

RESEARCH ARTICLE

EXAMINATION OF THE MEDIATING ROLE OF LONELINESS IN THE RELATIONSHIP BETWEEN SMARTPHONE ADDICTION AND SELF-SABOTAGE

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Abstract

This research examined the mediating role of loneliness regarding the relationship between smartphone addiction and self-sabotage levels among young adults. For this purpose, Demographic Information Form, Smartphone Addiction Scale Short Version, Self-Sabotage Scale and UCLA Loneliness Scale Short Form were applied to (409) participants, (155) of them were females and (254) males. According to the results of the conducted data analysis, it was emphasized that all the three research variables had a positive and significant relationship among each other. Finally, to facilitate if the feeling of loneliness variable had a mediating effect on the relationship between smartphone addiction and self-sabotage levels, Three-stages Multiple Regression Analysis as well as Hayes Process Macro were applied. Results revealed that loneliness has a partial mediating effect on the relationship between self-sabotage and smartphone addiction. The results generally were discussed in the light of the existing literature.

Keywords: Smartphone, Smartphone addiction, Self-sabotage, Loneliness.

1. Introduction

Since the early 2000s, smartphones have gained great importance in human beings lives. The reason after this is that since those years, phones have ceased to be a tool people use only for communication but also transformed into a mega device that allows to interact with large audiences, access media, follow the world going on matters, and perform most transactions. Smartphones, which are becoming more and more important, help in almost every aspect of life today. The rate of smartphones that are used with internet connections has increased almost fourfold between 2011 and 2013, considering this period, it can be recognized how widespread smartphones have become in terms of internet use. While it was possible to just talk and write about internet addiction in previous years, now, with the spread of smart mobile devices, a new type of addiction, smartphone addiction, has become a part of daily life.

1.1. Smartphone Addiction

Smartphone addiction is a type of addiction occurs when people use their phones excessively during the day, causing them to distance themselves from social life. Excessive smartphone use can cause an individual to lose physical function and mental balance, become asocial in another loop and disrupt lifestyle, addicted individuals who stay away from their personal smartphones in the real social life cause them physiological or psychological reactions such as fear, tension and deprivation, so compensating that with increasing the general frequency of smartphone use. Smartphone addiction said to take place among behavioral addictions such as shopping addiction, gambling addiction also food addiction, it is difficult to classify because of causing

physical harm and affects the social life. In addition to addiction, smartphones also could be a cause of other problems.

It is concluded that people's preference for continuing socialization through various social media networks and messaging applications rather than meeting face to face causes them to be isolated from social environments. In other words, individuals may prefer to talk through smartphones, which is easier than meeting face to face regarding distance, time and effort. Although it is not certain whether individuals have such conversations when they are with someone or lonely, the fact that smartphone addiction is related to asociality and loneliness. In turn, it is also possible that individuals who are isolated from social environments develop smartphone addiction in order not to feel lonely. In this context, asociality which means being distant from social relationships, has a way of relations with smartphone addiction and loneliness. Dysfunctional adaptation efforts to rapid technological developments may cause a feeling of loneliness. Indeed, Park (2012) emphasizes that increasing smartphone use, in addition to the many conveniences it provides, damages interpersonal relationships and leads to physical and mental problems. And was said that combating the negative mood related to loneliness can increase smartphone use. In addition, individuals experiencing social anxiety can use online networks to observe controlling their level of closeness with people (Martin and Schumacher, 2003). It is also stated that people try to avoid or compensate for the problems caused by interpersonal communication in real life and the anxiety it brings by using smartphones and other devices for a long time.

Especially during adolescence phase, the lack of individuals' social skills can cause them being deprived of the methods related to establishing real connections and observing others, which can affect the quality of their sociality. Another factor plays a role in the relationship between loneliness and smartphone addiction might be that young individuals express themselves more comfortably in the virtual world. This kind of comfort can sometimes manifest as social incompetence pushing individuals toward more loneliness than interpersonal relationships may weaken even more, their ability to express themselves in social environments may decrease as well as may experience withdrawal from relationships, asociality, loss of social skills, and severe loneliness. However, they may develop more smartphone addiction as a coping strategy (Hamid and others, 2021). Individual addicted to smartphones produce unreal reasons for being lonely, externalize the failure they experience due to loneliness by finding reasons such as shyness, anxiety and headaches. In this way, the general attempts to protect the self-worth by attributing the reasons for the negative experiences such as failure to external factors as well as refer to the outside world or some reasons in the outside world as the cause of their troubles. This situation reveals the idea of becoming isolated due to smartphone addiction, exhibiting self-sabotaging behavior which means attributing failure to the outside world and success to the individual's self.

1.2. Self-Sabotage

The concept of self-sabotage can be defined as " Individuals taking action in a way that can attribute success to personality traits and failure to situational reasons when evaluating success and failure". People who have an innate tendency to appear successful, self-sabotage themselves in situations where they think will be inadequate, in order to cover up this inadequacy. According to McCrea and Hirt (2001), the main factor that causes self-handicapping behavior is to protect self-esteem. While individuals who tend to self-sabotage attribute success to their own selves, they try to keep their self-worth and self-esteem high by attributing failure to external factors, thus preventing their self-esteem from being damaged. Externalize failure could be by claiming the reasons that decrease the performance or by creating different obstacle situations, attributing all to the environment rather than the oneself. In this way, the individual who is not blamed for inadequacy also protects self-perception. If the person becomes successful despite all obstacles, of course will be appreciated. Generally, self-handicapping behavior stems from the individual's self-perception and negative cognitive schemas developed against success from childhood to the present. Self-handicapping behavior can occur depending on family attitudes in childhood. Indeed, Jones and Berglas (1978) stated that the feeling of being valuable to the child depending on certain areas such as school success, the child's effort to appear successful to the family or environment, the desire to attract attention and be valued, leads to an attempt to appear more talented and successful

than he/she is in order to protect his/her self-esteem, and over time, this effort turns into self-handicapping behavior. Self-sabotage is specifically divided into two as verbal and behavioral sabotage.

Verbal self-sabotage methods and strategies can be summarized as physiological symptoms and signs of illness, expressing high levels of pain or suffering, constantly expressing concerns about the work to be done, stating negative mental health and unexpected experience, sudden shock and traumatic situations, and completing work also preparation for performance cannot be achieved. On the other side, the second sabotage kind includes behavioral self-sabotage and its strategies are: Not putting in any effort for the work or task to be done or, on the contrary, putting in too much effort and labor, excessively focusing and spending time on activities that are unrelated to the must-done work, constantly postponing planned activities, creating goals that are difficult to achieve or seem impossible under the circumstances, not sleeping enough, consuming alcohol, substances or drugs in a way that makes performance difficult, ignoring advantages that will positively affect success, choosing environments and conditions that will deform abilities and tendencies.

Importantly, smartphone addiction can also be considered as behavioral self-sabotage, the individual can externalize this addiction by attributing to reasons also obstacles. Individuals internalize this habit by asserting tendency toward technology with the continuous usage regarding these strategies. While this tendency to sabotage can rarely assist the person's struggling with addiction, it can mostly damage his mental health. Although smartphone users try to get rid of smartphone addiction by sabotaging themselves, that only postpone for a while. As a matter of fact, they initially understand that smartphone use can cause addiction and lead to sabotage more and more. As a result, although it is thought that such self-sabotage behaviors are aimed at reducing addiction, on the contrary, they can become a kind of defense mechanism that weakens the person even more. Smartphone addiction that is strengthened through self-sabotage which can be considered a kind of defense mechanism, is considered another factor that can increase the individual's sense of loneliness over time. In fact, as one important psychological effect of smartphone addiction is loneliness.

1.3. Loneliness

Rokach (1989) states that loneliness is universal and has existed since creation. Loneliness occurs due to a person's inadequate social network and many people avoid being alone throughout their lives because it is a distressing experience (Peplau and Perlman, 1982). It is known that elderlies and adolescents are more prone to loneliness. While the causes of loneliness among elderlies are listed as multiple losses, lack of belonging, poor functioning, and decreased material income, and among adolescents as lack of friendships, lack of belonging to a group, and the need for close relationships. In adolescents, being excluded by their friends can cause intense feelings of loneliness. The difficulties of this period, adolescents expect support from their families, teachers, and friends, if they do not receive love and attention from their families and teachers, they may feel lonely and helpless. Adolescents undergo hormonal changes as a result of the period they are in, and they need parents who will support them by experiencing a depressive mood. Noller and Callan (1980), in their research on how adolescents perceive their communication with their parents, concluded that adolescents think that their parents are dominant As well as do not have the opportunity to express themselves sufficiently. Brennan (1982) thinks that the intense feeling of loneliness experienced during adolescence is affected by the person's tendency to personality traits such as shyness, poor interpersonal communication, lack of self-confidence, physiological and psychological changes and the effect of these changes on their relationships also the culture and social position the individual is in. These studies are with a seen of individuals experience a more intense feeling of loneliness during adolescence.

1.4. The Current Research

Nowadays, smartphone use is increasing and leads to addiction. Smartphones are extremely useful for introverted individuals with weak social relationships to establish new social relationships and connections. However, it is thought that unconscious use of smartphones leads to social and emotional problems. In the literature studies show that the feeling of loneliness increases as a result of increased smartphone use as well

as the result that lonely students increase their use of smartphones to get away from their current situations. Both cases, an individual addicted to a smartphone can sabotage himself by finding reasons for this feeling of loneliness. The individual's habit of self-sabotage in his social life can become a part of his personality and cause negative effects. An individual who is frequently unsuccessful in interacting with people may lose confidence in close social relationships or blame himself for this situation, which can push the individual to loneliness. As a result, lonely individual who makes self-sabotage behavior a habit, the increase in smartphone addiction created a suggestion of a relationship between these three variables. Examining the variables that predict individuals' self-sabotage behavior and smartphone addiction can provide us with information in terms of preventing negative outcomes such as loneliness, anxiety, depression, social isolation, not fulfilling work and responsibilities, postponing or neglecting them that may occur in the future. In this case, this research yields the factors that trigger and affect smartphone addiction as well as to determine the relationships between these factors in order to carry out preventive and interventional studies.

While there are studies show that there are separate relationships between smartphone addiction, loneliness and self-sabotage, but no study was found in the EBSCO and YÖKTEZ databases that evaluate smartphone addiction, loneliness and self-sabotage together, show the relationships between them and the bilateral relationships between these variables. There are studies that directly show the relationships between smartphone addiction and self-sabotage (Yay, 2018) as well as between loneliness and smartphone addiction (Çakır and Oğuz, 2017; Ergüt, 2020; Mert and Özdemir, 2018; Tohumcu et al., 2019). Absolutely, this research will contribute to the psychological well-being studies of individuals who are addicted to smartphones or clear self-sabotage behaviors. In addition; it is expected that the results of the research will guide or assist in individual or group intervention programs to be offered by mental health experts. For these reasons, the purpose of this research is to examine the relationship between smartphone addiction, self-sabotage and loneliness. The following questions are sought in this research:

- 1- Is there a self-sabotage and loneliness predictive effect on smartphone addiction?
- 2- Is there a loneliness mediating role in the relationship between smartphone addiction and self-sabotage?
- 3- Is there a statistical difference between smartphone addiction, self-sabotage and loneliness regarding gender?
- 4- Is there a statistical difference between smartphone addiction, self-sabotage and loneliness regarding the age categories?
- 5- Is there a statistical difference between smartphone addiction, self-sabotage and loneliness regarding the educational status?

2. Research Methodology

The relational screening research attitude, which aims to determine the existence or degree of change between at least two variables at the same time, is the main method of the research. Quantitative research methods are deemed appropriate in order to measure the data numerically through scales that were distributed to the participants. Three different scales were applied and a demographic information form was also used to determine the participants' characteristics such as age, gender, and educational status. The questionnaire form applied consist of 46 items.

2. Research Sample

Non-random sampling method, in which the sample segment is selected based on the subjective judgment of the researcher, and the convenience sampling method, in which the data is obtained more practically and quickly from the main mass were used. Of the 409 participants, 37.9% were females (155) and 62.1% were males (254). The age ranges are examined, it is found that 104 people are between the age of 18-20, 136 people are between the age of 21-22, 96 people are between the age of 23-27, and 73 people are 28-30 and above.

Regarding the educational status, the vast majority (80.7%) are at the undergraduate level. The participants participated online voluntarily and the collected data were obtained anonymously.

3. Data Collecting Instruments and Procedure

3.1. Data Collecting Instruments

The collected data based regarding the age, gender, the educational status as a demographic form as well as three other scales were used as (Smartphone Addiction Scale Short Form, Self-Sabotage Scale and The UCLA Loneliness Scale).

3.1.1. Smartphone Addiction Scale Short Form

Kwon and his colleagues initially prepared a scale consisting of 33 items to assess smartphone addiction and later created a short form consisting of 10 items that can be completed in a short time. Later on, the Turkish adaptation of the scale was made by Şata and Karip (2018) in order to determine the smartphone addiction of adolescents and its relationship with the social and emotional characteristics. In 2015, Noyan and his colleagues adapted the Short Form of the Smartphone Addiction Scale to Turkish and conducted a study to evaluate its validity and reliability on university students. The scale was developed by Kwon and his colleagues to measure the risk of smartphone addiction in adolescence. It consists of 10 items and a 6-point Likert-type rating scale. The scale includes statements such as "I do not give up using my smartphone even though it disrupts my daily life.", "People around me say I use my smartphone too much."...,etc. Since all statements in the scale are answered, a minimum of 10 and a maximum of 60 points are obtained. The higher the scores of the participants, the higher the risk of smartphone addiction. The scale is one-dimensional and has no subscales. In the reliability analysis, the Cronbach alpha coefficient value was found to be 0.91. In this research, the Cronbach alpha value was measured as 0.920.

3.1.2. Self-Sabotage Scale

Jones and Rhodewalt (1982) developed the self-sabotage scale to assess individuals' self-sabotage tendencies, and later the scale was adapted to Turkish by Akın, Abacı, and Akın (2010). The scale consists of 25 descriptive items, and the items are scored from 1 to 6 (1 = I completely disagree, 6 = I completely agree). It is a one-dimensional scale that assesses self-sabotage strategies such as not making an effort to take action, postponing behavior, getting sick, using drugs and alcohol, insomnia as well. After items 3, 5, 6, 10, 13, 20, 22, and 23 are reverse coded, the scores of all items are added up to obtain a total self-sabotage score. When all items are scored, a minimum of 25 and a maximum of 125 points are obtained. A high score indicates that the person has a high tendency to self-sabotage (Akın, 2012). In the Turkish adaptation of the scale, the internal consistency reliability coefficient was .90 and the test-retest reliability coefficient was .94, indicating that it is valid and reliable. As a result of the reliability analysis conducted for this research, the Cronbach's alpha value of the KSS was determined as .874.

3.1.3. The UCLA Loneliness Scale

The UCLA Loneliness Scale was developed by Russell, Peplau and Ferguson in 1978 to determine the level of loneliness of an individual. The UCLA Loneliness Scale was first adapted to Turkish by Yaparel (1984). It was revisited by Demir (1989) and the Turkish translation study was finalized, the validity and reliability were tested as well. The scale consists of 20 items about a situation related to the individual's social relationships or indicating thoughts, and individuals are asked to indicate how often they experience this situation on a four-point scale. High scores from participants indicate that they experience loneliness more often. Demir (1989) found the internal consistency coefficient of the scale as .96 and the correlation coefficient between the two applications with the test-retest method as .94. As a result of the reliability analysis conducted for this research, the UCLA loneliness scale Cronbach's alpha value was determined as 0.827.

3.2. Procedure

3.2.1. Ethical Issues

Before the data collection process, ethics committee approval numbered E-61923333-050.99-344850 was obtained from the Sakarya University Rectorate Ethics Committee. Permissions for the use of the scales were then obtained from the authors via e-mail. Data were collected online from university students and adults who participated voluntarily and filled out the informed consent form.

3.2.2. Data Analysis

Data were analyzed using IBM SPSS Statistics 26 program. In the research, categorical variables of the participants were determined as numbers and percentages. In order to conduct the relevant analyses, it was examined whether the regression assumptions were realized or not. In this context, skewness and kurtosis values of the variables and VIF and CI values were determined (Table 1). According to these results, kurtosis and skewness scores were between -2 and +2, therefore parametric tests were applied assuming that the sample scores were normally distributed. When the VIF and CI values for the independent variables (self-sabotage scale and UCLA-Loneliness scale) were examined, it was noticed that there was no multicollinearity issues between the values. A VIF value less than 10 (Myers, 1990) and a CI value less than 30 (Belsley, 1991) indicate that there is no multicollinearity.

Table 1: Skewness and Kurtosis Values of the Scales

Scale	Skewness		Kurtosis		VIF	CI
	Statistics	Std. error	Statistics	Std. error		
Smartphone Addiction Scale	0,058	0,121	-0,903	0,241		
Self-Sabotage Scale	-0,787	0,121	1,475	0,241	1,037	7,014
UCLA Loneliness Scale	0,603	0,121	-0,269	0,241	1,037	12,923

However, it was decided whether the relationship between the independent and dependent variables was linear by looking at the scatter plots and whether the scores showed normal distribution by examining the histogram and Normal P-P Plot Graph. The model fulfilled both the linearity assumption and the normal distribution assumptions. In the entire research, significance levels were carried out by considering the values of 0.05 and 0.01. As a result, it was decided that the data showed normal distribution and that the analyses could be done with parametric tests. IndependentSampleTtest was used to compare the scale scores of the participants according to gender, and One Way Anova Test was used to compare them according to age and education status. Post Hoc tests were used to compare the differences between the groups. In cases where group variances were equal, Tukey test was used in multiple comparisons of mean scores, and in cases where group variances were not equal, Dunnett C test was used. Pearson tests were used in correlation analysis. Correlation coefficient; A value between 0.00-0.30 was considered low, 0.30-0.70 was considered medium, and 0.70-1.00 was considered high. The relationships between the participants' smartphone addiction levels, self-handicapping tendency levels, and loneliness levels were determined by stepwise multiple regression analysis.

4. Results

4.1. Descriptive Data and Correlations

Descriptive statistical findings of the participants are shown in Table 2. Of the 409 participants in the research, 37.9% were female (155) and 62.1% were male (254). When the age ranges are examined, 104 people are between the ages of 18-20, 136 people are between the ages of 21-22, 96 people are between the ages of 23-27, and 73 people are 28 years old and above. When the educational status is examined, the majority (80.7%) have a bachelor's degree.

Table 2: Descriptive Statistical Findings of Participants

Variable	Category	Frequency (N)	Percentage (%)
Gender	Female	155	37,9
	Male	254	62,1
Age	18-20 years old	104	25,4
	21-22 years old	136	33,3
	23-27 years old	96	23,5
	Over 28 years old	73	17,8
Educational Status	High School	35	8,6
	Associate Degree	25	6,1
	Undergraduate	330	80,7
	Postgraduates	19	4,6

Descriptive statistical findings regarding the scales applied to the participants were examined and are shown in Table 3. According to these results; The mean score of the Smartphone Addiction Scale (SAS) was 30.44, the standard deviation value was 10.64, the minimum calculated value was 10 and the maximum value was 50. The mean score of the self-sabotage Scale (SAS) of the participants was 87.24, the standard deviation value 16.72, the minimum calculated value 25 and the maximum value 125. The mean score of the UCLA Loneliness Scale (LS) of the participants was 14.16, the standard deviation value was 4.44, the minimum calculated value 8 and the maximum value was 29.

Table 3: Descriptive Statistical Findings Regarding the Scales Applied to Students

Scales	N	\bar{X}	sd.	Min.	Max.
Smartphone Addiction Scale	409	30,44	10,64	10	50
Self-Sabotage Scale	409	87,24	16,72	25	125
UCLA Loneliness Scale	409	14,16	4,44	8	29

Min.:Minimum, Max.:Maximum, sd: Standard deviation

4.1.1. Comparison of scale scores by gender

The results of the independent sample t-test on the differences in participants' scale scores according to gender are shown in Table 4.

Table 4: Comparison of scale scores of participants according to gender

Scale	Gender	N	\bar{X}	sd	t	p
Smartphone Addiction Scale	Female	155	32,39	11,27	2,836	0,005**
	Male	254	29,26	10,08		
Self-Sabotage Scale	Female	155	90,63	15,31	3,237	0,001**
	Male	254	85,18	17,23		
UCLA Loneliness Scale	Female	155	13,75	4,23	-1,481	0,139
	Male	254	14,42	4,55		

*p<0.05,**p<0.01, \bar{X} :Mean, sd.: standard deviation, t: Independent Sample T test

In Table 4, it is seen that there is a statistically significant difference between the Smartphone Addiction Scale (SAS) and Self-Sabotage Scale (SAS) scores of the participants according to their gender (p<0.01), and there is no statistically significant difference between the UCLA Loneliness Scale (LSS) mean scores (p>0.05). When the SAS mean scores are examined, it is seen that the mean score of females (\bar{x} =32.39) is higher than the mean score of males (\bar{x} =29.26). According to this result, it can be said that females are more addicted to

phones than males. When the mean score scores of females (\bar{x} =90.63) is analyzed, it is noticed that the mean score of males (\bar{x} =85.18) is higher. According to this result, it can be stated that females have higher self-sabotage tendencies than males. Although the UCLA-LS mean scores do not differ significantly by gender, when the mean scores are examined, the scores of males (\bar{x} = 14.42) are higher than those of females (\bar{x} = 13.75). The comparison of the scale scores of the participants by gender is shown graphically in Figure 1.

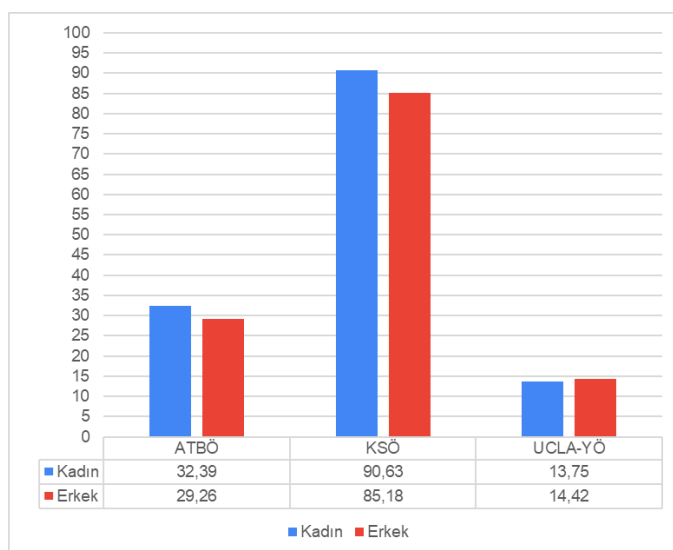


Fig. 1: Comparison of scale scores of participants according to gender

4.1.2 Comparison of scale scores according to age categories

The one-way ANOVA test results regarding the differences in scale scores of the participants according to their age categories are shown in Table 5.

Table 5: Comparison of scale scores of the participants according to their age categories

Scale	Category	Number	\bar{x}	Sd	F	P	Difference
Smartphone Addiction Scale	18-20 years old(A)	104	30,76	10,11			
	21-22 years old(B)	136	29,39	10,03			
					3,59	0,014*	C>B,D
	23-27 years old(C)	96	33,18	11,33			
Self-Sabotage Scale	Over 28 years old(D)	73	28,36	10,99			
	18-20 years old	104	87,25	15,29			
	21-22 years old	136	86,16	17,49			
					0,516	0,672	
	23-27 years old	96	88,93	16,78			
	Over 28 years old	73	87,04	17,3			
	18-20 years old	104	14,37	4,63			
UCLA Loneliness Scale	21-22 years old	136	14,51	4,23			
					1,485	0,218	
	23-27 years old	96	14,19	4,56			
	Over 28 years old	73	13,21	4,33			

*p<0.05,**p<0.01, F:OneWayAnovaTest, Difference: Post HocTests

In Table 5, it is stated that there is a statistically significant difference between the Smartphone Addiction Scale scores of the participants according to their age categories ($p<0.05$). As a result of the posthoc (comparison) tests conducted to determine which age categories there is a significant difference between, it was determined that the mean scores of the 23-27 age category (\bar{x} =33.18) were higher than the mean scores of the 21-22 age category (\bar{x} =29.39) and the 28 and above age group (\bar{x} =28.36). According to this result, it can be said

that phone addiction is higher in the participants between the ages of 23-27. There is no significant difference between the mean scores of the self-sabotage Scale and the UCLA Loneliness Scale ($p>0.05$). Although there is no significant difference, Regarding the age category scores of these two scales, the Self-Sabotage Scale scores are very close to each other between categories, while the UCLA-LS scores are relatively lower in the 28 and above age category. Therefore, according to this result, it can be interpreted that individuals feel less lonely in a sense as age increases. The comparison of the scale scores of the participants according to their age categories is shown graphically in Figure 2.

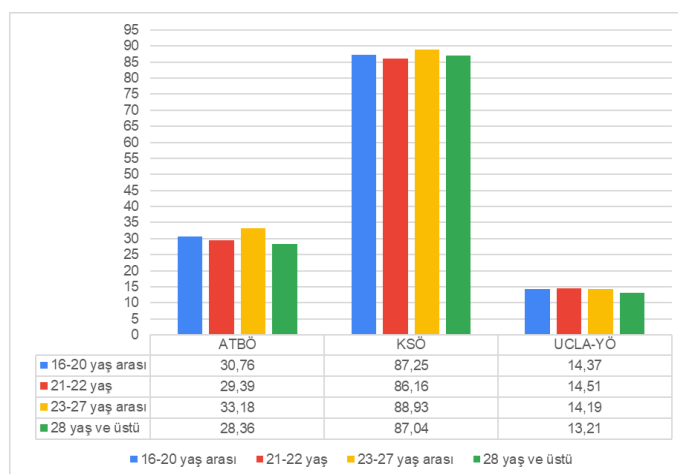


Fig. 2: Comparison of scale scores of participants according to age categories.

4.1.3. Comparison of scale scores according to educational status

The results of the one-way ANOVA test regarding the differences in scale scores according to the educational status of the participants are shown in Table 6.

In Table 6, it is determined that the mean scores of the Smartphone Addiction Scale, Self- self-sabotage and UCLA Loneliness Scale do not show any statistically significant difference according to educational status ($p>0.05$). Regarding the mean scores, the highest mean in the SAS ($\bar{x}=32.92$) belongs to the associate degree graduates, and the highest mean in the SAS ($\bar{x}=91.36$) belongs to the associate degree graduates. On the other hand, it is seen that the lowest mean in the UCLA Loneliness Scale ($\bar{x}=12.32$) belongs to the postgraduate graduates. The comparison of the scale scores of the participants according to their educational status is shown graphically in Figure 3.

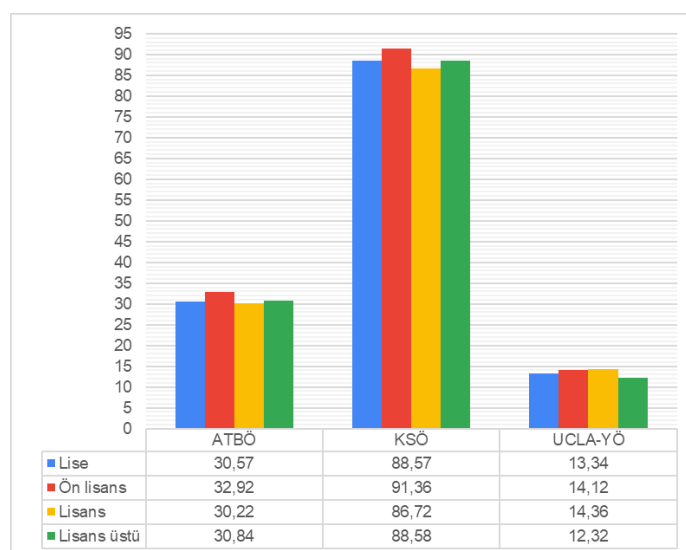


Fig. 3: Comparison of scale scores according to participants' educational status

4.2. Predictive Effect of Self-Sabotage Tendency and Feeling of Loneliness on Smartphone Addiction

The effect of participants' self-sabotage tendency and feeling of loneliness on smartphone addiction was examined with hierarchical regression analysis.

In the first step, the effect of self-handicapping tendency on smartphone addiction was analyzed. As a result of the analysis, the model was statistically significant ($\beta=0.484$, $F=124.742$, $p<0.01$). The independent variable included in the research (self-sabotage tendency) explained 23.5% of the change in participants' smartphone addiction. In the second step, the independent variables of self-sabotage tendency and loneliness were included in the analysis together and the effect of these two variables on smartphone addiction was tested. As a result of the analysis, the model was statistically significant ($F=66.576$, $p<0.01$). Both independent variables included (self-sabotage tendency $\beta=0.463$, $p<0.001$ and loneliness, $\beta=0.113$, $p<0.01$) had a significant effect on the model. In the first step, the effect of self-sabotage tendency on smartphone addiction ($\beta=0.484$) was observed to decrease when the loneliness scale was included in the model in the second step ($\beta=0.463$).

Table 6: Comparison of scale scores according to participants' educational status

Scale	Category	Number	\bar{x}	Sd	F	p
Smartphone Addiction Scale	High School	35	30,57	13,37		
	Associate Degree	25	32,92	9,70		
	Undergraduate	330	30,22	10,43	0,509	0,676
	Postgraduates	19	30,84	10,35		
Self-Sabotage Scale	High School	35	88,57	17,21		
	Associate Degree	25	91,36	15,71		
	Undergraduate	330	86,72	16,91	0,727	0,536
	Postgraduates	19	88,58	13,87		
UCLA Loneliness Scale	High School	35	13,34	3,88		
	Associate Degree	25	14,12	4,03		
	Undergraduate	330	14,36	4,50	1,724	0,161
	Postgraduates	19	12,32	4,55		

F: One Way Anova Test

Table 7: Stepwise regression analysis for the predictive effect of variables on smartphone addiction

Dependent Variable	Independent Variable	B	B Standard Error	β	T	p	F	R ²
Smartphone Addiction Scale	Step 1						124,742	0,235
	Stability	3,555	2,451		1,451	0,148		
	Self-Sabotage Scale	0,308	0,028	0,484	11,169	0,001*		
	Step 2						66,576	0,243
	Stability	0,896	2,643		0,339	0,735		
	Self-Sabotage Scale	0,295	0,028	0,463	10,556	0,001		
UCLA Loneliness Scale	0,272	0,105	0,113	2,583	0,01			

4.3. The Mediating Role of Loneliness in the Relationship Between Smartphone Addiction and Self-Sabotage

The mediation effect of loneliness was tested using stepwise regression analysis and the Hayes Process method. First, the relationship between the independent variable (Self-sabotage tendency) and the dependent variable (smartphone addiction) is examined (path number 3 in Figure 1). Second, the effect of the independent variable (Self-sabotage tendency) on the mediator variable (loneliness) is checked (path number 1 in Figure 1). If both regression analysis results are significant, in the third stage, the independent variable (Self-sabotage tendency) and the mediator variable (loneliness) are entered into a multiple regression analysis together to check their effect on the dependent variable (paths number 1 and 2 in Figure 1 must be significant). Under

these conditions, if the direct effect of the independent variable on the dependent variable has become insignificant (path number 3) or if the effect of the independent variable on the dependent variable is significant but its effect has weakened (path number 3), the variable in the model is considered to be a mediator variable (Baron and Keny, 1986; Preacher and Hayes, 2008). As a result of the analyses, it was determined that the total effect of Self-sabotage tendency on smartphone addiction was significant in the first stage ($\beta=0.484$, $t=11.17$, $p<0.001$). In addition, it was observed that the effect of Self-sabotage tendency on loneliness ($\beta=0.189$, $t=3.88$, $p<0.001$) was also significant.

When Self-sabotage and loneliness were included in the model together in the last stage, it was found that the direct effect of Self-sabotage tendency on smartphone addiction did not disappear ($\beta=0.463$, $p<0.001$) but this effect decreased (total effect=0.484, direct effect=0.463). However, the effect of loneliness on smartphone addiction was also significant ($\beta=0.113$, $t=2.58$, $p<0.001$). Hayes Process analysis confirmed that the indirect effect of Self-sabotage tendency on smartphone addiction through loneliness was also significant (95%CI:0.003-0.03). The fact that the confidence intervals did not include zero indicates that the model was significant (Preacher and Hayes, 2008). These results revealed that loneliness had a partial mediating effect on the relationship between self-sabotage and smartphone addiction. The findings regarding the mediating role of loneliness in the relationship between self-sabotage and smartphone addiction are shown in Figure 1.

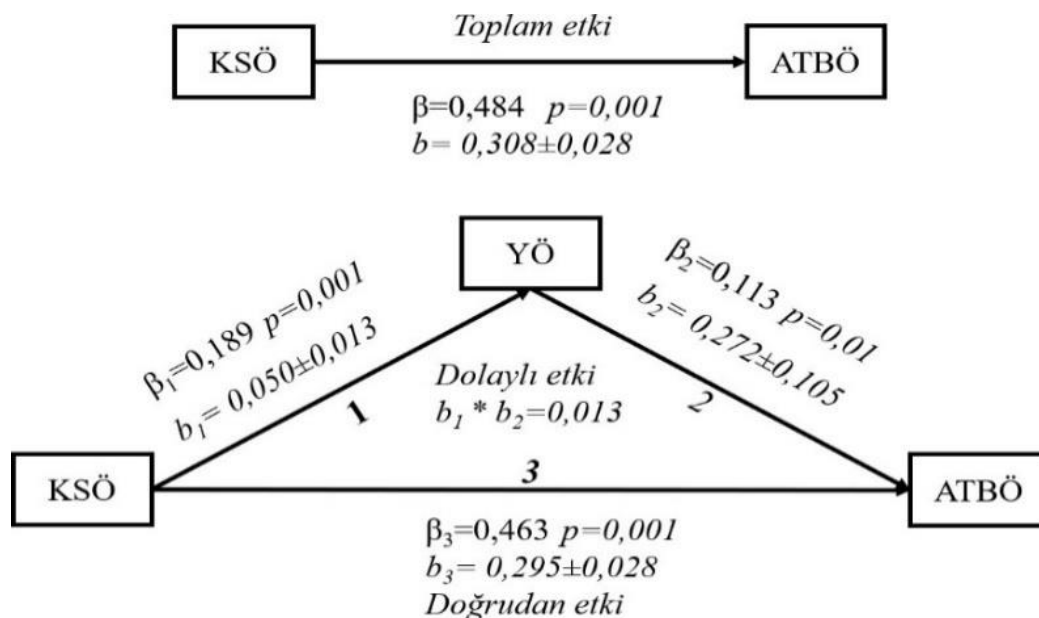


Fig. 4: The mediating role of loneliness in the relationship between self-sabotage tendency and smartphone addiction.

β = Standardized regression coefficient, b =Unstandardized regression coefficient, \pm =Standard Error

Total Effect=Indirect Effect+Direct Effect

$$(b_1 * b_2) + b_3$$

$$(0,05 * 0,272) + 0,295$$

$$= 0,308$$

The above calculations to test the accuracy of the model. In this context, firstly the total effect of self-sabotage tendency on smartphone addiction ($b=0.308$) was found. According to this result, in order to say that the model is accurate, the total effects obtained as a result of the mediation analysis conducted with the Hayes process (indirect effect + direct effect) should be equal to the total effect of self-sabotage tendency on smartphone addiction in the first stage ($b=0.308$). The results obtained show that the analysis is accurate.

5. Conclusion and Discussion

Smartphone addiction has been widely noticed among young adults in recent years. The rapid advancement of technology day by day provides many benefits for socialism, but also causes various problems. This research examined the relationship between smartphone addiction, self-sabotage and loneliness among young adults. The mean score differences of smartphone addiction, self-sabotage and loneliness scores were investigated according to gender, age and educational status. According to literature, there are studies that conclude that smartphone addiction does not show a significant difference according to gender or that males tend to develop smartphone addiction more than females. This research, like many other studies in the literature concluded that female's average scores are higher than male's average scores. Self-sabotage scale average scores of female's average scores are higher than male's. According to this result, female's Self-sabotage tendencies are higher than males. However, there are studies concluding that Self-sabotage tendency does not differ significantly according to gender and there are also studies showing that males have higher self-handicapping tendencies than males.

In this research, the mean scores of the UCLA Loneliness Scale (LOS) do not show a statistically significant difference according to gender. There are studies showing that the gender variable does not create a statistically significant difference on the level of loneliness. However, while some studies found a significant difference in favor of females, other studies found a significant difference in favor of males. In this research, it was determined that the mean scores of the Smartphone Addiction Scale (SAS), Self-Sabotage Scale (SAS) and UCLA Loneliness Scale (LOS) did not show statistically significant differences according to educational status. Similarly, Mert and Özdemir (2018) concluded in their study that smartphone addiction did not differ according to educational level. Again, Sertel (2019) concluded in his study that the self-handicapping tendencies of teachers and administrators did not show a significant difference according to educational status. However, there were studies that concluded that the level of smartphone addiction increased as the level of education increased (Arslan, 2021; Dula and Güler, 2022; Kumcağız et al. 2020; Kuyucu, 2021). Though there are studies in the literature that concluded that self-sabotage did not show a significant difference according to educational status (Saylık, 2023; Manav, 2023). In addition to these, there are studies that concluded that self-sabotage of university students does not show a significant difference according to their grade levels (Avcı, 2023; Çelik, 2019; Leondari et al., 2007; Seçir, 2024). However, Yılmaz (2019) concluded in his study that the self-sabotage tendencies of first-year university students are less than those of other grade levels. Accordingly, it can be thought that the tendency to self-sabotage increases due to the fact that the individual is more affected by his environment as he steps towards adulthood. There are studies, as in this research, showing that the feeling of loneliness does not differ according to the level of education (Çağır, 2010; Yılmaz et al., 2008). However, it is found that there are also studies that conclude that the feeling of loneliness increases as the level of education decreases. Bakioğlu and Korumaz (2015) concluded in their study that teachers with a master's degree felt lonelier at school than teachers with a bachelor's degree.

According to the age category differences, statistically significant differences were observed in smartphone addiction scores. As a result of posthoc (comparison) tests, it was found that the mean scores were higher in the 23-27 age category. Considering these results, it can be said that smartphone addiction is higher in the 23-27 age group as Çakır and Oğuz (2017) who support their study with no significant difference between smartphone addiction and age levels. No significant age-related differences were observed in the self-sabotage scale scores. It was found that the age category scores of the self-sabotage tendency were very close to each other. There are other studies showing that each age group tends to self-sabotage at similar rates (Atilla and Çelik, 2019; Kamuk et al., 2018). Özlü and Topkaya (2020) found the age category to be a negative predictor of self-sabotage in their study. Although no significant differences were observed in the mean scores of the loneliness scale, it can be said that UCLA-LS scores are lower over the age of 28. According to this result, it is thought that individuals feel less lonely as they get older. This finding obtained in the study can be associated

with the difficulties people experience in adapting to new environments and the weakening of their social networks as they get older.

Regarding the studies of loneliness, similar results are found (Yılmaz et al., 2007; Mert and Özdemir, 2018). In this research, it was concluded that the relationship between self-sabotage and smartphone addiction is positive, between self-sabotage and loneliness as well as between smartphone addiction and loneliness is also positive.

Based on literature, no study was found that self-sabotage has a direct effect on smartphone addiction, but Jones and Berglas (1978) concluded in their study that alcohol and substance use, which are among the other types of addiction, can be used as self-sabotage behavior. Considering that smartphone addiction, like other types of addiction, can reduce the individual's socialization and lead to psychological disorders such as depression and anxiety, it can be concluded that self-sabotage behavior can also increase. When the positive relationship between self-sabotage and loneliness is considered, the individual who frequently exhibits self-sabotage behavior is seen by others as inadequate in social skills and thus becomes isolated from social environments and becomes lonely. A person's constant interest in a smartphone can also disturb others, weaken their relationships and eventually cause loneliness. In fact, the analysis results in this research support this view.

The importance of the concepts of self-sabotage and loneliness in the formation of smartphone addiction has been observed. In this research, it was concluded that loneliness has a partial mediating effect in the relationship between smartphone addiction and self-sabotage. There is no other study in the literature investigating the mediating effect of loneliness in the relationship between smartphone addiction and self-sabotage. In this respect, this research is the first to reveal that loneliness has a partial role in the relationship between smartphone addiction and self-sabotage.

6. Limitations

The research was limited to university students studying at Kocaeli University and Sakarya University-Turkey. At the same time, individuals' tendency to give biased answers should also be taken into consideration. Working with a larger sample group with different age groups and sociocultural characteristics may increase the reliability of the research.

7. Recommendations

The relationship between educational status and self-sabotage also smartphone addiction can be examined in detail. Quantitative studies on self-sabotage can reveal whether there are sociocultural differences in terms of gender. In addition, future studies and research can diversify and relate self-sabotage tendency to addiction. The mediating role of loneliness in the relationship between self-sabotage and smartphone addiction can be investigated in a larger sample. Seminars and trainings can be given in universities to prevent smartphone addiction, and psychoeducation groups can be formed. Psychological counseling practices should be carried out for people in risk groups in psychological counseling centers of universities. Conducting studies investigating the effect of self-sabotage on smartphone addiction and loneliness can guide experts in relevant individuals, institutions and organizations.

Conflict of interest

The researchers totally declare there is no any conflict of interest.

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دراسة الدور الوسيط للوحدة في العلاقة بين إدمان الهواتف الذكية وتخريب الذات

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المُلخَص

تم دراسة الوحدة كوسيط في العلاقة بين إدمان الهواتف الذكية ومستويات التخريب الذاتي بين فئة الشباب. حيث أستخدم نموذج المعلومات الديموغرافية، ومقياس إدمان الهواتف الذكية القصير، ومقياس التخريب الذاتي، ومقياس الوحدة القصير. تم تطبيق المقاييس على عينة من 409 مشارك، بما في ذلك 155 أنثى و254 ذكرًا. أكدت نتائج تحليل البيانات أن جميع متغيرات البحث الثلاثة كانت لها علاقة إيجابية وهامة إحصائيًا مع بعضها البعض. أخيرًا، لا اختبار ما إذا كان متغير الوحدة له تأثير وسيط في العلاقة بين إدمان الهواتف الذكية ومستويات التخريب الذاتي، تم تطبيق تحليل الانحدار المتعدد ثلاثي المراحل، وأشارت النتائج إلى أن هناك تأثير وسيط جزئي للوحدة على التخريب الذاتي وإدمان الهواتف الذكية. تمت مناقشة النتائج في ضوء الأدبيات الموجودة بشكل عام.

الكلمات المفتاحية: الهواتف الذكية، إدمان الهواتف الذكية، تخريب الذات، الوحدة.

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