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Examination of the Relationship among Adolescents' Subjective Well-Being, Parenting Styles with Smartphone in terms of different variables

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ABSTRACT

Aim of this research is to examine the relationship between adolescents' subjective well-being and parenting style and smartphone addiction by several variables. The research population was composed of high school students studying in Kocaeli province in the academic year of 2017-2018. The sample was composed of 671 adolescents attending 6 different high schools which were randomly chosen out of this population. 313 (46.6%) of the participants are female, 358 (53.4%) of them are male. Relational survey model was used in the research. Data were collected using Personal Information Form, Smartphone Addiction Scale, Adolescent Subjective Well-Being Scale and Parenting Style Inventory. It was found in the research that participants' smartphone addiction levels did not differ statistically and significantly by gender, whether parents were together or divorced, and parental income. A negative significant relationship was found between academic achievement and smartphone addiction. According to the analysis results, as the smartphone usage duration extended, smartphone addiction level increased. The results of the analysis conducted to determine whether smartphone addiction was predicted by adolescents' subjective well-beings and the parenting styles (acceptance/involvement, psychological autonomy and strictness/supervision) showed that all variables other than parental acceptance were negative significant predictors of smartphone addiction. It was concluded that subjective well-being was the most important predictor of smartphone addiction.

Keywords:
Smartphone addiction, parenting style, adolescent subjective well-being

1. Introduction

A rapid change has been observed in the communication technology in parallel with the developments in today's technology. Phones are some of the important communication technologies. According to Tekin, Güneş and Çolak (2014), mobile phones are the leading devices which provide the highest benefit among tools of communication. (Kayabaş, 2013) Having been used only to communicate in the beginning, smartphones have been made more equipped, and it is possible to say that they have been finding an important spot in our lives with social network applications such as Instagram, WhatsApp, Twitter, Facebook, etc. and features such as photography, video call, video recording, navigation, shopping and receiving the news and have brought another dimension which facilitates users' lives.

One of the most important benefits of smartphones for users is that they provide a technology enabling users to access information and communicate easily when used properly (Ayas & Horzum, 2013). One can argue that smartphones have negative effects beside their benefits which facilitate people's lives. Excessive and unconscious use of smartphone lead to negative consequences among individuals socially, psychologically and physiologically (Choi, Lee, & Ha, 2012). According to Wood & Neal (2007), these devices which individuals need to carry with them all the time to socialize or communicate with others will become a habit after a while, and this habit will turn into an addiction thereafter. Habits are activities always existing in

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daily life, do not pose any problem and enrich our lives. However, if these habits make us unsuccessful and harm us cognitively, socially and psychologically, it generally means that they have turned into addiction (Öztürk, 1989).

It is possible to define addiction as the sum of abnormal behaviors which affect individual's physical, mental and social functionality and everyday life activities. There are several definitions of addiction in the literature. According to Tamar Gürol (2012), addiction is a brain disorder occurring at the end of a certain process and harming the individual with several environmental and biological factors in play in its development and progress; it affects both brain and behaviors and is characterized by the individual seeking for and using substances although it results in many negative situations and accompanied by continuous and repetitive malignant behavior and attitude. Egger and Rauterberg (1996) argue that addiction refers to not being able to resist the urge to perform a given behavior over and over again or failing to control the behavior of using a substance all the time. Addiction stems from relationships and interactions among many factors involving individual's own nature such as psychological construct, social circle and activities, and genetic susceptibility (Griffiths, 2003). According to Kim and Kim (2002), addiction does not necessarily mean the substance addiction based on smoking, alcohol, etc.; one should also mention behavior-based addictions regardless of intake of any chemical when it comes to addiction.

Addictions resulting from the uncontrolled exhibition of a behavior without any chemical intake are recognized as behavioral addictions (Griffiths, 2005). According to Köknel (1998), behavioral addiction is described as how individuals are affected physically, spiritually, mentally and socially in a negative way as a result of uncontrolled, therefore, abnormal exhibition of a given behavior, which deteriorates their order in everyday tasks and functions and cause them to find it hard to adapt to the social structure. It has been recently observed that Internet-based activities such as gaming or chatting exhibit addiction on a similar level to drug and substance abuse. As Internet has become more available via smartphones today, the relationship between smartphone and addiction is now one of the important issues to be addressed (Bekir & Yıldırım, 2018; Kwon, Kim, Cho, & Yang, 2013; Padır, 2016). Şar, Ayas, & Horzum (2015) state that excessive and unconscious usage of smartphone may cause behavioral addiction as well.

Smartphone addiction is a type of addiction which occurs based on behaviors regardless of chemical intake and causes disturbance when not used. It has different denominations in the literature such as "problematic mobile phone usage", "overuse of mobile phone", and "smartphone addiction" (Süler, 2016). According to Lin, Chang, Lee, Tseng, Kuo, & Chen (2014), smartphone addiction is regarded as a form of technological addiction. Technological addictions are covered by non-chemical, behavioral addictions and based on human-machine interaction. Technological addictions may be in the form of active addiction such as playing videogames as well as passive addiction such as watching television, and the related behavior has addiction-causing, stimulating and awarding properties in general (Arısoy, 2009; Bekir, 2018).

Smartphone addiction is of characteristics such as deterioration in users' social relations, urge to use smartphone and loss of control, and tolerance and defined by the degree of affecting everyday life negatively (Kwon, Kim, Cho and Yang 2013). Today, it is seen that smartphone addiction is more common among 20-year-old and younger individuals (Kahyaoğlu Sut, Kurt, Uzal, & Özdilek, 2016). It is possible to argue that it has several negative impacts on them. Due to excessive and unconscious usage of smartphones, many students, especially going through adolescence, have problems with their teachers at school and parents at home (Lee and Kim, 2013). It is stated in the literature that young smartphone addicts are affected academically in a negative manner (Chan, Walker & Gleaves, 2015; Lepp, Barkley & Karpinski, 2014; Judd, 2014; Junco & Cotten, 2011) and smartphone addictions cause individuals to become persons who live their lives with a non-real, virtual identity, are abstracted from the society, have difficulty in communicating face-to-face and try to express themselves with their own virtual identity (Polat, 2017). Megative effects of smartphone addiction might not be limited to these. It can be argued according to the literature that it affects youngsters' verbal communication negatively (Kahyaoğlu Sut, Kurt, Uzal, & Özdilek, 2016), it has a negative impact on youngsters' psychology as it causes insomnia, exhaustion and stress (Gross,2014), it causes attention deficit and hyperactive behaviors (Augner ,& Hacker, 2012; Şata, Çelik, Ertürk ,& Taş, 2016) and use of smartphones from early ages may cause health problems such as Alzheimer's and Parkinson's (Kalkan, 2002). Smartphone addiction brings about several problems in mental health, social life and personal relationships (Choi, Lee, & Ha, 2012) and has an impact on the development of many problematic behaviors such as anger, desperate efforts for connection, excessive time spent on smartphones,

psychological disorders and setbacks in everyday tasks (Ko, Le ,& Kim, 2012). It is also possible to say in the light of these considerations that smartphone addiction levels increase as individuals' levels of happiness decrease.

Happiness is addressed along with the concept of subjective well-being in psychology (Eryılmaz, 2010). Subjective well-being means that individuals evaluate events in his/her life and make a judgment accordingly. Subjective well-being is comprised of two main components which are affective and cognitive. Satisfaction with life constitutes the cognitive aspect of subjective well-being. The affective aspect consists of two components which are positive affect and negative affect (Myers & Deiner, 1995). There are many factors affecting subjective well-being as stated in the literature. Diener and Fujita (1995) argue that one of the important factors is individual's resources. These resources are material means, social and personal qualities that can be used to achieve personal goals. According to Park (2004), there are four important factors that have an impact on adolescent subjective well-being. These include having parents who show supportive approach, performing challenging activities or overcoming difficult tasks, life events that have a positive effect on individual and high-quality interactions with important persons. Variables effective on adolescent subjective well-being include family factor and parenting style.

Parenting style is defined as the body of attitudes, expectations and behaviors toward the child in general (Darling & Steinberg, 1993). Parents and child relationship is important in adolescence as in all developmental periods. Adolescents who can establish healthy relationships with their parents also do so with their circles and maintain their lives as individuals who do not have adaptational problems with others. Hence, parenting styles is of great importance to adolescents (Hines, 1997). In this sense, adolescent subjective well-being along with parenting styles and familial relationship are important factors affecting the satisfaction with life (Joronen & Kurki, 2005).

As is seen, problem of addiction which occurs due to unconscious usage of smartphones affect adolescents' quality of life negatively. It is therefore very important to take precautions for youngsters and society before smartphone usage becomes an addiction. Thus, it is possible to argue that identifying the variables which affect smartphone addiction will provide significant contributions to the development of suggestions to solve this problem. Accordingly, in this study, ıt was aimed to examine the relationship between adolescents' subjective well-being and pareting style with smartphone addiction.

2. Method

This is a quantitative research study aiming to identify the relationship between adolescents' subjective well-being and parenting style and smartphone addiction by several variables. The dependent variable of the research is smartphone addiction whereas its independent variables are adolescents' subjective well-being levels and parenting styles. The research was conducted in the relational survey model through which the relationship between adolescents' subjective well-being and parenting style and smartphone addiction was investigated by several variables. Relational survey is a research model which aims to investigate whether there is a relationship between two or more variables and the level of this relationship if there is one, does not provide a causation but some hints to achieve useful results to predict the other variable given that the situation is known in one of them (Karasar, 2010).

2.1. Participants

The research population was composed of high school students studying in Kocaeli province in the academic year of 2017-2018. The sample was composed of 671 adolescents attending 6 different high schools which were randomly chosen out of this population. 313 (46.6%) of the participants are female, 358 (53.4%) of them are male.

2.2. Instruments

Personal Information Form: The personal information form prepared by the researcher to apply to the study group tried to find out about the demographics of the students. This form asked about information such as students' gender, grade level, perceived academic achievement average, perceived parental income, whether parents were together or divorced, daily duration of smartphone usage and purpose of smartphone usage. There are 7 questions in total for the study group in the personal information form.

Smartphone Addiction Scale: The original scale was developed by Şar, Ayas and Horzum (2015). The scale was finalized upon a pilot application and expert opinions. Next, the factor analysis, construct validity and reliability studies were performed. The scale was performed on 234 high school students to conduct the factor analysis in the first application for finalizing the scale. In the second application, the scale was performed on 228 different high school students for conducting the confirmatory factor analysis. Convergent and discriminant validity was applied to measure scale's construct validity. According to the analyses, it is a valid and reliable scale. The scale was found to have a 4-factor and 30-item factor construct. The lowest factor variance of the items are .397. The first factor has 17 items, and factor loading values vary between 0.557 and 0.813. The eigenvalue of the first factor is 14.40 and its explained variance is 47.98%. This factor is called "Relieving Oneself". The second part of the scale is the 5-item "Physical Impairment and Negligence of Daily Activities" factor. The eigenvalue of the second factor is 2.02 and its explained variance is 6.72%. The loading values of five items in the second factor vary between 0.561 and 0.765. The third factor consists of 4 items; its eigenvalue value is 1.39 and explained variance is 4.64%. This factor is called "Abstraction from face-to-face communication". The factor loading values of five items in three factors are between 0.620 and 0.774. The fourth and last factor of the scale is also consists of 4 items; its eigenvalue value is 1.12 and explained variance is 3.72%. This factor is called "Unrestrainable Use". The loading values of five items in the fourth factor vary between 0.444 and 0.768. The total eigenvalue of the Smartphone Addiction Scale is 18.93, and its total explained variance is 63.06%. The ratio of factor loading loads to factors from 30 items is between 0.444-0.813. These results show that the scale sufficiently explains the quality measured by variance. Consequently, the scale was obtained in a 30-items and 4-factor construct.

Adolescent Subjective Well-Being Scale: Adolescent Subjective Well-being Scale was developed by Eryılmaz (2009a). The scale consists of items that contain satisfaction levels and positive affect in various areas of life. It is a 4-point Likert, 15-item scale. Adolescent Subjective Well-Being Scale consists of four factors: satisfaction in familial relations, satisfaction with life, positive feelings and satisfaction in relationships with significant others. The explained variance of these four factors is 61.64. The reliability of the scale was determined by internal consistency and item-total correlation methods. The Cronbach's Alpha coefficients were calculated to be .86 for the whole scale, .81 for satisfaction in familial relations, .81 for satisfaction with life, .73 for satisfaction in relationships with significant others, and .66 for positive feelings. The Spearman Brown value is .83. Convergent validity of the scale was evaluated with the Satisfaction with Life Scale in this study group. The analyses concluded that the scale has a convergent validity of 0.47. The explained variance of the scale is .61.641. The scale was administered to the same group at two-week intervals. Thus, the reliability of the scale was calculated using the test-retest method, and the stability factor was found to be .83.

Parenting Style Inventory: Developed by Lamborn, Mounts, Steinberg and Dornbusch (1991), Parenting Style Inventory-PSI was adapted to Turkish by Yılmaz (2000a). Lamborn et al. (1991) developed the Parenting Style Inventory on the basis of factors suggested in the studies performed by Baumrind (1971), Maccoby and Martin (1983) and using the factors addressed by Steinberg et al. (1989) in their study. The inventory scores were subjected to a factor analysis resulting in three factors which are psychological autonomy, strictness/supervision and acceptance/involvement. The inventory is composed of 26 items. Test-retest reliability was examined for the reliability study of the Parenting Style Inventory. For the high school students who were also the sample of our research, the test-retest reliability coefficients and Cronbach's Alpha internal consistency coefficients were found to be .82 and .70 for acceptance/involvement, .76 and .66 for strictness/supervision, and .76 and .66 for psychological autonomy, respectively. In the validity study of the inventory, it was examined whether there were any significant differences between the dimensions of democratization in terms of academic achievement scores as it is done in the relevant studies so that it could be considered an indirect evidence for criterion-related validity. This result is an indirect evidence for the criterion-related validity of the inventory (Yılmaz, 2000).

3. Findings

The study data were collected from 671 adolescents from various high schools in Kocaeli. 313 *(46.6%)* of the participants are female, 358 *(53.4%)* of them are male. 34 *(5.1%)*, 601 *(89.6%)* and 35 *(5.2%)* of the participants stated that the income levels of their families were low, medium and high, respectively, and one participant

did not answer this question. The mean score of the participants from the Smartphone Addiction Scale was 64.58. Regarding students' smartphone usage frequency, it was observed that 108 *(16.1%)* of the participants were using their smartphones for less than one hour per day, 339 *(50.5%)* used for 1-3 hours while 224 *(34.4%)* used their smartphones for more than three hours. As for the purposes of smartphone usage, 359 of the participants (53.5%) were using smartphone for social media, 109 of them (16.2%) for messaging, 85 of them (12.7%) for playing games, 47 of them *(7%)* for speaking and 67 of them *(10%)* for other purposes; 4 of the participants did not answer this question.

Before the data were analyzed, it was checked whether the assumptions required for multiple regression were assured. First, it was checked whether the sample size required for the analysis was achieved. To this end, the criterion ($N \geq 50 + 8m$) proposed by Tabachnick and Fidell (2013) was taken as the basis. Accordingly, there are 4 independent variables in this study. Given the proposed criterion, it was determined that the number of 671 students participating in this study exceeded the recommended sampling adequacy (671≥ 50 + 8x3 = 74) in order to perform regression and it was convenient to perform regression analysis.

The assumption of normality of the standardized residuals was checked by Histogram and PP plot. As shown in Figures 1 and 2 below, it was determined that PP plots followed approximately 45-degree line and histogram showed normal distribution.

Figure 1 Residual normality

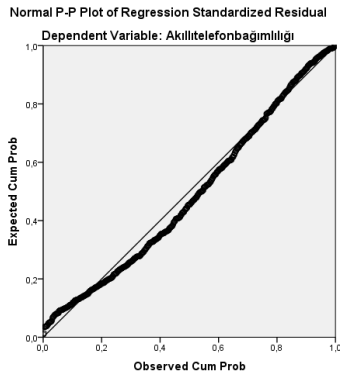


Figure 2 Residual normality P-P Plot

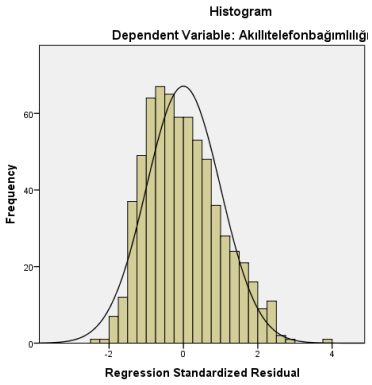
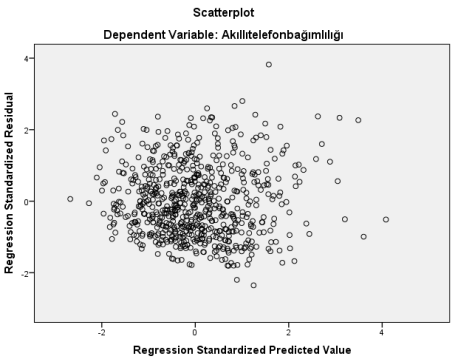


Figure 3: Homoscedasticity



The scatter plot was examined for the homoscedasticity assumption of the regression analysis. The scatter plot not exhibiting a distinct pattern indicates that this assumption was assured.

Assumption of independence of errors in multiple regression was examined by looking at the Durbin-Watson coefficient value. According to Durbin and Watson (1951), this value should be between 1 and 3. In this study, the Durbin-Watson value was found to be 1.52, and it was concluded that this assumption was not violated. The relationship among VIF (variance influence factor), tolerance value and predictor variables was investigated for the multicollinearity assumption. According to this assumption, the relationship among

predictive variables should not be greater than .90 (Field, 2009, 2013), the VIF value should be less than 4 (Pan and Jackson, 2008) and the tolerance value should be greater than .20 (Menard, 1995). It was found in this study that the highest correlation value among the predictive variables was .37 and less than the recommended .90 criterion. It was determined that VIF values varied between 1.03 and 1.19 and less than 4, and the tolerance values between .84 and .98 and were greater than .20. All these values indicate that the multicollinearity assumption was met.

Mahalanobis-distance values, mean values (Leverage statistic), Cook's D and DFBeta values were examined for the absence of outliers which is the final assumption of multiple regression. Mahalanobis distances were evaluated by the value $p < .001$. Accordingly, the critical value is $\chi 2\ (3) = 16.27$. 8 values out of the calculated Mahalanobis-distance values were found to be exceeding this value, and these data were removed from the analysis after having been examined. Cook's D values being greater than one were considered to be outliers (Cook, 1977; Cook and Weisberg, 1982) while the mean values criterion was evaluated according to the formula 3(k+1)/ N proposed by Steven (2002). According to the calculated Cook's D values, 6 data (different from Mahalanobis distance values) were found to be greater than 2 and 2 data were greater than 1; so, these data were deleted. It was found that the mean value calculated to be .02 belonged to only 4 data only and 3 of these data were excluded from the analysis after individual controls. Similarly, Field (2009) suggested that the standardized DFBeta values should be less than 1. According to this criterion, 5 values were determined to be greater than 1 and were deleted. Briefly, a total of 24 data as outliers were deleted, and the analysis was continued.

In this study, regression analysis was performed to determine whether the dependent variable of smartphone addiction was predicted by adolescents' subjective well-being and the parenting styles (acceptance/involvement, psychological autonomy and strictness/supervision).

According to the regression analysis results, the correlation table showing the relationship between the predictor variables and smartphone addiction is given below. As seen in Table 1 below, the correlation values between the predictor variables (subjective well-being, parental acceptance/involvement, psychological autonomy and parental strictness/supervision) varied between -.20 and -.30.

It was determined that all variables were related to smartphone addiction and the highest relationship was between subjective well-being and smartphone addiction (r = -.30). Due to this high relationship, it is highly likely that the subjective well-being is the most powerful predictor of smartphone addiction.

Table 1. Correlation Table Showing the Relationship Between Smartphone Addiction and Predictor Variables

Variables	1	2	3	4	5
1. Smartphone Addiction	1				
2. Subjective Well-being	-.30*	1			
3. Parental Acceptance/Involvement	-.20**	.37**	1		
4. Psychological Autonomy	-.20**	.19**	.12	1	
5. Parental Strictness/Supervision	-.21**	.05	.12**	-.08	1

***p<.01*

The results of the regression analysis which was performed to determine whether smartphone addiction was predicted by adolescents' subjective well-being and parenting styles (acceptance/ involvement, psychological autonomy and strictness/supervision) are given in Table 2 below.

Table 2. Regression Analysis Results Concerning the Predictor Variables of Smartphone Addiction

Variables	*B*	*SE B*	*B*	*t*	sr^2	R^2	*F*
Subjective Well-Being	-.72	.12	-.23	-5.94	.04*	.16	30.64*
Parental Acceptance/Involvement	-.33	.18	-.07	-1.81	.00		
Psychological Autonomy	-.67	.15	-.16	-4.43	.02*		
Parental Strictness/Supervision	-.91	.16	-.20	-5.51	.04*		

**p<.05*

As seen in the regression table above, the model is significant and $F_{(4,666)} = 30.64$, $p < .05$), explains about 16% of the variance in smartphone addiction. Accordingly, it was determined that all other variables except parental acceptance/involvement were negative predictors of smartphone addiction. Whereas subjective well-being ($\beta = -.72$, $t = -5.94$, $p < .05$) and parental strictness/supervision ($\beta = -.91$, $t = -5.51$, $p < .05$) explained 4% of the variance in smartphone addiction individually, psychological autonomy ($\beta = -.67$, $t = -4.43$, $p < .05$) alone explained 2% of the variance in smartphone addiction. These results indicate that smartphone addiction decreased as subjective well-being, psychological autonomy and parental strictness/supervision increased.

Independent samples t-test was performed to determine whether adolescents' smartphone addiction scores differed significantly by gender. Results of the independent samples t-test showing whether the difference between participants' mean scores of smartphone addiction differed statistically are presented in Table 3 below.

Table 3. Results of the independent samples t-test showing whether students' smartphone addiction scores differed by gender

	Gender	N	$\overline{X}$	Ss	Sd	t	p
Smartphone Addiction	Female	358	63.68	20.54			
	Male	313	65.62	20.69	669	-1.22	.22

According to Table 3, the independent samples t-test found no significant difference between participants' smartphone addiction scores by gender (t_{669}= -1.22, p= .22).

Independent samples t-test was performed to determine whether adolescents' smartphone addiction scores differed significantly by whether their parents were together or divorced. Results of the independent samples t-test showing whether the difference between participants' mean scores of smartphone addiction differed statistically are provided in Table 4 below.

Table 4. Results of the independent samples t-test showing whether students' smartphone addiction scores differed by whether the parents were together or divorced

	Parents Together or Divorced	N	$\overline{X}$	Ss	Sd	t	p
Smartphone Addiction	Together	625	64.23	20.35			
	Divorced	45	68.98	23.71	668	-1.49	.14

p<.05

It can be understood from the results of the independent samples t-test that there was no significant difference between participants' smartphone addiction scores by whether their parents were together or divorced (t_{668}= -1.49, p=.13).

One-way variance analysis was carried out to determine whether there was any significant difference between adolescents' smartphone addiction scores by the income level of their families. The analysis results are given in Table 5 below.

Table 5. Results of One-Way Variance Analysis Concerning Whether Smartphone Addiction Scores Differed by Income Levels of the Families

	Source of Variance	Sum of Squares	Sd	Mean of Squares	F	p
Smartphone Addiction	Intergroup	2069.58	2	1034.79	2.45	.09
	Intragroup	282141.89	667	423.00		
	Total	284211.46	669			

One-way variance analysis was carried out to determine whether participants' smartphone addiction scores differed by the income level of their families. It was found in the Levene's test that the assumption of variance homogeneity, which is an assumption of one-way variance analysis, was not assured (F = 4.45, p <.05). Although the assumption of variance homogeneity was not assured, the analysis was continued because the ANOVA test was strong against this assumption. According to the analysis results, it was determined that smartphone addiction scores did not show a statistically significant difference by the income level of the families $F_{(2,667)}$ = 2.45, p = .09).

One-way variance analysis was carried out to determine whether there was any significant difference between adolescents' smartphone addiction scores by their academic achievements. The analysis results are given in Table 6 below.

Table 6. Results of One-Way Variance Analysis Concerning Whether Participants' Smartphone Addiction Scores Differed by their Academic Achievements

	Source of Variance	Sum of Squares	Sd	Mean of Squares	F	p
Smartphone	Intergroup	12734.57	2	6367.28	15.60	.00*

Addiction	Intragroup	271834.99	666	408.16
	Total	284569.56	668	

*p<.05

One-way variance analysis was carried out to determine whether participants' smartphone addiction scores differed by their academic achievements. It was found in the Levene's test that the assumption of variance homogeneity, which is an assumption of one-way variance analysis, was not assured (F=.4,63; p <.05). Although the assumption of variance homogeneity was not assured, the analysis was continued because the ANOVA test was strong against this assumption. The difference was found to be significant in the analysis (F(2,666) = 15.60, p = .00). According to the results of the Scheffe test conducted to determine between which groups the difference was, the students with low academic achievement had significantly higher scores of smartphone addiction than the students with higher (M_d =13.26, SD =2.77) and moderate (M_d =19.16, SD =3.54.) academic achievement. The results indicated that smartphone addiction scores of the students with moderate and higher academic achievement levels did not differ significantly (M_d =5.90, SD =2.52).
One-way variance analysis was carried out to determine whether there was any significant difference between adolescents' smartphone addiction scores by their duration of smartphone usage. The analysis results are given in Table 7 below.

Table 7. Results of One-Way Variance Analysis Concerning Whether Participants' Smartphone Addiction Scores Differed by their Duration of Smartphone Usage

	Source of Variance	Sum of Squares	Sd	Mean of Squares	F	p
Smartphone Addiction	Intergroup	65376.18	2	32688.09	99.48	.00*
	Intragroup	219490.81	668	328.579		
	Total	284866.99	670			

*p<.05

One-way variance analysis was carried out to determine whether participants' smartphone addiction scores differed by their duration of smartphone usage. It was found in the Levene's test that the assumption of variance homogeneity, which is an assumption of one-way variance analysis, was not assured $F_{(2,668)}$ =10.27 p<.05). Although the assumption of variance homogeneity was not assured, the analysis was continued because the ANOVA test was strong against this assumption. The difference was found to be significant in the analysis $F_{(2,668)}$ = 99.48, p = .00).
According to the results of the Scheffe test conducted to determine between which groups the difference was, the students using smartphone for more than 3 hours had significantly higher scores of smartphone addiction scores than the students using smartphone for 1-3 hours (M_d =16.97, SD =1.56) and for less than 1 hour (M_d =27.33, SD =2.12) .
Similarly, smartphone addiction scores of the participants who reported usage for 1-3 hours were significantly higher than the scores of the participants who reported usage for less than 1 hour (M_d =10.35, SD =2.00) In the light of these results, it can be argued that duration of smartphone usage is more likely to cause addiction.

4. Discussion and Recommendations

According to the results of the analysis conducted to determine whether smartphone addiction was predicted by adolescents' subjective well-beings and parenting styles (acceptance/involvement psychological autonomy and strictness/supervision), all variables other than parental acceptance were negative significant predictors of smartphone addiction. While subjective well-being and parental strictness/supervision explained 4% of the variance in smartphone addiction individually, psychological autonomy alone explained 2% of the variance in smartphone addiction. These results indicate that smartphone addiction decreased as subjective well-being, psychological autonomy and parental strictness/supervision increased.

It was concluded in this study that there was a negative relationship between adolescents' smartphone addiction and subjective well-being levels. This result suggests that the level of smartphone addiction decreases as the level of subjective well-being increases. There are studies reinforcing this result of the study in the literature. According to the results of the study conducted by Kumcagız and Gunduz (2016), there is a negative relationship between smartphone addiction level and subjective well-being level. A similar study performed by Cho, Kim and Park (2017) concluded that stress had an apparent effect on smartphone addiction.

It is possible to explain this result as follows: Ko, Lee and Kim, 2012 state that there are many different themes which drag people into smartphone addiction. These themes include people who are hopeless and go through emotional discomfort, pain and insecurity, people trying to connect with others; psychological difficulties (over attachment and dependence, anxiety of separation, detention, reduced patience); threats about daily life's functionality, disorderly daily life, regression in daily functioning, health problems; broken interpersonal relationships, and feelings of being disagreeable. Subjective well-being is defined as having satisfaction with life dominated by positive emotions and less frequent negative feelings (Diener, 1984). People with high levels of subjective well-being are usually those who exhibit characteristics such as self-esteem, optimism, sense of personal control, extraversion, and a positive understanding of life. These people have a positive sense of life because they dominantly have positive feelings and thoughts (Myers and Diener 1995). It is accordingly possible to say that subjective well-being level will increase if positive emotions are dominant and there are fewer negative emotions in individuals' everyday lives, and therefore, their smartphone addiction levels will decrease. It is possible to say that in cases where negative emotions are dominant and positive emotions are less frequent, that is, individual has low subjective well-being, the level of smartphone addiction will increase. Indeed, the findings achieved in this study also showed that the level of smartphone addiction increased as the level of subjective well-being decreased. Because, according to Köknel (1998), individuals with behavioral addiction are referred to as individuals who exhibit a given behavior in an uncontrollably progressing manner and abnormal order, experience disorder in their everyday tasks and functioning and have difficulty in adapting to the social structure. It is observed that problem of smartphone addiction leads to several problems in mental health, social life and personal relationships (Choi, Lee and Ha, 2012). For all these reasons, it was concluded that there was a negative relationship between subjective well-being, which is the equivalence of happiness in psychology, and smartphone addiction.

According to the results achieved in this study, smartphone addiction decreased as psychological autonomy and parental strictness/supervision increased. The lack of a healthy relationship between parents and child is one of the important situations that lead the individual to smartphone addiction (Ryu & Cho, 2015). While the strictness/supervision factor explains to what degree the parents are strict/supervisory with their children, the psychological autonomy factor is about to what extent parents practice the democratic style and encourage the individuality of the child (Yılmaz, 2000).

Parents with democratic parenting style usually care about their children's opinions and are always warm and sincere to their children regardless of whether they fulfill their expectations. When a familial decision is to be taken, they help their self-confidence improve by including their children in this decision-making process and taking their opinions. They criticize the behaviors of children in a constructive manner and help

children find the truth by taking lessons from the wrongdoing (Çağdaş, 2002). Parents practicing this style give their children the chance to express their abilities and to freely complete their development and allow them to express and actualize themselves (Baumrind, 1966). This parenting style is the most appropriate style for the personality development of children (Kulaksızoğlu, 2011). If parents of a child do not have a democratic style and not encourage him/her to express his/her individuality, it is likely to cause the child to grow up as introvert individuals who cannot express himself/herself in the society and have difficulty in expressing his/her needs and demands. If this is the case, the child will attempt to make up for his/her deficiencies by bringing himself/herself to the point he/she desires through a virtual identity he/she has created. According to Polat (2017), smartphone addiction is a behavioral addiction which offers an elbow room for individuals who are shy in real life, find it hard to express themselves and try to make up for their deficiencies in a virtual reality by becoming whoever they want to be through their own virtual identities without making any effort, going into any face-to-face communications and taking the responsibility for any relationship. Therefore, the fact that parents practice styles to allow their children to express themselves, providing them with the awareness that they are individuals and allow for the satisfaction of needs such as acceptance, approval within the family will limit the time children spend on smartphones, and in parallel, smartphone addiction levels will decrease as the children will not need to meet such needs of theirs on social media tools which are connected to via smartphones away from reality. In this study conducted on the basis of this association, it can be concluded that smartphone addiction decreased as psychological addiction and parental strictness/supervision increased.

Students' academic achievement levels were evaluated in three categories of low, moderate and high in this research. According to the results of analysis, regarding the adolescents' perceived academic achievement levels, the students with lower academic achievement had significantly higher scores of smartphone addiction than the students with moderate and higher academic achievement. It can be inferred from this finding that there was a negative relationship between smartphone addiction and academic achievement and that smartphone addiction affected the academic achievement of adolescents negatively. There are studies supporting this research with similar results in the literature. It is observed in the literature that there are studies showing a relationship (Judd, 2014; Lee & Lee, 2017; Lepp, Barkley & Karpinski, 2014; Meral, 2017; Uğur & Koç, 2015) and no relationship (Elmas, Kete, Hızlısoy and Auburn, 2015) between smartphone addiction and academic achievement. Indeed, it is possible to say that students who spend most of their time on smartphone, spend time with smartphones instead of doing homework and studying for exams will have lower academic achievement levels. In addition, it can be argued that the behaviors of keeping the smartphones with them during the class to check the instant notifications and misusing the smartphone during the class will cause students to distract and have a negative impact on learning behaviors as they cannot focus on the course sufficiently, leading to serious problems in attaining academic achievement. Hence, previous research studies concluded that excessive and unconscious use of smartphones affect academic achievement negatively. The results achieved in this research also coincide with this finding that excessive and unconscious use of smartphones affect academic achievement negatively.

As for the results of the analysis conducted to determine whether adolescents' smartphone addiction scores differed by gender, no significant difference was found in terms of gender. There are results in the literature in parallel with this finding of the research. The studies conducted by Dirik (2016), Süler (2016) and Glorifying (2016) found no significant relationship between smartphone addiction and the gender variable.
On the other hand, a group of researchers investigating whether smartphone addiction levels differed by gender observed a significant difference. It was concluded that the level of smartphone addiction differed by gender and the females' smartphone addiction levels were higher than the males' levels (Doğan and Tosun, 2016; Çakır and Oğuz, 2017; Genç Demirağ, 2017) Lee, Chang, Lin and Cheng (2014) concluded that smartphone addiction differed by gender, the females' smartphone abuse were higher than males' and the males were using professional job sites while the females were using social media sites (Twitter, etc.) in general. According to the results of the research conducted by Lee and Lee (2017), the female students were more addicted to smartphone than the male students, and as for gender-related differences, 9.5% of the

female students and 5.9% of the male students were classified as high-risk users, 33.1% of the females and 22.7% of the males were potentially at risk.

As understood from the research findings given above, there are research studies which did and did not find a difference between smartphone addiction levels by gender. The result achieved in this study supports the studies in the literature which found no difference in smartphone addiction levels by gender. The reason for this finding may be that smartphones can be easily available to everyone regardless of age, gender and socioeconomic status and functions of smartphones can appeal to both women and men. It is accordingly possible to argue that smartphone addiction does not differ by gender because smartphones have the potential to appeal to both women and men with their different functions, and therefore, have the addictive impact on users of both genders.

It was also found in an analysis of the study that there was no significant difference between adolescents' smartphone addiction scores by whether their parents were together or divorced. The results of the analysis performed to determine whether adolescents' smartphone addiction scores differed by perceived family income level showed no statistically significant difference. There are other studies observed in the literature to support this result of the study. Süler (2016) observed that there was no relationship between university students' smartphone addiction levels and income levels. It is possible to observe studies in the literature indicating that smartphone addiction levels differ by income levels. According to Dursun (2017), the level of addiction increases statistically and significantly as the socioeconomic level increases. Similarly, Özer (2013) concluded that problematic internet use among high school students significantly differed by the income level of the family.

As can be understood from the previous studies, there are varying results achieved on whether smartphone addiction levels differ by socioeconomic income. The results of this research coincide with the research studies which concluded that the level of smartphone addiction did not differ by perceived socioeconomic income of the family. The fact that smartphone production has increased with the advancing technology and there are smartphones affordable for almost everyone has enabled smartphones to be procured by everyone, and it is observed that adolescents including those of families with low income levels own smartphones as well. The smartphone addiction levels did not differ by the income levels of family probably for all these reasons.

The analysis performed to determine whether adolescents' smartphone addiction scores differed by their duration of smartphone usage showed that the students using smartphone for more than 3 hours had significantly higher scores of smartphone addiction scores than the students using smartphone for 1-3 hours and for less than 1 hour . Similarly, smartphone addiction scores of the participants who reported usage between 1 and 3 hours were significantly higher than the scores of the participants who reported usage less than 1 hour. In the light of these results, it can be argued that duration of smartphone usage is more likely to cause addiction. There are other studies observed in the literature to support this result of the study. Some of the studies in the literature (Çakır and Oğuz, 2017; Genç Demirağ, 2017; Dursun, 2017; Genç, 2017; Meral, 2017) concluded that individuals' smartphone addiction levels increased statistically and significantly as they spared more time to their mobile phones.

Since smartphones involve applications allowing individuals to exhibit behaviors which they will enjoy, individuals necessarily spend more time on smartphones and consequently become addicts. Particularly if it is the case for individuals going through adolescence which is characterized by search for excitement, risk-taking behaviors and effort to be in a group just like the sample of this research, the fact that smartphones have functions to offer them what they need may cause the time spent on smartphone to increase, and in parallel, lead to increase addiction levels. It can be accordingly argued that smartphone addiction levels will increase as smartphone usage duration extends. Therefore, a psychoeducational program can be prepared to reduce students' smartphone use and deal with the problem of smartphone addiction. This study took students as its sample. Using other occupational groups as sample will be useful for the generalization of the results in future studies. Again, the sample of this research consisted of high school students. It will be of use

to examine these variables for students studying at different levels of education. It is observed that smartphone usage has been increasing among the students at the secondary school level. Secondary school studies can also be studied given this situation.

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