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

Ergenlerde Güvensiz Bağlanma Stilleri İle Problemli 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 problemli 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 problemli akıllı telefon kullanımının negatif yordayıcısı olarak bulunmuştur. Ayrıca güvensiz bağlanma stilleri ile problemli akıllı telefon kullanımı arasındaki ilişkide öz kontrolünün tam aracı olduğu bulunmuştur.

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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.

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 (Büyükçoplan, 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 (α = .52 for safety; α = .73 for fearful; α = .61 for dismissive; α = .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 (α = .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 (α = .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 (χ2/df) and RMSEA values. Acceptable threshold values were determined as χ2/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 ≤ .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.

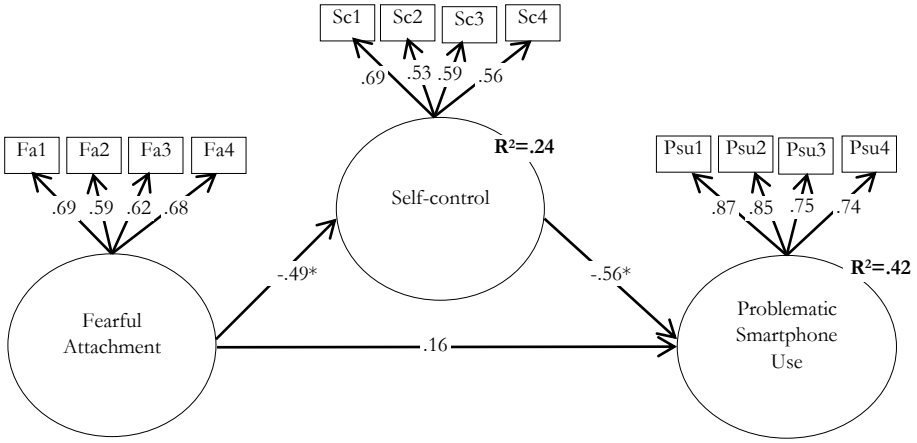

Figure 1. Mediator effect of self-control between fearful attachment and problematic smartphone use

* 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 (β = -.56, p <.01). In addition, fearful attachment, an independent variable, significantly predicted the self-control-mediator variable (β = -.49, p <.01). However, fearful attachment is not a direct predictor of problematic smartphone use (β = .16, p> .05), but indirectly predictor through self-control (β = .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 (β = .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	β	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.

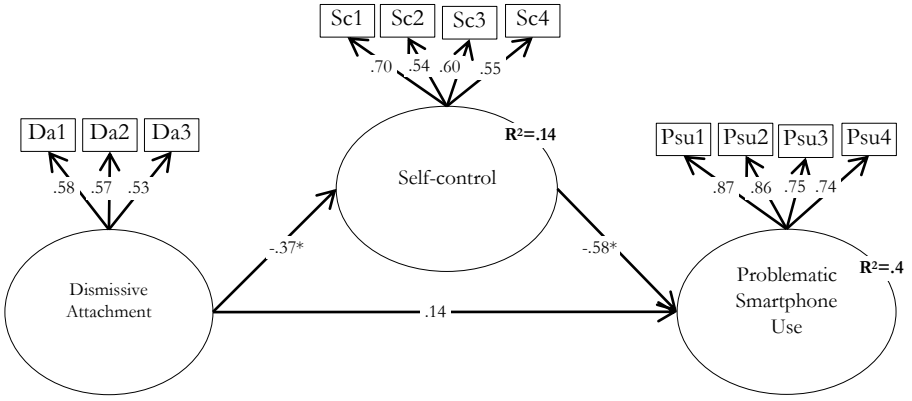

Figure 2. Mediator effect of self-control between dismissive attachment and problematic smartphone use

* p<.01

When the goodness of fit indices for the mediating model in Figure 2 are investigated, all had acceptable levels [χ2/df=2.07, CFI=.95, IFI= .95, TLI=.95 and RMSEA=.07]. As seen in the model, self-control significantly predicted problematic smartphone use (β= -.58, p <.01). In addition, dismissive attachment predicted self-control significantly (β = -.37, p <.01). Lastly, dismissive attachment is not a direct significant predictor of problematic smartphone use (β = .14, p> .05), but indirectly predictor through self-control (β = .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 (β = .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	β	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.

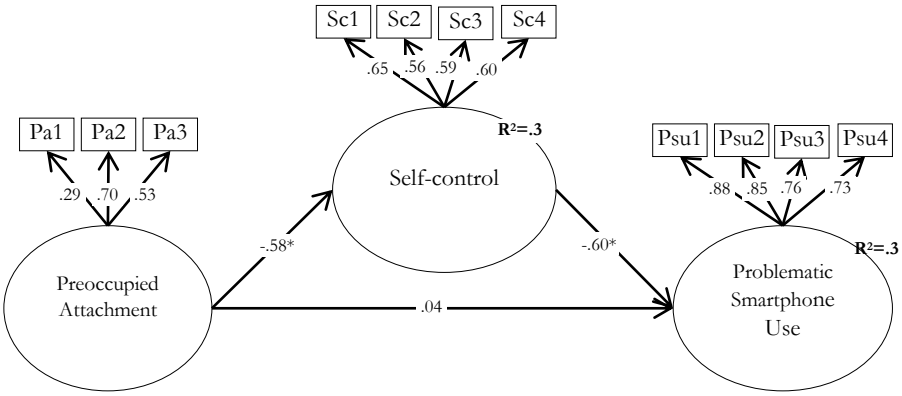

Figure 3. Mediator effect of self-control between preoccupied attachment and problematic smartphone use

* 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 (β = -.60, p <.01). In addition, preoccupied attachment significantly predicted self-control which is the mediator variable (β = -.58, p <.01). Lastly, preoccupied attachment is not a direct predictor on problematic smartphone use (β = .04, p> .05), but indirectly predictor through self-control (β = .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 (β = .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	β	%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 literatüre, 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 (Büyükçoplan, 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.

Ethics Committee Name: Kahramanmaraş Sütçü İmam University, Social and Humanities Ethics Committee.

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