar{x}$	ss	sd	t	p
Female	240	31.17	7.76	398	-.848	.397
Male	160	32.30	6.90			

In this study, which was aimed to examine the status of adolescents' friend attachment and positive character strengths to predict subjective well-being in school, the results of the t test regarding the significance of the difference between subjective well-beings in school according to the gender of adolescents are given in Table 3.

According to Table 3, subjective well-being in school levels of male adolescents ( $M = 32.3$ ) are higher than subjective well-being in school levels of female adolescents ( $F = 31.7$ ). When the significance of this difference between the two averages was tested, it was seen that this difference was not statistically significant ( $t(398) = -0.85, p > 0.01$ ).

ANOVA results regarding the difference between the socioeconomic level of adolescents and subjective well-being in schools are given in Table 4.

**Table 4. ANOVA results regarding subjective well-being in school of adolescents by socioeconomic level variable**

Source of Variance	Squares Total	sd	Squares Average	F	P	Difference (LSD)
Intergroup	1406.724	4	351.681			
In-group	20654.554	395	52.282	6.727	.000*	1-3, 1-4
Total	22058.278	399				

\* $p < 0.01$

According to Table 4, a statistically significant difference was found between the socioeconomic level of adolescents and their subjective well-being in school ( $F(4) = 6,727; p < 0.01$ ). Post-Hoc test (LSD) was applied to determine which groups caused this difference.

**Table 5. Post-Hoc test (LSD) results regarding subjective well-being in school of adolescents according to their socioeconomic level variable**

Socioeconomic (I)	Socioeconomic (J)	Difference Between Avg.	sd	p
Low	Lower Middle	-5.051	2.277	.027
	Middle	-6.658*	1.984	.001*
	Upper Middle	-9.536*	2.092	.000*
	High	-5.023	2.844	.078
Lower Middle	Low	5.051	2.277	.027
	Middle	-1.607	1.286	.212
	Upper Middle	-4.484	1.448	.002
	High	.0277	2.410	.991
Middle	Low	6.658*	1.984	.001*
	Lower Middle	1.607	1.286	.212
	Upper Middle	-2.877	0.921	.002
	High	1.634	2.135	.444
Upper Middle	Low	9.536*	2.092	.000*
	Lower Middle	4.484	1.448	.002
	Middle	2.877	0.921	.002
	High	4.512	2.236	.044
High	Low	5.023	2.844	.078
	Lower Middle	-0.027	2.410	.991
	Middle	-1.634	2.135	.444
	Upper Middle	-4.512	2.236	.044

\* $p < 0.01$

According to Table 5, it was observed that the subjective well-being in school levels of adolescents with low socioeconomic status was significantly lower than the subjective well-being in school levels of adolescents whose socioeconomic level was medium (low-middle = -6,65) and above (low-upper middle = -9,53;  $p < 0.01$ ).

**Table 6. ANOVA results on subjective well-being in school of adolescents according to the school attendance variable**

Source of Variance	Squares Total	sd	Squares Average	F	p	Difference (LSD)
Intergroup	1064.528	4	266.132	5.007	.001*	1-2
In-group	20993.749	395	53.149			
Total	22058.277	399				

\* $p < 0.01$

The results of one-way analysis of variance (ANOVA) performed in order to determine the significance of the difference between the school attendance variable of adolescents and subjective well-being in school levels are given in Table 6.

According to Table 6, a statistically significant difference was found between students' school attendance and subjective well-being in school ( $F(4) = 5,007$ ;  $p < 0.01$ ). Post-Hoc test (LSD) was applied to determine which groups caused this difference.

**Table 7. Post-Hoc test (LSD) results regarding subjective well-being in school of adolescents according to the school attendance variable**

Socioeconomic (I)	Socioeconomic (J)	Difference Between Avg.	sd	p
1-5	6-10	3.145*	0.877	.000*
	11-15	3.907	1.620	.016
	16-20	1.009	1.879	.591
	21+	4.668	1.937	.016
6-10	1-5	-3.145*	0.877	.000*
	11-15	0.762	1.724	.659
	16-20	-2.135	1.970	.279
	21+	1.522	2.025	.453
11-15	1-5	-3.907	1.620	.016
	6-10	-0.762	1.724	.659
	16-20	-2.897	2.395	.227
	21+	0.760	2.441	.756
16-20	1-5	-1.009	1.879	.591
	6-10	2.135	1.970	.279
	11-15	2.897	2.395	.227
	21+	3.658	2.620	.163
21+	1-5	-4.668	1.937	.016
	6-10	-1.522	2.025	.453
	11-15	-0.760	2.441	.756
	16-20	-3.658	2.620	.163

\* $p < 0.01$

According to Table 7, it was determined that the subjective well-being levels of adolescents whose school absences are between 1 and 5 days are significantly higher than the subjective well-being levels of adolescents whose school absences are between 6 and 10 (1-5 / 6-10 = 3.14;  $p < 0.01$ ).

**Table 8. Multiple regression results regarding adolescents' secure attachment levels and positive character strengths of optimism sub-dimension predicting subjective well-being in school level**

Variable	B	Std. Error	$\beta$	t	p
Constant	17.829	2.058		8.662	.000*
Secure Attachment	.161	.049	.162	3.309	.001*
Positive Character Strength (Optimism)	2.219	.392	.277	5.656	.000*

\* $p < 0.01$ 

According to Table 8, as a result of the multiple regression analysis performed to determine the strength of the optimism sub-dimension, which is among the adolescents' secure attachment levels and positive character strengths, in predicting subjective well-being in school, the model established was found to be positively and moderately significant ( $R = 0.36$ ,  $p < 0.01$ ). Adolescents' secure attachment and optimism dimension, one of the positive character strengths, was found to explain 13% of the total variance in subjective well-being in school ( $R^2 = 0.13$ ,  $F = 29.4$ ,  $p < 0.01$ ). When the t-test results regarding the significance of the regression coefficients were examined, secure attachment ( $t = 3.309$ ,  $p < 0.01$ ) and optimism sub-dimensions ( $t = 5.656$ ,  $p < 0.01$ ) were found to be statistically significant positively. According to the standardized regression coefficient ( $\beta$ ), it was found that the optimism subdimension ( $\beta = 0.277$ ) from the positive character strengths on the subjective well-being in school of adolescents had a higher relative effect on the level of secure attachment to friends ( $\beta = 0.162$ ) ( $p < 0.01$ ).

The results of multiple linear regression analysis related to the predictions of adolescents' secure attachment levels and the closeness/affection sub-dimension from positive character strengths to subjective well-being in school levels are given in Table 9.

**Table 9. Multiple regression results regarding adolescents' secure attachment levels and closeness/affection from positive character strengths predicting subjective well-being in school level**

Variable	B	Std. Error	$\beta$	t	p
Constant	17.145	2.466		6.954	.000*
Secure Attachment	.126	.058	.127	2.15	.031
Positive Character Strength (Closeness/Affection)	2.340	.689	.200	3.397	.001*

\* $p < 0.01$ 

According to Table 9, as a result of the multiple regression analysis performed to determine the strength of the adolescents' secure attachment levels and the closeness/affection sub-dimension, which is one of the positive character strengths, in predicting subjective well-being in school, the model established was found to be positively and statistically significant ( $R = 0.29$ ,  $p < 0.01$ ). It was determined that adolescents' secure attachment and closeness / affection sub-dimension, which is one of their positive character strengths, explains 9% of the total variance in subjective well-being in school ( $R^2 = 0.09$ ,  $F = 18.53$ ,  $p < 0.01$ ). When the t-test results regarding the significance of the regression coefficients were examined, the closeness / affection sub-dimension ( $t = 3.397$ ,  $p < 0.01$ ) was found to be positively significant, while the secure attachment sub-dimension ( $t = 2.159$ ,  $p > 0.01$ ) was observed statistically not significant. According to the standardized regression coefficient ( $\beta$ ), it was determined that the closeness / affection sub-dimension ( $\beta = 0.200$ ), which is one of the positive character strengths, on the subjective

well-being in school of adolescents, had a higher relative effect than the level of secure attachment to friends ( $\beta = 0.127$ ).

## DISCUSSION, CONCLUSION & SUGGESTIONS

Adolescents spend most of their time in school. Consequently, it has been determined that the subjective experiences and emotional processes they experience in the school environment, which is called subjective well-being in school, have an effect on individuals' personality traits, emotional states, social skills, and life outside of school (DeNeve & Cooper, 1998; Tian, 2008; Canbay, 2010). The concept of subjective well-being at school, which has an important place in the lives of adolescents, has become more prominent in recent years. In this study, it was aimed to examine the predictive power of adolescents' friend attachment and positive character strengths on subjective well-being in school.

There was no significant difference found when the relationship between subjective well-being in school levels of adolescents according to their gender variable was examined ( $p > 0.01$ ). Stated in other words, there is no difference between adolescents' being male or female and their subjective experiences and emotional processes in the school environment. In parallel with this result, in a study conducted by Huebner (1994) with American adolescents, no significant difference was determined between the subjective well-being in school levels of male and female high school students. Likewise, in the study conducted by Büyükcebeci (2017) in our country, which examined the subjective well-being in school levels of adolescents, no significant difference was found according to gender. Nevertheless, in a study conducted by Tian and Liu (2007) with Chinese students, it was found that female students' subjective well-being in school levels was higher than male students. Researchers state that the reason for this finding may be that male students show more behavioral problems, they are more criticized by teachers due to their more absenteeism; consequently, they experience lower satisfaction at school. In the study investigating gender-based outcomes in education in Turkey which conducted by Batyra(2017), it was found that female students generally receive more family support and do not have to work outside of school. However, the factors affecting the status of students at school differ according to the type of school they attend, the region they live in, whether they are in a public school or a private school. It is thought that the reason for the lack of difference between genders in subjective well-being may be due to the fact that the research was conducted in Istanbul and public schools. It is necessary to investigate whether there is a gender difference in subjective well-being in school by collecting data from different types of schools and different regions of Turkey.

When the relationship between the socioeconomic levels of adolescents and subjective well-being in school levels was examined, a significant difference was found ( $p < 0.01$ ). In other words, subjective well-being in school levels of adolescents with low socioeconomic levels is lower than adolescents whose socioeconomic level is middle and above. A significant difference was found in the relationship between school absenteeism and subjective well-being in school levels of adolescents ( $p < 0.01$ ). In other saying, subjective well-being in school levels of adolescents with higher levels of absenteeism is lower than adolescents with lower absenteeism levels. When the related literature is examined, health problems, family problems, having lessons they dislike, their necessity to work economically, etc. factors were found to be related to adolescents' level of absenteeism from school (Öztekın, 2013; Girgin, 2016). However, no studies directly examining the relationship between students' absenteeism and subjective well-being in school were found in the literature. It is thought that the possible explanations for the increase in subjective well-being as school attendance increases may be the decrease in conflicts with the family and



increase of family support when students attend school, the increase in the sense of belonging to the continuing students to the school, and the development of a more harmonious relationship with their friends and teachers. Also, the students who are expected to attend school may think that they exhibit the correct behavior by fulfilling this. Having positive self-worth and believing in doing the right thing is one of the most basic needs of the individual (Aronson, Wilson, & Akert, 2012). Researching the effect of school attendance on subjective well-being in school through quantitative and qualitative studies will contribute to the field.

According to the results of the regression analysis conducted to examine the predictive status of adolescents' friend attachment and positive character strengths to subjective well-being in school levels, it was determined that 13% of the change in subjective well-being in school levels of adolescents was caused by secure attachment to friends and the optimism character strength. In other words, it is observed that adolescents' level of secure attachment to friends and optimism character strengths moderately predicted their subjective well-being in school levels. In parallel with this result, according to Diener (2006) optimism is a part or moreover a component of subjective well-being. A significant positive relationship was found between subjective well-being and optimism in a study conducted by Öztürk (2013). In another saying, it is seen that people with high levels of subjective well-being approach situations and events with a more positive attitude. Similar findings were found in studies conducted by Chang, Maydeu-Olivares and D'Zurilla (1997) and Ho, Cheung and Cheung (2000). Accordingly, it can be expressed that optimism is one of the most important personality traits that can be related to subjective well-being (Öztürk, 2013). In a study conducted with adolescents by Baytemir (2014), adolescents' secure peer attachment status directly affects subjective well-being. Likewise, in the studies conducted by Armsden and Greenberg (1987) with adolescents, it was determined that there is a positive relationship between secure peer attachment and subjective well-being. In Ma and Huebner's (2008) study examining the relationship between peer attachment and subjective well-being in adolescents, attachment to peer was positively associated with subjective well-being, again, in another study conducted by Özer (2009), it was found that there was a positive and significant relationship between secure attachment and subjective well-being, and only secure attachment was found to be important in explaining subjective well-being. In the literature, studies examining the effect of friend attachment and optimism character strength on subjective well-being of individuals have been reached. However, in the relevant literature, no findings were found regarding the predictive status of adolescents' subjective well-being in schools by using a combination of friendship attachment and optimism levels. It is thought that the result obtained in this direction will contribute to the literature.

According to the results of the regression analysis conducted to examine the predictive status of adolescents' friend attachment and positive character strengths to subjective well-being in school levels, it was determined that 9% of the change in subjective well-being in school levels of adolescents was caused by secure attachment to friends and the closeness/affection character strength. In other words, it is seen that adolescents' secure attachment to friends and closeness/affection character strengths significantly predicted their subjective well-being in school at a low level. In parallel with this result, in a study conducted by Suldo, Friedrich, White, Farmer, Minch and Michalowski (2009), it was reported that the social support provided by teachers to students, their efforts to establish an emotional connection with students and the instrumental support they offer explained 16% of the student's subjective well-being. According to this result, it is seen that not only the closeness/affection relationship between

adolescents increases their subjective well-being, but also the establishment of closeness/affection in the teacher-student relationship also increases the subjective well-being levels of adolescents.

When the reasons of school absenteeism of students in the world and in Turkey are examined, it is seen that problems related to school become prominent (Altinkurt, 2008; White, 2010; Hoşgörür & Polat, 2015; Gül, Kıran, & Nasırsi, 2016). In the study conducted by Gül et al. (2016), it was concluded that the effect of family-based reasons on school absenteeism of adolescents is much less than school-related reasons. Therefore, studies should be planned to increase the general feelings and general satisfaction of adolescents towards school, in other words, their subjective well-being in school. In line with the study conducted, it is considered that instilling optimism and closeness / affection characteristics in adolescents and developing these characteristics in them will have a positive effect on their subjective well-being in school levels. In other words, these features decrease adolescents' negative feelings towards school and their experiences in school and increase their subjective well-being in school. In this direction, it is thought that adolescents will experience more positive emotions at school and their satisfaction at school will increase if they are supported by programs to increase their positive character strength (optimism, closeness / affection, etc.) by school psychological counselors and other field experts. In addition, it is thought that supporting different variables that can protect and increase the subjective well-being in school levels of adolescents with quantitative and qualitative studies will contribute to the literature.

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### Author Contributions

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



### **Conflict of Interest**

The authors of the study declare that there is no conflict of interest.

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In the writing process of the work titled "**The Prediction Power of Attachment to Friends and Positive Character Strengths for Subjective Well-Being of Adolescents in School**", the scientific, ethical and citation rules were followed, there was no falsification on the data collected, the "Turkish Psychological Counseling and Guidance Journal Editorial Board" had no responsibility for all ethical violations, and all the responsibility belongs to the authors. I undertake that it has not been sent to another academic publishing medium for evaluation.

## RESEARCH

Open Access

## ARAŞTIRMA

Açık Erişim

## University Students' Attitudes Toward Homosexuals

*Üniversite Öğrencilerinin Eşcinsel Bireylere Yönelik Tutumları*Funda Bozkurt , Fidan Korkut-Owen 

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## ABSTRACT

The current study examined the differences in the levels of homophobia in terms of the sex of participants, level of class, level of religiosity, acquaintance, and level of acquaintance with homosexual individuals among university students. Hudson and Ricketts's Homophobia Scale and a demographic questionnaire were given to 419 university students (298 female and 121 male) who participated in the study. The analyses were conducted using SPSS 22.0. The results showed that male students had more negative attitudes toward homosexuals compared to female students, students who defined themselves as religious had more negative attitudes, and individuals who had a homosexual acquaintance had more positive attitudes. Moreover, it was found that individuals who had a very close level of acquaintance with homosexuals had more positive attitudes toward lesbians and gays. No significant difference was found in the level of homophobia in terms of the level of class. The findings are discussed in light of previous research. In addition, suggestions for future research are provided.

## Article Information

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## Anahtar Kelimeler

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## ÖZET

Bu çalışmada, üniversite öğrencilerinin eşcinsel bireylere yönelik tutumlarının cinsiyet, sınıf düzeyi, dini inanç düzeyi, eşcinsel bir tanıdığına sahip olup olmama ve tanıdığı var ise tanışıklık düzeyi değişkenlerine göre farklılaşp farklılaşmadığı incelenmiştir. Araştırmaya katılan 419 lisans öğrencisine (298 kadın ve 121 erkek) eşcinsellere yönelik tutumları ölçmeye yönelik olarak geliştirilen Hudson ve Ricketts Homofobi Ölçeği ile Kişisel Bilgi Formu verilmiştir. Veriler SPSS 22.0 istatistik paket programı ile analiz edilmiştir. Araştırmanın sonuçları, erkek öğrencilerinin kadın öğrencilerine, dini inanç seviyesi yüksek olan öğrencilerin dini inancı düşük olanlara göre eşcinsel bireylere yönelik daha olumsuz tutumlar beslediğini, eşcinsel bir tanıdığı olanların olmayanlara göre daha olumlu tutumlara sahip olduğunu ve tanışıklık düzeyi yaklaştıkça tutumların daha olumlu olduğunu göstermiştir. Eşcinsellere yönelik tutumların sınıf düzeyine göre anlamlı bir farklılık göstermediği de elde edilen bulgulardandır. Araştırmadan elde edilen bulgular önceki çalışmaların ışığında tartışılmıştır. Ayrıca gelecek araştırmalara ilişkin öneriler sunulmuştur.

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## INTRODUCTION

In general terms, *sex* refers to the distinction of the genetic, biological, and physiological characteristics and differences that define individuals as male or female (Marshall, 1999). *Gender*, on the other hand, refers to the characteristics, behaviors, norms, and roles that any society considers appropriate for and expects from men and women. It differs according to time, geography, and culture; and thus, can be changed (World Health Organization, 2017).

Similar to the concepts of sex and gender, the concepts of sexual orientation, sexual identity, and sexual role are also different and distinct from each other. Within psychiatric classifications, *sexual orientation* refers to an individual's enduring pattern of emotional, romantic, and sexual attraction to other people; *sexual identity* refers to an individual's perception of themselves in terms of sexual matters, including preferences and gender roles, and definition of their individual sexuality; and lastly, *sexual role* refers to sets of culturally defined attributes, such as actions, feelings, attitudes, personality traits, values, and interests that a society considers appropriate for males and females (Öztürk & Uluşahin, 2008). It is defined as heterosexuality when sexual orientation is directed toward the opposite sex, homosexuality when directed toward one's own sex, and bisexuality when directed toward both sexes (Psychiatric Association of Turkey and Sexual Education, Treatment and Research Association, CETAD). In fact, homosexuality is the most discussed among all sexual orientations.

Homosexuality, which dates far back in history, is defined as physical, emotional, romantic, or sexual attraction and the relationship between individuals of the same sex or gender (Güney, Kargı, & Çorbacı Oruç, 2004). Gay and lesbian are the terms used for male and female homosexuals, respectively. Although there is a certain amount of tolerance toward non-heterosexual sexual orientations in some societies, such as the Netherlands (Collier, Horn, Bos, & Sandfort, 2015), it seems that many cultures and religions hold a negative attitude against homosexuality (Güney et al., 2004; Sakallı & Uğurlu, 2001). Therefore, it is stated that prejudice and discrimination toward homosexuality are serious problems in today's societies (Polimeni, Hardie, & Buzwell, 2000). Despite the fact that homosexuality was removed by the American Psychiatric Association (APA) from the second edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM) in 1973 (Drescher & North, 2015) and stated not to be a mental illness or sickness (Herek & Garnets, 2007), homosexual individuals are often exposed to stigmatization, labeled as 'sick' and 'abnormal', and forced to be heterosexual. Additionally, as a group targeted by prejudice and discrimination, homosexuals face various social and psychological problems as well. Some of these include situations such as being verbally and physically attacked and being unable to be open about their sexual orientation (Herek, 1989). Several studies conducted with homosexual university students (Ellis, 2009; Evans et al., 2017; Nelson, 2010; Tetreault, Fette, Meidlinger & Hope, 2013) have shown that these individuals were exposed to exclusion, humiliation, bullying, and physical and emotional violence by their peers. Similarly, the results of Danyeli Güzel's (2017) study showed that being exposed to social exclusion had a negative impact on lesbian, gay, bisexual, and transsexual individuals, and several of them disguised their sexual orientation.

In a joint press statement made in 2010 by the Psychiatric Association of Turkey and Sexual Education, Treatment and Research Association (CETAD), it was indicated that homosexuality is an orientation the same way as bisexuality and heterosexuality, and not a disease. Moreover, it was stated that homosexuality is not a matter of preference; meaning that it is a phenomenon independent of the

free will of people (Psychiatric Association of Turkey News Bulletin, 2010). An important reason underlying the negative attitudes toward homosexuals is homophobia. When the concept of homophobia emerged in the 1970s, it was considered as a mental illness or a condition related to irrational fears toward homosexuality or homosexual individuals (Herdt & van der Meer, 2003). Similarly, Lorde (1978) defined homophobia as; “*The fear of feelings of love for members of one’s own sex and therefore the hatred of those feelings in others.*” (p. 31). However, the concept of homophobia now refers to a variety of broad and sometimes confusing topics that go far beyond the original definition and conceptualization. Homophobia, in the context of cultural ideology, alongside diplomacy and politics, institutional and social traditions, and discriminatory practices, refers to the diversity of emotions and intentions that cause violence and interpersonal behaviors (Herdt & van der Meer, 2003).

In general, homophobia is defined as negative feelings, attitudes, and behaviors toward homosexuality or homosexual individuals (Herek, 1988). By taking into consideration the prejudice and discrimination it brings along, homophobia is explained in the context of a specific cultural ideology (Herdt & van der Meer, 2003). According to Göregenli (2003), homophobia can be seen as an intergroup relation ideology that is accompanied by certain stereotypes and influenced by individual processes, such as personality, self-perception, and cognitive structures, formed as a result of the conceptualization of homosexual individuals as an outgroup. Moreover, it has been argued that the homophobic ideology does not develop by itself as an individual characteristic; instead, it is formed within a particular social-cultural context. Sakallı and Uğurlu (2001) argue that the reason behind the fear and negative feelings toward homosexuals is that individuals focus on the strict rules regarding sexual intercourse rather than thinking about romance and love and that they do not share the same values and opinions in areas such as friendship and world view. Additionally, it has been stated that another cause behind the formation of negative attitudes toward homosexuals is that people have too many traditional beliefs about gender roles (Herek, 1988). Similarly, according to Whitney (2001), the reason behind the disapproval of homosexuals’ behavior is that it is contrary to traditional gender roles and beliefs and that it violates the norms of the heterosexist belief system. In other words, behaviors that do not comply with traditional norms are perceived by some people and societies as harmful, wrong, and forbidden.

Adherence to religion and gender norms are factors that lay the groundwork for the emergence of homophobia (Herek, 1988). In a study by Froyum (2007), it was found that Black teenagers viewed the male and female body as a ‘match’ and they considered homosexuality as ‘nasty’ or ‘disgusting’. Furthermore, the participants perceived homosexuality to be less valuable compared to heterosexuality due to their beliefs regarding gender roles and religion. Similarly, according to Herek (1988), there is a significant correlation between religious affiliation and negative attitudes toward homosexuals. He states that heterosexual individuals who belong to a liberal religious denomination or who are not religious, and endorse nontraditional views of gender and family are more likely to have tolerant attitudes toward homosexuals.

It has also been suggested that there is a relationship between attitudes toward homosexuals and the stereotypical behaviors expected from men and women. In various societies, people perceive non-heterosexual orientations and identities as a threat to traditional male and female behavior. Since this perception is believed to undermine gender identities, it ostracizes homosexuals from society (Selek, 2001). In a study by Sakallı (2002a), it was found that college students defined male homosexuals with stereotypic attributes, such as “acts like women (acts femininely)”, “wears make-up”, “talks feminine”,

“attention seeker”, and “emotional”. Similarly, in Deaux and Lewis’ (1984) study, it was found that men and women were considered homosexual when they were introduced with the characteristics of the opposite gender. Specifically, when men were introduced with feminine characteristics (e.g., source of emotional support, managing the house, and taking care of the children), and women were introduced with male characteristics (e.g., head of household, financial provider, and leader), they were considered homosexual. Apparently, the characteristics attributed to homosexuals include traditional roles that seem appropriate for men and women. Individuals who behave in ways that deviate from these traditional roles are also characterized as homosexuals and are subject to prejudice and discrimination (Herek, 1989; Whitney, 2001).

The established culture forms homophobic attitudes. Thus, culture marginalizes individuals with different sexual orientations. As a result, there is a greater probability that individuals with different sexual orientations might experience problems with mental health, self-esteem, and identity. Moreover, the risk of committing a suicide attempt and the rate of living on the street also increase (Göregenli, 2004). However, as might be expected, there are cross-cultural differences in attitudes toward individuals with different sexual orientations. For instance, Collier, Horn, Bos, and Sandfort (2015) found that the Dutch youths’ attitudes toward homosexuals were more favorable than those of the American youth. While the American adolescents who participated in the study stated that being homosexual is against social norms and religious beliefs, the Dutch participants believed that people are born as gay or lesbian and that these individuals should be allowed to love whoever they want. It has been indicated that the reason why the beliefs about homosexuality having a biological or genetic basis is more common among the Dutch youth might be due to the sexuality education given in middle school in the Netherlands (Ferguson, Vanwesenbeeck, & Knijn, 2008). However, considering that this education is not given in every country, it can be inferred that individuals might not develop enough insight or understanding regarding this issue. Therefore, it is common to see that attitudes toward homosexuals are predominantly negative in today’s world.

Studies show that negative attitudes and beliefs toward homosexuals emerge in many different areas of life, such as at home, in school, in peer groups, and in the whole society (Tasgenli, 2004; Herdt & van der Meer, 2003; Polimeni et al., 2000). For instance, homophobia within the family occurs in the form of verbal abuse, physical threat, or physical violence (Nocera, 2000, as cited in Göregenli, 2004). Besides, the educational system and the school itself, which play an essential role in the strengthening of the established discriminatory ideology, reinforce individuals’ perception of belonging to the majority, similarity as a virtue, and social approval. Several studies have shown that school life strengthens the ideology of masculinity and the widespread dogma of “compulsory heterosexuality” as well as homophobia (Göregenli, 2004; Phoenix, Frosh & Pattman, 2003). Consequently, it can be inferred that individuals exposed to this ideology might internalize homophobia. This situation, which has become part of their lives, might give an idea of why homophobia is so tough and resistant to change.

Under the circumstances, prejudices and negative attitudes toward non-heterosexual sexual orientations and homosexuals have been attractive research topics for researchers. So far, researchers have examined the relationships between attitudes toward homosexuals and different variables. One of these variables is gender. Several studies have found that men have more negative attitudes toward homosexuality compared to women (Herek, 1988; Kara, 2018; Kite & Whitley, 1996; Kurdek, 1988). Likewise, studies conducted in Turkey have shown that women generally have a lower level of

homophobia compared to men (Çırakoğlu, 2006; Güney et al., 2004; Sakallı & Uğurlu, 2001; Sanberk, Çelik, & Gök, 2016). Additionally, research findings have shown that men hold more negative attitudes towards male homosexuals (e.g., gays) (Anderssen, 2002; Herek, 1988; Steffens & Wagner, 2004). According to the researchers, men feel more pressure to conform to traditional gender norms than women. Consequently, they exhibit negative attitudes toward homosexual men who act against gender roles (Brown & Amoroso, 1975; Oliver & Hyde, 1995). Herek (1986) also stated that men's negative attitudes toward homosexuals are based on concerns regarding traditional male roles and characteristics. The basis of these worries is the fear of losing oneself and one's personality as a heterosexual man. In other words, in order to comply with social standards and cope with their anxieties, heterosexual men display homophobic attitudes which make them receive social support and lead to a decrease in their level of anxiety.

Another variable that has been found to have a relationship with attitudes toward homosexuals is the level of education (Sakallı Uğurlu, 2006). Studies have shown that there is a negative correlation between the level of education and level of homophobia. More clearly, higher levels of education lead to lower levels of negative attitudes toward homosexuals (Battle & Lemelle, 2002; Lewis, 2003). Thus, in this respect, it can be inferred that getting a university education might make a difference in attitudes toward homosexuals. This concern has been supported by the results of Lambert, Ventura, Hall, and Cluse-Tolar's (2006) study: In their research conducted with 364 university students, it was found that attitudes toward homosexuals were significantly more positive among juniors and seniors compared to freshmen and sophomores. According to these researchers, having a higher level of education seems to lead individuals to be more tolerant and open-minded.

Apart from these, Herek (1988) stated that adherence to strict and traditional gender rules have a negative influence on attitudes toward homosexuals. In addition, it has been found that the level of religiosity increases the level of homophobia (Wilkinson & Roys, 2005) and predicts attitudes toward homosexuals (Shulte & Battle, 2004). In a study by VanderStoep and Green (1988), it was found that individuals who stated that they were devoted to religion had more negative feelings toward homosexuals compared to individuals who were not. Similarly, in a study conducted in Turkey, students who had a higher level of religiosity were found to have higher levels of negative attitudes toward homosexuals compared to students who had a lower level of religiosity (Saraç, 2015). Research findings show that individuals who hold negative attitudes toward homosexuals consider gays and lesbians as individuals who violate God's rules and do not act in accordance with their gender (Herek, 1988; Sakallı-Uğurlu, 2006). As a result of such rigid thoughts, homosexual individuals and their behaviors get perceived as nonconforming to the norms of society, abnormal, and unacceptable. Since there are only a few studies that have examined the relationship between education and religiosity and attitudes toward homosexuals, the investigation of the relationship between these variables is suggested (Sakallı & Uğurlu, 2001; Saraç, 2015).

Two other variables that are believed to have a relationship with the level of homophobia are having a homosexual acquaintance and having social contact or interaction with homosexual individuals. According to studies conducted abroad as well as in Turkey, it has been found that individuals who have a homosexual acquaintance and who associates with homosexuals have more positive attitudes toward them (Anderssen, 2002; Çırakoğlu, 2006; Herek & Glunt, 1993; Kara, 2018; Sakallı, 2002a; Sakallı & Uğurlu, 2001). In an experimental study conducted with university students in Turkey, it was found that

after talking to a lesbian student for one hour, attitudes toward homosexuals changed in a positive way among students who, to begin with, had negative attitudes toward homosexuals (Sakallı & Uğurlu, 2002). Consequently, the researchers stated that getting to know a homosexual individual leads to a decrease in homophobic attitudes among students. However, in another study by Güney et al. (2004), it was indicated that having a homosexual acquaintance does not always lead to positive attitudes. According to these researchers, attitudes toward homosexuals change in a negative way as the level of acquaintance with homosexuals increases or gets closer. Specifically, it was found that attitudes were optimistic when the familiar homosexual was a friend. However, the attitudes were negative when the homosexual person was a member of the family.

As it is seen, homophobia is a serious problem abroad as well as in Turkey, and it has a negative impact on many homosexual individuals. It has been stated that homosexuals who are exposed to prejudice and negative attitudes get more attacked physically, have alcohol and substance use habits, and have more suicide attempts compared to heterosexual individuals (Faulkner & Cranston, 1998). In addition, several studies have found that homosexuals are unsafe on university campuses and prefer to hide their sexual orientation because their peers victimize them due to their orientation (Mustanski, Newcomb & Garofalo, 2011; Toomey, Ryan, Diaz, Card, & Russell, 2013). Consequently, considering the findings mentioned above, it is clear that homosexual students experience social and psychological problems.

The university environment is expected to provide an equal and accepting environment for everyone. It is believed that determining the attitudes toward homosexuals among university students through counseling centers at universities can help with taking preventive steps and protective measures against possible acts of discrimination and violence. With its emphasis on the well-being and self-realization of the individual, the field of counseling is one of the disciplines with the highest potential to contribute to the lives of homosexual individuals. The findings of the present study are thought to be beneficial for counselors who work with homosexual individuals at universities; in that, they can become well informed and competent regarding the negative attitudes that homosexual individuals are exposed to. Additionally, it is believed that it might help individuals who have negative attitudes toward homosexuals to get to know and understand more closely the reasons behind their prejudices. Based on the literature described above, the present study aimed to examine whether or not university students' attitudes toward homosexuals would differ significantly according to their gender, level of class, level of religiosity, whether they have a homosexual acquaintance, and if they do, level of acquaintance.

## METHOD

### Study Group

The data of the study were obtained from a total of 419 undergraduate students (298 females (71.1%) and 121 males (28.9%)) studying at different universities in Turkey during the 2017-2018 fall semester. Participants were recruited through the snowball sampling method between December 1-15, 2017, by using the Google Docs program. In this sampling method, the process of sampling starts by reaching out to one of the individuals to be studied. After reaching this individual, other people suggested by the individual are reached, and then the same goes for other individuals suggested by these individuals. The process continues in this way by increasing the number of participants and ends with a sample by focusing on specific individuals (Şahin, 2014). Informed consent was obtained from all participants and

participation were voluntary. Fifty (11.9%) of the participants were freshmen, 87 (20.8%) were sophomores, 65 (15.5%) were juniors, and 217 (51.8%) were seniors. Regarding religiosity, 249 (59.4%) of the participants defined themselves as religious and 91 (21.7%) as non-religious. Also, 79 (18.9%) of the participants stated that they were unsure about religiosity. While 292 (69.7%) of the participants mentioned that they had a homosexual acquaintance, 127 (30.3%) of them stated that they did not. Regarding the level of acquaintance with homosexual individuals, 123 (29.4%) of the participants were very close (e.g., relative, friend, sibling, etc.), 126 (30.1%) were somewhat close (e.g., exchanging hellos, neighbor, etc.), and 48 (11.5%) were not close (e.g., neighbor's relative, etc.)

### **Ethical Statement**

The authors declare that they have carried out the research within the framework of the Helsinki Declaration and with the participation of volunteer students.

### **Data Collection Tools**

***Hudson and Ricketts's (1986) Homophobia scale.*** In order to measure attitudes toward homosexuals, Hudson and Ricketts's (1980) homophobia scale was used. The Turkish adaptation of the scale was done by Sakallı and Uğurlu (2001). The scale consists of 24 items rated on a 6-point Likert scale (1 = totally disagree, 6 = totally agree). During the adaptation study, data of 211 (105 males and 106 females) continuing their undergraduate education at Middle East Technical University (METU) were used. First of all, the scale was translated into Turkish by two students whose second language was English. Then it was translated back from Turkish into English by a teacher in the Department of Modern Languages at METU. Although Hudson and Ricketts's (1980) scale has 25 items, Sakallı and Uğurlu (2001) excluded one item about walking comfortably through a gay section of town from the scale because of the absence of a predominantly gay section in Ankara. A principal-components factor analysis of the items of the scale was performed with varimax rotation forced to 3 factors. The total variance explained by the three factors was 54.92%. The Cronbach's alpha value for the total score of Hudson and Ricketts's original scale was found to be .90, while it was found to be .94 in the Turkish version. The factors and their Cronbach's alpha values are as following: Factor 1, "Social interaction with homosexuals" ( $\alpha = .90$ ); factor 2, "Probable family ties with homosexuals" ( $\alpha = .88$ ), and factor 3, "Tendency to be a homosexual" ( $\alpha = .66$ ). The total of the 24 items forms the measure of "Attitude toward homosexuality". In the present study, the total score was used. Eleven items in the scale are scored in reverse. Getting a high score on the scale indicates high levels of negative attitudes toward homosexuals; in other words, high scores demonstrate high levels of homophobia (Sakallı & Uğurlu, 2001). The Cronbach's alpha value in the present study was found to be .96.

***Demographic Questionnaire.*** This questionnaire included questions regarding the participants' gender, level of class, how they defined themselves in terms of religiosity (e.g., "I define myself as religious", "I do not define myself as religious", "I am not sure"), whether or not they have a homosexual acquaintance, and if they do, the degree of that acquaintance (e.g., "Very close (my relative, friend, sibling, etc.)", "Somewhat close (exchanging hellos, my neighbor, etc.)", and "Not close (my neighbor's relative, etc.)")

### **Data Analysis**

The collected data were analyzed using the Statistical Package for the Social Sciences (SPSS), version 22.0. First of all, in order to check for normality, skewness, and kurtosis values were examined.



The values obtained were found to be between  $-/+ 1.5$  for all variables (Tabachnick & Fidell, 2013). The homogeneity of the data was tested with Levene's test. Parametric statistics were used since the analyses showed that the data were normally distributed and that the assumption of homogeneity of variance was not violated, except with regard to two of the variables (e.g., level of religiosity and level of acquaintance). Thus, to test against the unequal variances, the Welch and Brown-Forsythe tests were used. Independent samples t-tests were used in order to determine whether there was a statistically significant difference between students' attitudes toward homosexuals and 1) gender and 2) having a homosexual acquaintance. One-Way Variance Analysis (ANOVA) was used to examine whether the participants' attitudes toward homosexuals differed significantly according to their level of class, level of religiosity, and level of acquaintance with homosexuals. In case of significant differences, the one-way ANOVA was followed by post hoc testing with Fisher LSD. While testing the significance of the differences between mean scores, the significance level was taken as .05.

## RESULTS

The findings are presented in the order of the independent variables: gender, level of class, level of religiosity, having a homosexual acquaintance, and level of acquaintance. An independent samples t-test was conducted in order to test whether there was a statistically significant difference in the mean scores obtained from Hudson and Ricketts's homophobia scale among male and female students. The results are presented in Table 1.

**Table 1. Independent samples t-test results for the homophobia scores based on gender**

Gender	N	M	Sd	df	t	p
Female	298	64.51	28.39			
Male	121	81.36	35.64	184.81	4.64	.000*

\* $p < .05$

As can be seen in the table, there was a significant difference in the mean scores obtained from the homophobia scale among males and females ( $t=4.64$ ;  $df=184.81$ ,  $p<.001$ ). The results indicate that the scores of male students ( $M=81.36$ ) were higher than the scores of female students ( $M=64.51$ ). In other words, males had higher levels of negative attitudes toward homosexual individuals compared to females.

A one-way ANOVA was conducted in order to test whether there were any statistically significant differences between the means of university students' attitudes toward homosexuals among different levels of class. The findings are presented in Table 2. According to the results in Table 2, there was no significant difference in comparisons between mean scores of attitudes toward homosexuals among the level of class ( $F(3, 415) = 2.24$ ,  $p > .05$ ).

**Table 2. One-way ANOVA results for the homophobia scores based on the level of class**

Source of Variation	Sum of Squares	Sd	Mean Sum of Squares	F	p
Between Groups	6621.58	3	2207.194	2.24	.084
Within Groups	409707.32	415	987.25	2.24	.084
Total	416328.90	418			

A one-way ANOVA was conducted in order to examine whether there were any statistically significant differences between the means of university students' attitudes toward homosexuals among different levels of religiosity. Even though the data for this variable were normally distributed, Levene's test showed that the assumption of homogeneity of variance was violated ( $F=5.89$ ;  $p<.005$ ). Therefore, Welch and Brown-Forsythe tests were used. The results are presented in Table 3.

**Table 3. Results of Welch and Brown-Forsythe tests for the homophobia scores based on the level of religiosity**

	Statistic <sup>a</sup>	df1	df2	p
Welch	26.33	2	180.39	.000
Brown-Forsythe	26.60	2	258.88	.000

a. Asymptotically F distributed.

As can be seen in Table 3, there was a significant difference between level of religiosity and negative attitudes towards homosexuals (Welch test;  $F(2, 180.39)=26.33$ ,  $p<.001$ , Brown-Forsythe test;  $F(2, 258.88)=26.60$ ,  $p<.001$ ). Fisher LSD post hoc test was used in order to determine which groups caused the difference. The results revealed that there was a significant difference between participants who defined themselves as religious ( $M=77.80$ ,  $SD=30.94$ ) and participants who were unsure about religiosity ( $M=57.17$ ,  $SD=23.31$ ). A significant difference was also found between participants who defined themselves as religious ( $M=77.80$ ,  $SD=30.94$ ) and participants who did not define themselves as religious ( $M=56.92$ ,  $SD=32.13$ ). The level of homophobia was found to be higher among individuals who defined themselves as religious compared to individuals who were unsure about religiosity as well as individuals who did not define themselves as religious.

An independent samples t-test was conducted in order to test whether there was a statistically significant difference in the mean scores obtained from Hudson and Ricketts's homophobia scale among individuals having and not having a homosexual acquaintance. The findings are presented in Table 4.

**Table 4. Independent samples t-test results for the homophobia scores based on acquaintance**

Acquaintance	N	M	Sd	df	t	p
Yes	292	61.03	28.04	417	8.94	.000*
No	127	88.56	30.90			

\* $p<.05$

As shown in the table above, there was a significant difference between students' homophobia scores based on whether or not they have a homosexual acquaintance ( $t=8.94$ ;  $SD=417$ ,  $p<.001$ ). It was found that individuals who had a homosexual acquaintance had lower levels of homophobia ( $M=61.03$ ,  $SD=28.04$ ) compared to individuals who did not ( $M=88.56$ ,  $SD=30.90$ ).

A one-way ANOVA was conducted in order to test whether there were any statistically significant differences between the means of university students' attitudes toward homosexuals among different levels of acquaintance. Although the data for this variable were normally distributed, Levene's test showed that the assumption of homogeneity of variance was violated ( $F=8.63$ ;  $p<.001$ ). As a result, Welch and Brown-Forsythe tests were used. The findings are presented in Table 5.

**Table 5. Results of Welch and Brown-Forsythe tests for the homophobia scores based on the level of acquaintance**

	Statistic <sup>a</sup>	df1	df2	p
Welch	33.79	2	109.82	.000
Brown-Forsythe	32.19	2	124.73	.000

a. Asymptotically F distributed.

As shown in Table 5, there was a significant difference between the level of acquaintance and the level of homophobia (Welch test;  $F(2, 109.82)=33.79, p<.001$ , Brown-Forsythe test;  $F(2, 124.73)=32.19, p<.001$ ). Fisher LSD post hoc test was used in order to determine which groups caused the difference. The results showed that there was a significant difference between participants who stated their level of acquaintance as *very close* ( $M=48.64, SD=20.45$ ) and participants who stated their level of acquaintance as *somewhat close* ( $M=64.37, SD=26.81$ ); participants who stated their level of acquaintance as *very close* ( $M=48.64, SD=20.45$ ) and participants who stated their level of acquaintance as *not close* ( $M=85.84, SD=30.95$ ); participants who stated their level of acquaintance as *somewhat close* ( $M=64.37, SD=26.81$ ) and participants who stated their level of acquaintance as *not close* ( $M=85.84, SD=30.95$ ). The results revealed that level of homophobia was lower among individuals who had a very close level of acquaintance with a homosexual compared to individuals whose level of acquaintance was either somewhat close or not close. Moreover, individuals who had a somewhat close level of acquaintance had lower levels of homophobia compared to individuals who stated their level of acquaintance as not close.

## DISCUSSION, CONCLUSION & SUGGESTIONS

The aim of the present study was to investigate whether or not university students' attitudes toward homosexuals would show a significant difference based on their gender, level of class, level of religiosity, whether they have a homosexual acquaintance, and if they do, level of that acquaintance. According to the findings, negative attitudes toward homosexuals differ significantly according to all the variables examined in the current study except for one (e.g., level of class).

When examining whether there was a significant difference between level of homophobia and gender, it was found that male students had higher levels of homophobia compared to female students. These results support previous research findings which show that men have more negative attitudes toward homosexuals than women (Anderssen, 2002; Herek, 1988; Herek & Capitanio, 1995; Kite & Whitley, 1996; Kurdek, 1988; Lambert et al., 2006; Lim, 2002; McHugh Engstrom & Sedlacek, 1997; Steffens & Wagner, 2004). Similar results were also found in studies conducted with university students in Turkey: attitudes toward gays and lesbians have been found to be more negative among male students compared to female students (Çırakoğlu, 2006; Gelbal & Duyan, 2006; Sadıç & Beydağ, 2018; Sakallı, 2002a; Saraç, 2015; Soner & Altay, 2018; Şah, 2012).

According to Davies (2006), heterosexual men tend to exhibit more negative attitudes toward homosexual individuals than heterosexual women. One of the most common responses that explains this difference between men and women is that men feel more pressure regarding traditional beliefs. As a result, men are more prone to have more negative attitudes toward homosexual individuals compared to women. Furthermore, they tend to be more courageous in terms of being open about their attitudes (Kite & Whitley, 1996; Oliver & Hyde, 1995). In other words, men perceive the existence of homosexuals as a threat and contrary to normative masculine/feminine roles (Herek, 1988; Selek, 2001). Therefore, they

develop more negative attitudes toward homosexuals. When the reasons for these negative attitudes and behaviors observed in men are examined, it is seen that researchers have different explanations. For instance, according to Black and Stevenson (1984), the fact that the word “homosexual” only brings to mind “gays” might cause men to have more negative attitudes than women. Additionally, rigidity in gender roles, masculinity, and fear of femininity have also been stated as factors related to homophobia (Lock & Kleis, 1995). Especially men who try to adhere to masculine stereotypes and attach importance to their gender roles perceive behaviors that do not comply with this (e.g., violating gender roles, exhibiting the behaviors of the opposite sex, etc.) as a more serious problem and threat because they do not want to be defined as a “Betty”, “light boy”, or “homosexual” (Dunbar, Brown & Amoroso, 1973; Morin & Garfinkle, 1978; Whitley & Kite, 1995).

Considering Turkey, it can be said that it is a country dominated by patriarchy in which the majority places emphasis on and acts according to traditional gender roles (Çırakoğlu, 2006). As a matter of fact, this normalizes heterosexual relationships and demonstrates homosexual relationships as wrong and immoral. Thus, it can be thought that university students might start to exhibit and internalize negative attitudes toward homosexuals in this way. In addition, the fact that the word homosexual reminds of gays rather than lesbians (Herek, 2000; Sakallı, 2002a) and that the behaviors of gay individuals are perceived as “womanly”, provides an idea of why levels of homophobia are higher in males compared to females in the present study.

According to the results of the current study, no significant difference was found between different levels of class and attitudes toward homosexuals. Prior research findings suggest that a higher level of education leads to a positive change in attitudes and values; in other words, the higher the level of education, the more open-minded individuals become (Lambert et al., 2006). It is believed that education can influence prejudice and discriminatory behaviors toward different social groups in society. Homosexual individuals are one of these groups. The findings of several studies suggest that there is a negative correlation between education and homophobia (Beran, Claybaker, Dillon, & Haverkamp, 1992; Herek & Capitanio, 1995; Lambert et al., 2006; Lewis, 2003; Price & Hsu, 1992; Sakallı Uğurlu, 2006). Thus, these results are inconsistent with the results of the present study. However, there are also other studies that show no significant relationship between the two variables (Ben-Ari, 1998; Estrada & Weiss, 1999). Likewise, considering the results of the current study, there was no significant difference between attitudes toward homosexuals based on level of class. Due to the inconsistency of the study results in this regard, the level of class variable might be considered as a variable that is worth studying in more detail. Considering the results of the present study, it can be argued that the function of the university education should be questioned. Since level of homophobia did not decrease as level of class increased, it might be inferred that, besides providing individuals a career, the university education might be insufficient in terms of providing a different and more positive point of view for students.

In the findings of the current study, it was found that attitudes toward gays and lesbians were more negative among individuals who defined themselves as religious compared to individuals who were unsure about religion and individuals who did not describe themselves as religious. This result is consistent with the results of various other studies (Herek, 1988; Herek & Capitanio, 1995; Schulte & Battle, 2004; Siraj, 2009; Tuna, 2019; VanderStoep & Green, 1988; Wilkinson & Roys, 2005). In Herek and Capitanio's (1995) study, it was found that attitudes toward homosexuals were more negative among individuals who participated in religious activities frequently compared to individuals who participated in

religious activities a little or not at all. Similar results were also found in Schulte and Battle's (2004) study: Christians who defined themselves as highly religious had more negative attitudes toward homosexuals compared to less religious individuals. Additionally, in a study by Siraj (2009), it was found that individuals who defined themselves as Muslims held negative attitudes toward homosexuals. This was explained by the result of being religiously conservative in their attitudes toward homosexuality and gender roles.

There is a limited number of studies that have examined the relationship between religious belief and homophobia in Turkey. One of these studies was conducted by Gelbal and Duyan (2006). In their research, it was found that university students who defined themselves as highly religious had negative attitudes toward homosexuals. Correspondingly, Saraç (2015) found that freshmen students who had higher levels of religiosity had more negative attitudes toward lesbian and gay individuals. In addition, in Borlu's (2018) study, too, it was found that higher levels of religiosity were related to higher levels of negative attitudes toward homosexuals.

In Turkey, it is estimated that 98% of the population is Muslim (Bolaka Boratav, 2006). In the religion of Islam and the *Shari'ah* (Islamic Law), homosexuality is defined as a crime (Siraj, 2009). Although Turkey is not an Islamic state, it can be supposed that individuals who internalize the religion of Islam might be influenced by these rules and act accordingly. As stated earlier, the characteristics of homosexuals are perceived as more feminine, weak, feeble, and worthless compared to masculine characteristics and roles (Duyan & Duyan, 2005; Sakallı, 2002a, 2002b). As a result, individuals who adhere to traditional gender roles and religious rules disapprove the behaviors of homosexuals as well as consider them as people who disobey God's rules (Herek, 1988; Sakallı-Uğurlu, 2006). Perhaps, the reason behind the negative attitudes toward homosexuals among the participants who defined themselves as religious in the present study might be related to the issues mentioned above.

According to the findings of this study, the level of homophobia among individuals who had a homosexual acquaintance was lower than individuals who did not have a homosexual acquaintance. In other words, students who had a homosexual acquaintance had more positive attitudes toward lesbian and gay people. These findings are consistent with the results of prior studies (Anderssen, 2002; Çırakoğlu, 2006; Sakallı, 2002a). For instance, in Anderssen's (2002) 2-year follow-up study, a greater frequency of contact or better acquaintance with lesbian women and gay men were found to be related to more favorable attitudes toward them. Similarly, in a study conducted in Turkey, a positive change in attitudes toward homosexuality was observed among students after a one-hour interaction with a lesbian person (Sakallı & Uğurlu, 2002). Considering the results of the present and prior studies, it might be supposed that the change in attitudes toward homosexuals from negative to positive when individuals are or become acquainted with homosexuals is that they recognize the similarities between heterosexuals and homosexuals. In other words, individuals might acknowledge that there is no significant difference between the two groups, apart from their sexual preferences. Additionally, it can be inferred that interacting and making contact with a homosexual individual might lead individuals to call into question the correctness of their prejudices and beliefs about homosexuals and homosexuality. As a result, this might cause the positive change in their attitudes.

Finally, the results of the current study revealed that attitudes toward homosexuals changed in a positive direction as level of acquaintance got closer. Level of homophobia among individuals whose level of acquaintance was very close (e.g., relative, friend, sibling, etc.) was significantly lower than the

level of homophobia among participants whose level of acquaintance was somewhat close (e.g., exchanging hellos, neighbor, etc.) and not close (e.g., neighbor's relative, etc.). Also, attitudes toward homosexuals among individuals whose level of acquaintance was somewhat close were significantly more positive compared to individuals who did not have a close level of acquaintance. These results are consistent with prior research findings (Anderssen, 2002; Çırakoğlu, 2006; Güney et al., 2004; Sakallı, 2002a; Sakallı & Uğurlu, 2001; Şah, 2012). Furthermore, researchers have stated that socially interacting and increasing the level of acquaintance with homosexuals lead to an increase in positive attitudes toward them (Anderssen, 2002; Herek & Glunt, 1993). From this perspective, it can be inferred that having a homosexual acquaintance and socially interacting with a homosexual individual have an important and positive impact on beliefs as well as attitudes toward lesbians and gays.

The findings of the present study were consistent with the findings in the literature. University students' attitudes toward homosexual individuals differed significantly according to the variables of gender, level of religiosity, having a homosexual acquaintance, and level of acquaintance. There was no significant difference in terms of level of class. Specifically, the attitudes toward lesbians and gays were more negative among male students compared to female students; individuals who defined themselves as religious had more negative attitudes compared to individuals who were not religious and unsure about religiosity; participants who had a homosexual acquaintance held more positive attitudes compared to those who did not; and finally, the attitudes were more favorable among individuals whose level of acquaintance was close (e.g., relative, friend, sibling, etc.) compared to the individuals who had more distant acquaintances with homosexuals.

It is believed that the results of the current study might contribute to the field of counseling and guidance. Determining young people's attitudes toward homosexuality and informing them about it is of great importance. In the literature, it is recommended that professionals working in the fields of psychology, counseling, and guidance should organize activities that will enable students to question and gain awareness regarding their negative attitudes and beliefs. In addition, contacting and collaborating with lesbian, gay, bisexual, transgender, and intersex (LGBT) associations (e.g., LISTAG, Pembe Hayat, SPoD, Lambda Istanbul, etc.) and organizing seminars that address these issues at the university might be valuable. Such activities might be beneficial for young individuals in terms of raising their awareness and providing an opportunity to question and reduce their negative attitudes and beliefs.

In order to determine attitudes toward homosexuals more comprehensively, future studies, both quantitative and qualitative, may examine this topic with different sample groups. Also, to learn more about sexual biases, future studies might investigate attitudes toward homosexuals separately for lesbian and gay individuals. Variables that might have an influence on individuals' perceptions and attitudes toward homosexuals can also be explored. For instance, variables such as the frequency of social interaction and the nature and duration of the interaction might provide valuable information. Furthermore, in order to increase the level of tolerance and open-mindedness toward biased groups, researchers might – rather than focusing solely on social interaction – also pay attention to other factors that have an impact on level of homophobia (e.g., gender roles, social norms, and culture).

Although the present study provides important findings, some limitations should be considered. First of all, the study included only undergraduate students studying at different universities in Turkey during the 2017–2018 academic year. Master's and doctoral students were excluded from the study. Thus, the results can only be generalized to groups with similar characteristics to the research sample. Second

of all, since participants were not asked about their sexual orientation, it was assumed that all of them were heterosexual. Third of all, the fact that level of religiosity was assessed with a single question including three options, might be considered as a limitation. Lastly, the scale used in the current study was a self-reported measure. Self-reported measures have some disadvantages, such as the possibility of social desirability bias and response bias. Thus, these limitations need to be considered when interpreting the results.

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### **Author Contributions**

The present study was conducted by both authors working together and cooperatively. Both of them contributed equally in every 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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In the writing process of the work titled "**University Students' Attitudes Toward Homosexuals**", the scientific, ethical and citation rules were followed, there was no falsification on the data collected, the "Turkish Psychological Counseling and Guidance Journal Editorial Board" had no responsibility for all ethical violations, and all the responsibility belongs to the authors. I undertake that it has not been sent to another academic publishing medium for evaluation.

## RESEARCH

## Open Access

## ARAŞTIRMA

## Açık Erişim

## The Link Between Cognitive Flexibility and Educational Stress Among High School Students: Mediation Through Perception of Teacher Acceptance

*Lise Öğrencilerinin Bilişsel Esneklik ile Eğitsel Stres Düzeyleri Arasındaki İlişkide Algılanan Öğretmen Reddinin Aracı Rolü*

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### ABSTRACT

This study examined the relationship between adolescents' cognitive flexibility and educational stress and the mediating role of perception of teacher acceptance on this relation. The study was based on a sample of 331 high school students in Turkey (145 male and 186 female). The age of students ranged from 14 to 18 years (Mage =16.12, SD=1.26). The child version of the Teacher Acceptance-Rejection/Control Questionnaire, Cognitive Flexibility Scale, Educational Stress Scale, and the Personal Information Form were used as measures. The results show that female students' perception of teacher acceptance, and educational stress level were significantly higher than male students. Results also show that educational stress was significantly correlated with perception of teacher acceptance, cognitive flexibility, and age negatively. Finally, the result of the mediation analysis revealed that perception of teacher acceptance mediated the relationship between cognitive flexibility and educational stress. The results are discussed based on literature, and suggestions for researchers and practitioners were proposed.

### Article Information

#### Keywords

Teacher Acceptance  
Educational Stress  
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### ÖZET

Bu çalışmada ergenlerin bilişsel esnekliği ile eğitsel stresleri arasındaki ilişki ve algılanan öğretmen kabulünün bu ilişki üzerindeki aracı rolü incelenmiştir. Çalışma grubu, Türkiye'deki 331 lise öğrencisinden (145 erkek ve 186 kız) oluşturulmuştur. Öğrencilerin yaşları 14 ile 18 arasında değişmektedir (Ortaş = 16.12, Ss = 1.26). Öğretmen Kabul-Red/ Kontrol Ölçeği: Çocuk Formu, Bilişsel Esneklik Ölçeği, Eğitsel Stres Ölçeği ve Kişisel Bilgi Formu ölçme araçları olarak kullanılmıştır. Sonuçlar, kız öğrencilerin algılanan öğretmen kabulü ve eğitsel stres düzeylerinin erkeklere göre daha yüksek olduğunu göstermiştir. Bir diğer sonuç, eğitsel stres ile algılanan öğretmen kabulü, bilişsel esneklik ve yaş arasında negatif yönde anlamlı ilişki olduğudur. Son olarak, algılanan öğretmen kabulünün, bilişsel esneklik ile eğitsel stres arasındaki ilişkiye aracılık ettiği ortaya konmuştur. Sonuçlar literatüre dayalı olarak tartışılmış, araştırmacılar ve uygulayıcılar için öneriler sunulmuştur.

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## INTRODUCTION

Stress, defined as the reaction of individuals to situations that threaten their mental and physical structures (Folkman & Lazarus, 1988), can be experienced in every period of life and various fields. Adolescence is the period in which physiological and psychological changes are intense, and this change is a source of stress for adolescents (Patterson & McCubbin, 1987). Moreover, having exams that shape their careers in this period increases the likelihood of adolescents experiencing educational stress (Sun, Dunne, Hou, & Xu, 2013). Therefore, with a high young population (aged 0-19 30.71% [Turkish Statistical Institute, 2019]) and an education system that is based on exams in Turkey, explaining students' educational stress is critical. Considering that educational stress affects students' psychological adjustment (Singh, 2019), level of happiness (Mahmoodi, Nadrian, Javid, Ahmadi, Kasravi, Chavoshi, & Golmohammadi, 2019), life satisfaction (Karaman, Nelson, & Vela, 2018), the significance of the subject becomes more apparent.

Educational stress, also called as academic stress, has various definitions. Low academic grades, poor school conditions or excessive homework loads (Burnett & Fanshawe, 1997; Kouzma & Kennedy, 2004), students' and relatives' academic expectations (Ang & Huan, 2006), perceived academic pressure (Xie, 2007), and academic demands that exceed an individual's skills and abilities (Wilks, 2008) are among the definitions of educational stress. Finally, Sun, Dunne, Hou, and Xu (2011) define educational stress as a combination of perceived work pressure and workload, grade anxiety, self-anticipation, and hopelessness. In this study, educational stress was based on the explanation of Sun et al. (2011).

Previous research studies documented that individuals with a higher level of educational stress were mainly female students (Xie, 2007; Zhao & Yuan, 2006), relatively older students (Balta-Özkan, 2019; Yetim, 2014; Zhao & Yuan, 2006), students with low family income (Li, Feng, Mei, & Yao, 2007), and students with low family education level (Balta-Özkan, 2019). When the aspect of school life was taken into consideration, students in private schools (Singh, 2019), in urban areas (Balta-Özkan, 2019), in vocational high schools (Yetim, 2014), with low academic achievement (e.g., Sun, Dunne, Hou, & Xu, 2011; Xie, 2007), in class size between 26 and 30 compared to more crowded classes (Balta-Özkan, 2019) were found to have a higher level of educational stress. Additionally, it is known that students with higher educational stress are susceptible to anxiety, depression, and anger symptoms (Bjorkman, 2007).

The cognitive process of an individual affects the level of stress and coping style (Anshel & Wells, 2000; Bjorck, Cuthberston, Thurman, & Lee, 2001; Mikulincer & Florian, 1995; Pakenham, 2001). Moreover, flexibility in the cognitive process is associated with many variables that educational stress is related to including anger (Diril, 2011), anxiety (Öz, 2012), depression (Güler, 2015), and academic success (Kılıç, 2008). This suggests that there may be a relation between cognitive flexibility and educational stress. Cognitive flexibility can be defined as the awareness of alternatives suitable for different situations (Martin & Anderson, 1998), redefining problems (Thurstone & Runco, 1999), and being confident to control existing alternatives (Maltby, Day, McClutcheon, Martin, & Cayanus, 2004). Some other definitions include the ability to (a) rearrange information processing strategies to face sudden developments (Canas, 2006), (b) switch from one thought to another flexibly (Stevens, 2009), (c) evaluate difficult situations as resolvable (Gülüm & Dağ, 2012), and (d) provide new impressions to solve problems in unexpected situations (Çuhadaroğlu, 2011). As can be understood from the definitions, the important aspect of cognitive flexibility does not perceive the most right option, but being able to see

many different options before choosing (Martin & Anderson, 1998). It is accepted that the development of cognitive flexibility, which starts to develop in parallel with the cognitive process that begins to develop in the first years of childhood (Anderson, 2002), occurs between the ages of 3 and 5 (Dick, 2014). This feature may allow cognitive flexibility to be evaluated as a trait. In light of all this information, cognitive flexibility was included in the research model as the first predictor of educational stress.

Students' positive relationships with their teachers, teachers' interests, and positive orientations can greatly reduce students' educational stress (Margot, 2007; Sun et al., 2013). In Rohner's interpersonal acceptance-rejection theory (IPARTheory), Rohner explains four teacher behaviors showing students' acceptance from their teachers including (1) warmth and affection, (2) not acting with hostility or aggression, (3) not showing indifference/negligence, and (4) not experiencing undifferentiated rejection—although there is no visible behavior that the teacher neglects or is uncompassionate or aggressive towards their students, students believe that their teacher does not love or care about them—(Rohner & Khaleque, 2005; Rohner, Khaleque, & Courneyer, 2012). According to the IPART theory, teachers are a figure of attachment and teachers' behaviors affect students' personalities (Rohner, 2010; Rohner, Khaleque, Elis, & Sultana, 2010; Tulviste & Rohner, 2010). Similarly, the same effect continues on students' school life. According to the related literature, there is a positive relationship between students' perception of teacher acceptance and (a) academic achievement, (b) attitudes towards school, (c) desired student behaviors in schools, (d) GPA (Ali, 2011; Ali, Khaleque, & Rohner, 2015; Erkman, Caner, Borkan, & Sahan, 2010; Khan, Haynes, & Armstrong, 2008; Parmar & Rohner, 2010; Rohner, 2010; Rohner, Parmar, & Ibrahim, 2010). Based on this information, the perception of teacher acceptance was thought to be effective in educational stress and included in the model as a second predictor variable.

In the related literature, studies using the variables mentioned above were not encountered during the literature review for this study. For this reason, the model related to the mediating role of perception of teacher acceptance in the relationship between cognitive flexibility and educational stress was created based on a theoretical/logical basis. Since the cognitive style of an individual can affect both his character and social interaction (e.g., parent-child, teacher-student, and therapist-client relationship; Witkin, 1973), the flexibility in students' cognitive structures can be effective in accepting or rejecting teacher behaviors. This means that cognitive flexibility starting from the first years of life, including features such as a flexible transition from one thought to another (Stevens, 2009) and assessing a situation as resolvable (Gülüm & Dağ, 2012), may lead to alternative thinking on teacher behaviors. Researchers in this study considered that the relationship between students' cognitive flexibility and educational stress levels and the mediating role of students' perception of teacher acceptance in this relationship could be explained through the way as shown in Figure 1. In light of all this information, the purpose of this research was to examine the relationship between cognitive flexibility and educational stress levels of high school adolescents and the mediating role of perception of teacher acceptance in this relationship. Therefore, the study was conducted to address the following questions.

1. Do the perception of teacher acceptance, cognitive flexibility, educational stress, grade point average, and age differ based on gender?
2. (a) Is there a relationship between age and educational stress?  
(b) Is there a relationship between academic grade point average and educational stress?
3. (a) Is there a link between cognitive flexibility and educational stress significantly?

(b) Is there a link between perception of teacher acceptance and educational stress significantly?

(c) Does the perception of teacher acceptance mediate the link between cognitive flexibility and educational stress?

## METHOD

### Research Model

In this study, a correlational research design was used to determine the relationships between cognitive flexibility, perception of teacher acceptance, and educational stress.

### Study Group

Participants in this study were recruited via convenience sampling method. Convenience sampling is one of the nonprobability sampling methods in which researchers select participants who are easy to find for targeted research (Erkuş, 2016, p. 138). The participants of this study were 331 high school students from Turkey. While 145 (%44) students were male, 186 (%56) students were female. The age of students ranged from 14 to 18 years (Mage =16.12, SD=1.26).

**Table 1. Descriptive Statistics**

	Gender	N	Mean	Sd	Skewness	Kurtosis
Perception of Teacher Acceptance	Male	145	44.24	11.58	.689	.148
	Female	186	41.65	9.18		
	Total	331	42.78	10.37		
Cognitive Flexibility	Male	145	45.99	9.30	-.132	-.231
	Female	186	47.64	7.99		
	Total	331	46.92	8.61		
Educational Stress	Male	145	51.32	10.40	-.303	-.100
	Female	186	54.46	9.01		
	Total	331	53.08	9.75		
Grade Point Average (GPA)	Male	145	64.37	15.03	-.626	.290
	Female	186	75.67	12.16		
	Total	331	70.72	14.60		
Age	Male	145	16.18	1.33	.204	.124
	Female	186	16.08	1.20		
	Total	331	16.12	1.26		

### Ethical Statement

This research was completed in line with the Helsinki Declaration. Additionally, data tools in the study were only distributed to volunteer participants. All participants provided informed consent. Additionally, participants were informed that they could withdraw from the study at any time during data collection.

### Data Collection Tools

**Teacher's Acceptance-Rejection Questionnaire-Child Version Short Form.** This measure was used to estimate the perception of teacher acceptance levels (Rohner & Khaleque, 2005). The questionnaire contains 24 items. The measure consists of four scales: (1) Warmth/Affection (e.g. My



teachers say nice things about me), (2) Hostility/Aggression (My teachers feels other children are better than I am no matter what I do), (3) Indifference/Neglect (My teachers pay no attention to me), and (4) Undifferentiated rejection (My teachers seem to dislike me). The TARQ is scored on a 4-point Likert scale ranging from 1 = almost never true to 4 = almost always true. The sum of scores can range from 24 to 96. As commonly used in the worldwide, total scores were used in this study. A high total score shows a low perception of teacher acceptance of students. Scores below 60 on the acceptance-rejection portion of the TARQ indicate that the teacher is perceived to be qualitatively more accepting than rejection. It means a low total score shows high perception of teacher acceptance. Cronbach's alpha coefficient of the Turkish adapted version of the TARQ is .90 (Yıldırım & Erkman, 2008). Cronbach's alpha coefficient of the TARQ in this study was .83.

**Cognitive Flexibility Scale (CFS).** This measure was developed by Martin and Rubin (1995) to estimate the cognitive flexibility levels of high school students. The questionnaire contains 12 items. However, Turkish adapted version of the CFS contains 11 items. Sample items include "I can find practical / useful solutions to difficult problems that seem to be unsolvable.", "I can express an idea / thought in many different ways.". The CFS is scored on a 6-point Likert scale ranging from 1 = strongly disagree to 6 = strongly agree. The sum of scores can range from 11 to 66. A high total score shows high cognitive flexibility. Cronbach's alpha coefficient of the Turkish adapted version of the CFS is .73 (Çelikkaleli, 2014). Cronbach's alpha coefficient of the CFS in this study was .77.

**Education Stress Scale (ESSA).** This measure (Sun et al., 2011) was used to estimate the level of perceived academic stress. It contains 16 items under five factors including (1) Pressure from study (four items), (2) Workload (three items), (3) Worry about grades (three items), (4) Self-expectation stress (three items), and (5) Despondency (three items). Sample items include "I feel a lot of pressure in my daily studying" (Pressure from study), "I feel there is too much homework" (Workload), "I feel that I have disappointed my teacher when my test/exam results are not ideal" (Worry about grades), "I feel stressed when I do not live up to my own standards" (Self-expectation stress), and "I always lack confidence with my academic scores" (Despondency). The ESSA is scored on a five-point Likert-type scale ranging from 1 (Strongly disagree) to 5 (Strongly agree). The total score, ranges from 16 to 80, with higher values indicating greater perceived stress. Total scores were used in this study. The Cronbach's alpha for original the ESSA is .81. Cronbach's alpha coefficient for the Turkish adapted version of the ESSA was reported as .86 (Çelik, Akın, & Sarıcam, 2014), and the Cronbach's alpha of the ESSA in this study was .79.

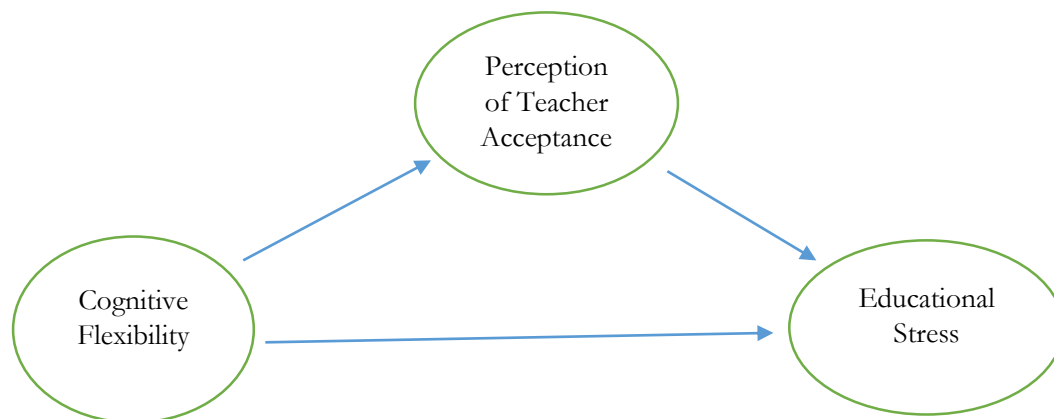
**Personal Information Form.** This form included questions about age, gender, and GPA. GPA was based on students' end-of-the latest-grade transcript records. A higher GPA reflected better academic performance.

### **Process**

Students completed the necessary questionnaires during regular classroom meetings. The researcher of this study stayed in the classroom during the data collection. Before responding, the researcher informed participants about the purpose of research, and the anonymity and confidentiality of their responses. participants who want to participate in the research responded to the Turkish-language versions of the self-report questionnaires as described below. This process took approximately about 20 minutes to complete.

## Data Analysis

In the first step, missing data and outlier analysis have done. Eight missing data and three outliers (Mahalanobis ( $df=4$ )=18.47) was deleted. Analyzes were done for 331 adolescent high school students. Skewness and kurtosis analyses showed values between -1.5 and +1.5 (Tabachnick & Fidell, 2007, p. 79) indicating that the sample was a normal distribution. Descriptive statistics, Pearson momentler correlation analysis, and t-test for independent groups were used to analyze the data. In addition, the SPSS macro PROCESS (Model 4) was run to examine the mediating effect of perception of teacher acceptance between cognitive flexibility and educational stress. As seen in Figure 1, perception of teacher acceptance was a mediator (PTA) of the relationship between cognitive flexibility (CF) and educational stress (ES). Age, gender, and GPA were included as a control variable in the mediation model. A confidence interval of 95% deviation correction (bias-corrected confidence intervals) was constructed by extracting 5000 bootstrap samples. In this procedure, a sample cases from the complete data set was selected and the effects were determined in the resamples to generate the bootstrapping sampling distributions. When a confidence interval did not span zero, the result was considered statistically significant as noted by Preacher and Hayes (2008).



**Figure 1. Mediation effect of perception of teacher acceptance on the relation between cognitive flexibility and educational stress**

## RESULTS

### Gender Differences

Table 2. displays independent t test results for variables assessed in the present study. The results show that female students' perception of teacher acceptance ( $t= - 2.26, p<.05; M(\text{female})= 41.65/ M(\text{male})= 44.24$ ), educational stress level ( $t= 2.95, p<.01; M(\text{female})= 54.46/ M(\text{male})= 51.32$ ) and GPA ( $t=7.55, p<.001; M(\text{female})= 75.67/ M(\text{male})= 64.37$ ). were significantly higher than male students.

**Table 2. Results of descriptive statistics with gender differences in major variables**

	Gender	N	Mean	Sd	t	p
Perception of Teacher Acceptance	Male	145	44.24	11.58	- 2.26	.024*
	Female	186	41.65	9.18		
Cognitive Flexibility	Male	145	45.99	9.30	1.74	.083
	Female	186	47.64	7.99		
Educational Stress	Male	145	51.32	10.40	3.07	.002**
	Female	186	54.46	9.01		
Grade Point Average (GPA)	Male	145	64.37	15.03	7.55	.000***
	Female	186	75.67	12.16		
Age	Male	145	16.18	1.33	-.706	.481
	Female	186	16.08	1.20		

Note: The high mean of perception of teacher acceptance shows a low perception of teacher acceptance of students.

\*\* $p < .01$ . \*\*\* $p < .001$ .

### Correlations

As shown in Table 3, educational stress was significantly correlated with age ( $r = -.29$ ,  $p < .01$ ). However, educational stress was not correlated with GPA. Additionally, educational stress related to perception of teacher acceptance ( $r = .18$ ,  $p < .01$ ) and cognitive flexibility ( $r = -.15$ ,  $p < .01$ ).

**Table 3. Results of correlation analyses with correlation coefficients among major variables**

Variables	1.	2.	3.	4.	5.
1. Perception of Teacher Acceptance	-				
2. Cognitive Flexibility	-.36**	-			
3. Educational Stress	.18**	-.15**	-		
4. Grade Point Average (GPA)	-.23**	.21**	.04	-	
5. Age	.003	.12*	-.29**	-.17**	-

\*\* $p < .01$ , \* $p < .05$ .

### Direct, Indirect, and Total Effects of Cognitive Flexibility on Educational Stress

As shown in Table 4, cognitive flexibility predicted educational stress ( $B_{se.06} = -.14$ ,  $t(331) = -2.38$ ,  $p = .017$ ) and perception of teacher acceptance ( $B_{se.06} = -.39$ ,  $t(331) = -6.20$ ,  $p = .000$ ).

**Table 4. Results of mediation analyses with estimated coefficients for mediation model of perception of teacher acceptance**

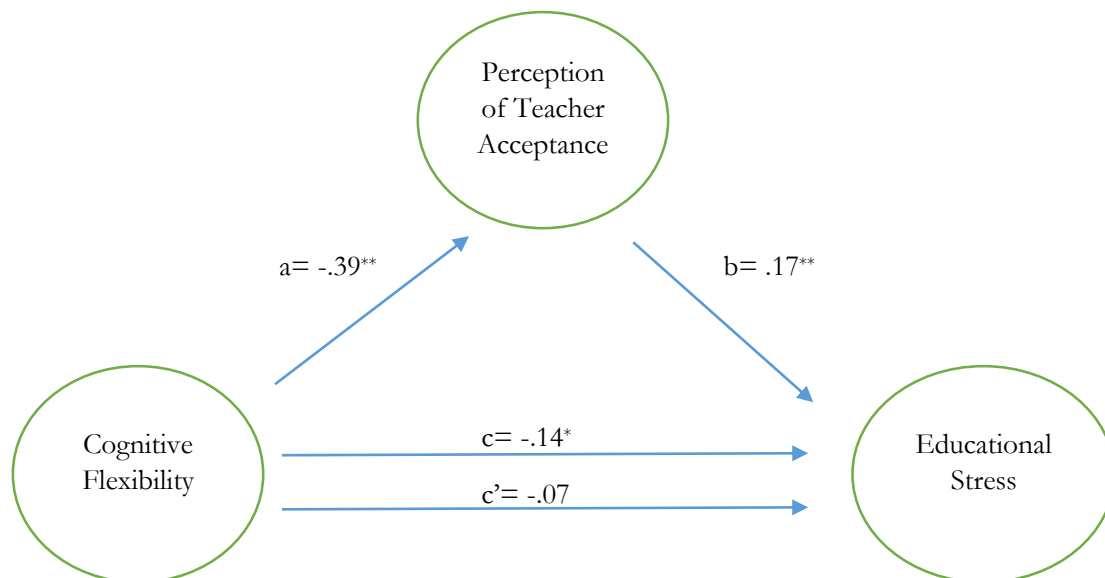
Model	$R^2$	$F$	$df$	$B$	$se$	$p$	Bootstrap Indirect Effect 95% CI	
							LL	UL
CF->ES (Path c)	.12	11.74	4	-.14	.06	.017	-.26	-.02
CF->PTA (Path a)	.15	14.75	4	-.39	.06	.000	-.52	-.27
CF->PTR->ES	.15	11.67	5			.000		

(path b)	.17	.05	.001	.06	.27
(path c')	-.07	.06	.210	-.20	.04

Note. CI = confidence interval; LL = lower limit; UL = upper limit, CF = cognitive flexibility, ES = educational stress, PTA = perception of teacher acceptance.

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

The direct effect of perception of teacher acceptance on educational stress was significant ( $Bse.05 = .17$ ,  $t = 3.17$ ,  $p = .001$ ). Results of mediation analyses revealed that perception of teacher acceptance mediated the relationship between cognitive flexibility and educational stress. It means that the indirect effect of cognitive flexibility on educational stress through the perception of teacher acceptance was significant ( $B(se=.02) = -.07$ ;  $LLCI = -.12$ ,  $ULCI = -.02$  [95% CI]). The relationship between cognitive flexibility and educational stress was not significant when perception of teacher acceptance was added into the mediation model. This means that it was a complete mediation model ( $c'$ ,  $Bse.06 = -.07$ ,  $t = -1.25$ ,  $p = .210$ ). The model explained 15% of the educational stress ( $R^2 = .15$ ). Besides, the scores of the control variables age and gender (but not GPA) were significant (respectively,  $Bse.40 = -2.15$ ,  $t = -5.29$ ,  $LLCI = -2.94$ ,  $ULCI = -1.32$  [95% CI];  $Bse.1.08 = -3.68$ ,  $t = -3.39$ ,  $LLCI = -5.72$ ,  $ULCI = -1.38$  [95% CI]). Figure 2 shows standardized paths of the mediation model.



**Figure 2. Mediation effect of perception of teacher acceptance on the relation between cognitive flexibility and educational stress.**

Note: Age, GPA, and gender were entered into the model as covariates, but are not depicted.

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

## DISCUSSION, CONCLUSION & SUGGESTIONS

The purpose of this study was to examine the relationship between cognitive flexibility and educational stress levels of high school students and the mediating role of high school students' perception of teacher acceptance in this relationship. The results of the study are discussed below.

### Gender Differences and Correlations

Educational stress showed variation by gender. The result indicated that female students' educational stress levels was higher than male students'. The fact that females are more stressed than

males (Jones & Hattie, 1991; Matud, 2004), and/or more sensitive to stress sources (Misra & Castillo, 2004) may affect this result. Additionally, collective culture is still a common practice in Turkey comparing to Western countries (Uskul, Hyni, & Lalonde, 2004). Considering that the participants in this study were from the rural side of the country, traditional gender roles can also have an impact on this result. In the traditional culture, family members can see boys as the continuation and future of their families so that they can give priority to their boys in education (Tunç, 2009). This belief can lead families to spend their limited economic resources for their boys and academic pressure on girls as "I have to be successful to be able to go school." Understandably, female students' high educational stress levels due to the high academic expectations (Ang & Huan, 2006) and concerns about academic failure (Jones & Hattie, 1991) increase their educational stress levels. In the related literature, while some studies are showing that educational stress does not change based on gender (e.g., Bağçeci, Döş, & Sarıca, 2011; Pratiksha & Souza, 2018), there are also studies showing similar results with this study (Bayram, 2016; Macit, 2017; Yetim, 2014). The result of higher academic achievement of females compared to males in this study indicates similar results with previous studies (Ayan-Başkal, 2019; Ergene, 2011; Yıldırım & Bahar, 2017).

One of the results of correlation analysis was that relatively older students have lower educational stress than younger ones. Older students are more familiar with their school's rules, exams, teachers, and social environment than younger students who are just beginning school. Considering that educational stress is the stress experienced by the individual in the face of academic demands that exceed his / her skills and abilities (Wilks, 2008), it can be understood that the educational stress level of new students is high. Besides, skills that may develop with age (active coping, problem-solving, seeking help, etc.) may also have an effect on the result. However, prior studies indicated that academic stress increases based on students' ages (Balta-Özkan, 2019; Yetim, 2014; Zhao & Yuan, 2006). The number of exams that children have to take as they age, the need to plan a career, and determine their education path may play a role in this. These developmental tasks may lead to pressure from the students' families. Nevertheless, there are also studies where academic stress does not change based on age (Misra & McKean, 2000).

A surprising result of correlation analysis was that there was no significant relationship between educational stress levels and GPA. Although limited research studies are supporting the result (e.g., Arsenio & Loria, 2014), this result is not in line with the expectation and does not overlap with the common results in the related literature (e.g., Bjorkman, 2007; Sun, Dunne, Hou, & Xu, 2011; Xie, 2007; Zhao & Yuan, 2006) since the concept of educational stress has been considered with academic success and fulfillment of responsibilities in schools (Agolla & Ongori, 2009). Controlling other factors affecting students' academic success (i.e., depression, anxiety, suicidal ideation; Sun, Dunne, Hou, & Xu, 2011) or including school type (Singh, 2019; Yetim, 2014), school facilities (Balta-Özkan, 2019) and family-related issues (Li, Feng, Mei, & Yao, 2007) as moderating or mediating variables, similar studies can be conducted.

### **Direct, Indirect, and Total Effects of Cognitive Flexibility on Educational Stress**

The direct effect of cognitive flexibility on educational stress levels was significant. This means that cognitive flexibility including skills such as seeing the source of stress as solvable (Gülüm & Dağ, 2012), self-confidence on alternative thinking (Maltby, Day, McClutcheon, Martin, & Cayanus, 2004), and redefining the problem (Thurstone & Runco, 1999) may explain the students' educational stress levels. Although there are no similar studies, it can be said that the results of lower stress levels of students

with high cognitive flexibility (Altunkol, 2011, 2017; Demirtaş, 2019; Turan, Durgun, Kaya, Ertaş, & Kuvan, 2019) are partially overlapping.

The results of this study documented that the direct effect of perceiving teacher behavior as accepting teacher behavior was also significant. This result shows that students' thinking of being loved, protected, and not subjected to verbal or physical violence by their teachers (Rohner, 2005, 2010) can be effective at the level of educational stress levels that include students' pressure of studying, work intensity, excessive expectations, and hopelessness. No studies investigating the relationship between perception of teacher acceptance and educational stress levels were found in the literature. However, similar studies revealed that positive teacher-student relationships reduce adolescents' stress levels (Aswathy, Kasturi, & Maxie, 2015; Lopez, Olazola, & Ochoa, 2006) and the academic pressure they feel (Lee, 2012).

A vital result in this research study was that adolescents' perception of teacher acceptance mediated the relationship between their cognitive flexibility and educational stress levels. This means that adolescents' cognitive flexibility could perceive teacher behavior as accepting or deal with problems as solvable even if they encounter rejectionist teacher behavior. The perception of teacher acceptance affected by students' cognitive flexibility may have also affected students' educational stress. Even though there have been no similar studies to compare the results of this study, perception of teacher acceptance impacting the issues related to school (Ali, 2011; Ali, Khaleque & Rohner, 2015; Erkman, Caner, Borkan, & Sahan, 2010; Khan, Haynes, & Armstrong, 2008; Parmar & Rohner, 2010; Rohner, Parmar, & İbrahim, 2010) could make the mediation of perception of teacher acceptance expected.

In this study, there were some limitations. The low R<sup>2</sup>change score (i.e., .03) indicated that although the perception of teacher acceptance was fully mediated, the model could be reconstructed with other moderating or mediating variables. Although this was an important limitation in this research, it is valuable to give an idea to future research studies. Additionally, since the participants in this study were formed based on the principle of easy access, the results of the study were not generalizable. Besides, the study group was selected from an Anatolian high school. Because teacher-student relationships, academic achievements, and educational stress may differ depending on the types of high school, school types may be a limitation. Therefore, the research can be repeated in vocational high schools. Another limitation was that the discussions of results were only on theoretical/logical grounds because there were no similar studies. Since this study was a correlational research study providing only relational information between variables, it can be stated as another limitation of the study. Despite these limitations, this research study explained that 15% of the educational stresses of adolescents (when age, gender, and GPA were under control) on the perception of teacher acceptance of their cognitive flexibility.

The results of the research contribute to expanding and strengthening the interpersonal acceptance-rejection theory that the perception of teacher acceptance belonging to. Based on the results of this study, practitioners may include cognitive flexibility skills in intervention programs to reduce students' educational stress. Within the scope of consultancy services, teachers can be informed about the effect of accepting teacher behavior on education stress. Researchers can conduct similar studies with different mediative variables (e.g., students' psychological health and self-related concepts). Relevant psychoeducation programs can be developed and tested to reveal the effects of cognitive flexibility on educational stress in the context of cause and effect.

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FK collected the data, BK conducted the analysis and wrote method and result sections. BK and FK wrote introduction and discussion.

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

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In the writing process of the work titled “**The Link Between Cognitive Flexibility and Educational Stress Among High School Students: Mediation Through Perception of Teacher Acceptance**” the scientific, ethical and citation rules were followed, there was no falsification on the data collected, the "Turkish Psychological Counseling and Guidance Journal Editorial Board" had no responsibility for all ethical violations, and all the responsibility belongs to the authors. I undertake that it has not been sent to another academic publishing medium for evaluation.