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The Relationship Between Early Maladaptive Schema and Problematic Mobile Phone Use Among Adolescent Female

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Abstract

This study aimed to investigate the relationship between early maladaptive schemas (EMS) and problematic mobile phone use among adolescents. To collect data, the Young Schema Questionnaire Short Form-3 (YSQ-SF3) and Mobile-phone Addiction Questionnaire were given to 103 female students (between 16 and 20 years of age) studying at a high school in Diyarbakır. Results showed that there was a positive and significant correlation between five schema domains and three sub-dimensions of the mobile phone addiction questionnaire. All schemas except punitiveness and total score of mobile phone addiction were significantly correlated. Furthermore, path analysis (SEM) indicated that some schema domains have had significant effects on sub-dimensions of the mobile phone addiction questionnaire. For example, impaired autonomy and performance have had a positive effect on lack of control, impaired limits have a positive effect on tolerance and unrelenting standards have had a positive effect on tolerance and abstinence.

Key Words

Addiction • Adolescents • Early maladaptive schemas • Problematic mobile phone use

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In recent years, the global popularity and development of multifunctional smartphones has made changes to the communication and information environment; reshaped the interest, values, and desires of users; increased concerns about overuse and addiction (Panova & Carbonell, 2018). According to the International Telecommunication Union (ITU), there were more than 7 billion mobile cellular subscriptions at the end of 2015, and data records accounted for 97% of the world's population (Lian & You, 2017). By WAS (We Are Social) report the rate of smartphone users between 16 and 24 years of age in Turkey is 97.2% (webolizma.com, 2021).

Koivusilta et al. (2007) stated in their study that there was a relationship between mobile phone use and being unhealthy in adolescents. Similarly, the research among Finnish female adolescents showed that excessive phone use was directly and indirectly associated with sleep problems and waking up tiredness (Punamäki et al. 2007).

Individuals may be addicted to a substance like drugs and alcohol as well as they may suffer from behavioral addictions like internet, games, computers, television, and shopping (Kim & Kim, 2002). The concept of gaming disorder (a type of behavioral addiction) has been first included in the appendix of DSM-5 in 2013 as one of the conditions that needed further research (APA, 2013). it has been included in the diagnostic system of ICD-11 in 2018 (WHO, 2018). However, other behavioral addictions were not included in DSM-5 and ICD-11, except gambling and internet gaming disorder. In general, similar addictions were discussed as behavioral addictions in the literature. Although there is no official definition of smartphone addiction, based on the definition of internet addiction, it is defined as excessive use of a phone that negatively affects users' daily lives (Demirci et al., 2014)

It has been focused on the presence of symptoms of behavioral addictions and its cause and peculiarities have been rarely investigated (Aloi et al., 2020). According to Griffiths (2014), the reasons for the acquisition, development, and maintenance of addictive behaviors are psychological or biological predisposition (genetics, attitudes, beliefs, personality factors, unconscious motivation, etc.) and multifactorial points including the individual's environment in which the individual lives. Also, Davis's cognitive-behavioral model demonstrates that internet addiction is associated with maladaptive cognitions and social problems (obsessive thoughts or cognitive distortions, depression, loneliness, social isolation and lack of social support, etc.) (as cited in Ostovar et al., 2021).

According to the theoretical model of Schema Therapy which is influenced by Cognitive Behavioral Therapy, early maladaptive schemas that emerge in response to unmet needs in childhood lead to psychiatric disorders (Aloi et al., 2020). Schemas develop from childhood unmet needs, traumatic events, maladaptive environments, and internalization of other schemas. In the meanwhile, they continue because of the triggering of negative experiences or dysfunctional behaviors that affect the quality of life. Young et al. (2003) determined 5 schema domains and 18 schemas: Disconnection/rejection (abandonment, mistrust/abuse, emotional deprivation, defectiveness/shame social isolation), impaired autonomy (dependence/incompetence, vulnerability to harm/ illness, enmeshment/undeveloped self, and failure), impaired limits (entitlement/grandiosity and insufficient self-control/self-discipline), other-directedness (subjugation, self-sacrifice, and approval/recognition-seeking); and over vigilance/inhibition (negativity/pessimism, emotional inhibition, unrelenting standards, and punitiveness). Then, early maladaptive schema (EMS) was defined into four categories (leaving/rejection, impaired autonomy, and performance; excessive responsibility and high standards; impaired limits) (Bach et al., 2017).

Maladaptive schemas including cognitive, behavioral, and emotional elements are cognitive infrastructures that cause irrational beliefs (Shajari et al., 2016). Maladaptive schemas are associated with many psychopathological conditions such as personality disorder, substance disorder, anxiety disorder, depression, eating disorder, and PTSD (as cited in D'Souza, 2019). Cudo et al. (2020) stated that early maladaptive schemas were extremely persistent and stable themes that developed during childhood and continued throughout the individuals' life. They also suggested that thanks to giving an emotional-cognitive representation of the information about themselves, schemas were important to understand the development of problematic behaviors (like Facebook use). Likewise, a study conducted by Bojed and Nikmanesh (2013) revealed that individuals with early maladaptive schemas were more likely to abuse substances.

As a whole, the relationship of early maladaptive schemas with eating disorders and substance abuse was examined in the context of behavioral addictions. A study conducted on 195 college students by Shajari et al. (2016) reported that there was a significant relationship between early maladaptive schemas and internet addiction among the students. In another study conducted by Aloi et al. (2020), they investigated the relationship between EMS and behavioral addiction. It was concluded that eating disorder was associated with disconnection/rejection schema, and internet addiction was associated with all schemas.

Arpaci (2021) examined the relationship between smartphones and EMS and found that there was a significant correlation between EMS and smartphone addiction in intermittent phone users. It was also revealed that individuals with high early maladaptive schemas scores were more likely to have a smartphone addiction.

Rationale of the Study

Nowadays, smartphones use is rapidly increasing among adolescents because it provides many opportunities in terms of visual and verbal communication, interaction in social networks, ease of accessing information, and playing online or offline games. Along with the increase among adolescents, it may cause daytime sleepiness, a decrease in sleep quality (Sülün et al., 2021), anxiety (Cheever et al., 2014), loss of control (Erkişi & Sağlam, 2020), and a negative impact on life satisfaction (Köse, 2016). Due to the increasingly negative effects of smartphone use among adolescents, clarifying the reasons for its prevalence based on psychological explanation becomes important. Explaining dysfunctional behavior with different approaches will also increase the practices to make change the behavior. Schema therapy, which is a third-generation approach in Cognitive Behavioral Therapy, is effective in reducing an individual's behavioral and psychological problems by teaching the individual about early maladaptive schemas and increasing their awareness (Bal, 2019). When considering the relationship of EMS with addiction, it draws attention to the importance of understanding problematic phone use and working with EMS to change behavior.

Even though there are studies examining the relationship between EMS and addiction (Shajari et al., 2016; Aloi et al., 2020; Bojed & Nikmanesh, 2013), studies examining the relationship between EMS and smartphones are not enough. Therefore, this study aims to investigate early maladaptive schemas related to smartphone addiction and determine which individual beliefs are associated with this problematic behavior. Understanding these relationships

will contribute to the prevention and treatment of smartphone addiction as part of behavior change in Cognitive Behavioral Therapy.

Method

Research Design

In this research, the correlational design was implemented to examine the relationship between early maladaptive schemas and problematic mobile phone use. The correlational studies examine the relationship among two or more variables without providing information about cause and effect (Büyüköztürk et al., 2015).

Participants

Participants consisted of 103 female students studying at a high school in Diyarbakır in the 2021-2022 academic year. The mean age was 17.19 (between 16-20).

Measurement Tools

Personal Information Form: Personal Information Form consisted of questions designed to find out some information about participants in terms of age, grade level, smartphone ownership, and spending time on the phone in a day.

Young Schema Questionnaire Short Form-3 (YSQ-SF3): In the frame of Schema Therapy, Jeffery Young (2003) developed YSQ-SF3 with 18 subscales into five schema domains. Schema domains are rejection, impaired autonomy and performance, impaired limits, other-directedness, over vigilance, and inhibition. The subscales are successive: Abandonment/instability, mistrust/abuse, emotional deprivation, defectiveness/shame, social isolation/alienation, dependence/incompetence, vulnerability to harm and illness, enmeshment/undeveloped self, failure, entitlement/ grandiosity, insufficient self-control/self-discipline, subjugation, self-sacrifice, approval-seeking/recognition seeking, negativity/pessimism, emotional inhibition, unrelenting standards/hyper criticalness, and punitiveness. The scale consists of 90 items that are rated on a 6-point Likert-type scale (1= completely untrue of me, 2= mostly untrue of me, 3= slightly more true than untrue, 4= Moderately true of me, 5= mostly true of me, 6= describe me perfectly). High scores obtained from items indicate the prevalence of early maladaptive schemas (as cited in Soygüt, et al., 2009).

Soygüt et al. (2009) investigated the psychometric properties of the third version of the Young Schema Questionnaire by using 1071 university students in Turkey. In their study, five schema domains and 14 subscales were described. Results showed that the internal consistency coefficient for the YSQ-SF3 subscales was between α =.63 and .80, and for the schema domains varied between α= .53 and .81. According to the test-retest reliability analysis, Pearson's correlation coefficient for subscales changed between r = .66 and .83 ($p<.01$), and for schema domains changed between r=.66 and .82 ($p<.01$). In this study, Cronbach's alpha reliability coefficients were calculated. Cronbach's alpha was found consecutively for rejection (.86), impaired autonomy (.90), impaired limits (.66), other-directedness (.72), and unrelenting standards (.75).

Mobile Phone Addiction Scale: Mobile Phone Addiction Scale was developed by Choliz (2012) to investigate mobile phone addiction among adolescents by using DSM-IV-TR addiction criteria. The research was conducted with 2833 participants between 12 and 18 years of age. In the first instance, the scale included 101 items, and then it was reduced to 22 items after reliability and validity analysis. The Cronbach's Alpha for the original form was calculated as .94. The first factor was labeled Abstinence which consisted of 9 items (8, 11, 13, 14, 15, 16, 20, 21, and 22). The second factor was labeled Lack of Control/Problems which consisted of 6 items (1, 2, 3, 4, 7, and 10). Finally, the third factor was labeled Tolerance/Interference composed of 7 items (5, 6, 9, 12, 17, 18, and 19). The first 10 items are rated on a 5-point Likert-type scale ranging from 0 (never) to 4 (frequently). The remaining items are rated on a 5-point Likert-type scale ranging from 0 (completely disagree) to 4 (completely agree).

Turkish adaptation study for the scale was completed with 412 students between 13 and 18 years of age by Fırat and Çelik (2017). Cronbach's alpha reliability coefficients were found for Abstinence (.87), Lack of Control/Problems (.77), and Tolerance/Interference (.82). Finally, Cronbach's alpha for the total was .92. Additionally, Cronbach's alpha for current research was calculated consecutively: Abstinence (.92), Lack of Control/Problems as (.81), Tolerance/Interference (.86), and total (.95).

Procedure Data Analysis

The ethics committee approval was obtained from Hasan Kalyoncu University Scientific Research and Publication Ethics Committee. Participants were informed about the study and asked whether they would like to participate in study. The consent form, which includes the purpose of the study, the protection of confidentiality, the right to withdraw from the study, and volunteering, was signed by the participants. Administration of the scale took approximately 25 minutes.

Data Analysis

In the present study, the first descriptive statistics of the variables were calculated. By using Kim's (2013) recommendation as a reference for the normality test, z-scores were obtained by dividing the skewness and kurtosis by their standard errors. Since the sample size was between 50 and 300 in this study, obtained z-score which was less than 3.29 was interpreted as a normal distribution. When the distributions of the subscale of early maladaptive schema were examined, it was figured out that all subscales except emotional deprivation, abandonment, defectiveness, and failure showed normal distributions. Therefore, non-parametric techniques were used for the analysis for non-normally distributed variables. Pearson Product-Moment Correlation and Spearman's Rank-Order Correlation were performed to examine whether there was a significant relationship between schema domains of the early maladaptive schema questionnaire and subscales of the mobile phone addiction scale. Path analysis in the context of Structural Equation Modeling (SEM) was used to figure out whether early maladaptive schema domains significantly predicted mobile phone addiction scores in adolescents. As goodness of fit Chi-square/degree of freedom, CFI, NFI, GFI, and RMSEA were employed. IBM SPSS-24 (Statistical Package for Social Sciences) and AMOS 16 were used to analyze the data.

Findings

Descriptive Statistics and Correlation Analysis

Initial statistics showed that 78.4% (n=80) participants have smartphone, 21.6% (n=22) don't have a smartphone. Before analyzing the relationship between early maladaptive schemas and problematic phone use, scale scores were reviewed and shown in Table 1.

Table 1

Data Collection Instrument Statistics

		N	M	SD	Skewness	$SE_{skewness}$	Kurtosis	$SE_{Kurtosis}$	Min	Max
EMS	Rejection	103	55.08	17.65	.48	.24	-.25	.47	23.00	103.00
	Impaired autonomy	103	77.06	25.02	.40	.24	-.31	.47	30.00	135.00
	Impaired limits	103	25.73	6.76	-.23	.24	-.10	.47	9.00	42.00
	Others directedness	103	35.62	9.24	-.08	.24	-.16	.47	14.00	58.00
	Unrelenting standards	103	29.77	8.58	-.08	.24	-.37	.47	12.00	49.00
MPAS	Abstinence	103	17.32	10.61	-.14	.24	-1.12	.47	.00	36.00
	Lack of control	103	6.19	5.38	.73	.24	-.31	.47	.00	20.00
	Tolerance	103	11.25	7.17	-.06	.24	-1.21	.47	.00	24.00

Table 2. *Pearson Product-Moment Correlation Analysis for Examining Relationship Between Early Maladaptive Schema Domains and Subscales of Mobile Phone Addiction Scale*

Variables	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Rejection (1)	1							
Impaired autonomy (2)	.81**	1						
Impaired limits (3)	.41**	.53**	1					
Others directedness (4)	.53**	.55**	.27**	1				
Unrelenting standards (5)	.53**	.64**	.50**	.49**	1			
Abstinence (6)	.40**	.45**	.35**	.28**	.48**	1		
Lack of control (7)	.47**	.54**	.34**	.36**	.39**	.71**	1	
Tolerance (8)	.40**	.46**	.44**	.28**	.46**	.83**	.75**	1

Note: **p<.01, n=103

As seen in Table 2, a positive significant relationship was determined between the rejection and all sub-dimensions of the mobile phone addiction scale. There was a moderate positive correlation between abstinence (r=.40 and p=.000), lack of control (r=.47 and p=.000), and tolerance (r=.40 and p=.000).

A positive significant relationship was determined between the impaired autonomy and all sub-dimensions of the mobile phone addiction scale. There was a moderate positive correlation between abstinence (r=.45 and p=.000), lack of control (r=.54 and p=.000), and tolerance (r=.46 and p=.000).

There was a positive significant relationship between the impaired limits and all sub-dimensions of the mobile phone addiction scale. There was a moderate positive correlation between abstinence (r=.35 and p=.000), lack of control (r=.34 and p=.000), and tolerance (r=.44 and p=.000).

It was determined that there was a positive significant relationship between the other-directedness and all sub-dimensions of the mobile phone addiction scale. There was a weak positive correlation between others' directedness and abstinence (r=.28 and p=.000) and tolerance (r=.28 and p=.000). Also, there was a moderate positive correlation with lack of control (r=.36 and p=.000).

There was a positive significant relationship between the unrelenting standards and all mobile phone addiction scale sub-dimensions. There was a moderate positive correlation between abstinence (r=.48 and p=.000), lack of control (r=.39 and p=.000), and tolerance (r=.46 and p=.000).

Table 3

Spearman's Rank-Order Correlation Analysis for Relationship Early Maladaptive Schemas Sub-dimensions and Mobile Phone Addiction Scale

Variables	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Emotional deprivation(1)	1														
Emotional inhibition(2)	.32**	1													
Social isolation(3)	.52**	.58**	1												
Defectiveness(4)	.55**	.32**	.44**	1											
Enmeshment(5)	.55**	48**	.59**	.51**	1										
Abandonment(6)	.44**	.40**	.57**	.56**	.57**	1									
Failure(7)	.48**	.33**	.55**	.71**	.64**	.56**	1								
Negativity/pessimism(8)	.41**	.41**	.51**	.41**	.49**	.48**	.47**	1							
Vulnerability to harm(9)	.46**	.37**	.59**	.50**	.63**	.53**	.59**	.56**	1						
Insufficient self-control(10)	.28**	.33**	.43**	.22*	.44**	.19	.40**	.48**	.52**	1					
Self-sacrifice(11)	.48**	.33**	.52**	.40**	.47**	.45**	.38**	.43**	.39**	.21**	1				
Punitiveness(12)	.29**	.20*	.30**	.16	.30**	.36**	.25*	.26**	.35**	.18	.30**	1			
Unrelenting standards(13)	.27**	.20*	.38**	.19	.31**	.34**	.23*	.34**	.33**	.26**	.24*	.32**	1		
Approval-seeking(14)	.44	.40**	.40**	.32**	.51**	.39**	.42**	.52**	.57**	.54**	.32**	.35**	.50**	1	
Mobile phone addiction scale(15)	**.29****	**.36****	**.37****	**.33****	**.43****	**.37****	**.35****	**.44****	**.43****	**.42****	**.40****	**.11****	**.29****	**.52****	**1**

Note: *p<.05, **p<.01, n=103

In table 3, there was a weak positive correlation between total score of mobile phone addiction scale and emotional deprivation (rho=.29 and p=.003), unrelenting standards (rho= .29 and p=.00). It was determined that there was a moderate positive correlation between emotional inhibition (rho= .36 and p=.000), social isolation (rho= .37 and p=.000), defectiveness (rho= .33 and p=.000), enmeshment (rho= .43 and p=.000), abandonment (rho= .37 and p=.000), failure (rho= .35 and p=.000), negativity/pessimism (rho= .44 and p=.000), vulnerability to harm (rho= .43 and p=.000), insufficient self-control (rho= .42 and p=.000), self-sacrifice (rho= .40 and p=.000), approval-seeking (rho= .52 and p=.000). Finally, there was no significant relationship between total score of MPAS and punitiveness (rho= .11 and p=.288).

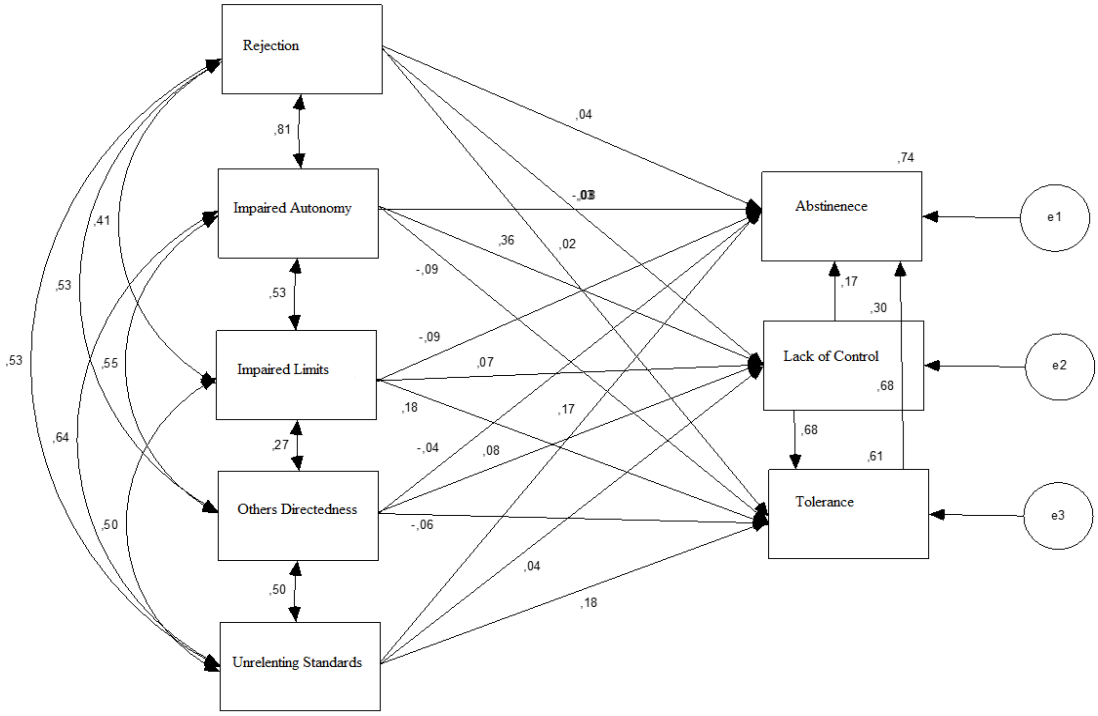
Structural Equation Modeling (SEM)

In the first stage of SEM, confirmatory factor analysis (CFA) was conducted for early maladaptive schemas and sub-dimensions of the mobile phone addiction scale. According to path analysis, the goodness of fit incidences was $\chi 2$ /df=18.49 (517.681/28), RMSEA=.41, GFI=1.00, NFI=1.00 and CFI=1.00. While examining fit values, χ 2 /df and RMSEA were higher than the desired critic levels; GFI, NFI, and CFI represented excellent goodness of fit.

It was tested whether early maladaptive schemas had a significant effect on mobile phone addiction. The path values (standardized beta coefficient) of the structural model were shown in Figure 1.

Figure 1

Standardized Path Values of Structural Model of the Relationship Between Early Maladaptive Schemas and Mobile Phone Addiction Scale.



The path analysis revealed that when impaired autonomy increased by one point, the likelihood of lack of control increased by .08-points (β=.36 and p=.024), and when impaired limits increased by one point, the likelihood of tolerance increased by .19-points (β=.18 and p=.019), one-point increase in the unrelenting standards resulted in a .15-point increase in the tolerance (β=.18 and p=.001), and one-point increase in the unrelenting standards resulted in a .21-point increase in abstinence (β=.17 and p=.020).

One-point increase in lack of control resulted in a .90-point increase in tolerance (β=.68 and p=.001), one point increase in tolerance resulted in one-point increase in abstinence (β=.68 and p=.001), and a one-point increase in the lack of control resulted in a .34-point increase in abstinence (β=.18 and p=.034).

Lastly, it was seen that early maladaptive schemas explained 74% of the change in abstinence scores, 30% of the change in lack of control scores, and 61% of the change in tolerance scores.

Discussion

The aim of the current study is to examine the relationship between early maladaptive schemas and problematic mobile phone use among adolescents. Although the scale in the study was the Mobile Phone Addiction Scale, ‘‘the concept of problematic use’’ which expresses the risk of addiction was preferred instead of the ‘‘concept of addiction’’ in this study. This is because addiction can be diagnosed as a result of a clinical interview. When investigating literature, there are limited studies on the relationship between problematic phone use and early maladaptive schemas. According to Shorey et al. (2012), early maladaptive schemas have corresponding characteristics with addiction and dependent personality disorder. To understand the degree to which relevant to literature, studies about schemas associated with addiction were examined for this study.

In the current study, it was found that there was a significant relationship between five schema domains and the total score mobile phone addiction scale as well as its sub-dimensions. Consistent with the findings, Arpaci (2021) researched to examine the relationship between early maladaptive schema and smartphone addiction and found that participants with a high score in EMS were more likely to be addicted to smartphones.

In this study, it was shown that there was a significant positive relationship between rejection and phone addiction. Similarly, early maladaptive schemas especially rejection played an important role in predicting addiction (as cited in Imperatori et al., 2017). Razavi et al. (2012) concluded that emotional deprivation and defectiveness as sub-dimension of the rejection schema domain had a part in addiction severity.

It was found that impaired autonomy, impaired limits, and unrelenting standards predicted mobile phone addiction. Arpaci (2021) showed that approval-seeking and insufficient self-control as sub-dimension of impaired limits were positively associated with smartphone addiction for addicted users. On the other hand, the results indicated that social isolation/mistrust as a sub-dimension of rejection, approval-seeking sub-dimension of unrelenting, and abandonment as a sub-dimension of impaired autonomy were positively associated with smartphone addiction for intermittent users. In another study, it was found that self-control which enables the individual to perform functions such as initiating and stopping a behavior, making decisions, and implementing the decisions taken, was low in individuals with a high level of internet addiction (Durak-Batıgün & Kılıç, 2011). Similarly, Akın

et al. (2015) revealed that lack of self-control could explain problematic internet use. While there is a positive relationship between lack of self-control and the development of addiction (Kim et al., 2008), it is found that low self-control is an important factor in the development of internet addiction (Slater, 2003). In addition to all these studies, Akkuş-Çutuk (2020) studied 295 students between 19 and 25 years of age in Turkey and found that there was a significant negative relationship between self-control and internet addiction, and also self-control predicted internet addiction.

Aloi et al. (2020) conducted a study to examine associations between EMS, internet addiction, gambling addiction, and food addiction. By using the four schema domains model belonging to Bach, it was figured out that the scores of participants with high internet addiction and food addiction were high in all four schema domains. Subsequently, it was concluded that participants with high gambling addiction had higher scores in the impaired autonomy and impaired limits schema domains.

The research findings revealed that there was a relationship between impaired autonomy and lack of control. Bolle (2014) emphasized that phone addiction is the loss of one's control as a result of his study on phone addiction in Germany. Also, it was shown that enmeshment and vulnerability to harm as sub-dimensions of impaired autonomy were strongly predicted by addiction (Razavi et al., 2012). A research conducted in India indicated that there was a relationship between self-esteem, psychological distress, and phone use in research conducted in India (Pundir et al., 2016). Pundir et al. (2016) stated that individuals, who had both dependence and negative relationships with their environment, increased the frequency of mobile phone addiction. It was also figured out that there was a relationship between shyness described by self-esteem and problematic phone use. Al-Barashdi et al. (2014) suggest that one of the reasons for smartphone addiction is the tendency of people to shyness temperament. This is because shyness makes face-to-face communication difficult; therefore, communicating with a smartphone is an excellent way to establish social interaction and new social relationships.

Limitations of The Study and Suggestions for Future Studies

As in many studies, the current study has certain limitations. First, the study group consisted of only female adolescents. Therefore, future studies should be conducted on a sufficiently large group that also includes male adolescents to take into consideration gender factors. Another limitation is the lack of sufficient literature regarding the relationship between early maladaptive schemas and mobile phone addiction. To handle it, the results of this study were discussed based on theoretically similar other addiction types such as internet-related addictions, and gambling addiction. Future studies should be compared with current studies examining the relationship between early maladaptive schemas and mobile phone addiction.

As a result, mobile phone addiction is a problem that is constantly increasing and becoming a widespread problem among adolescents. Despite all limitations above, it is thought that the current study will benefit mental health professionals working in the field of mental health as well as researcher to understand the relationship between them and the psychological factors underlying addiction. On the other hand, it will be a source for studies that aim to reduce addiction among adolescents.

Ethic

According to the decision of Hasan Kalyoncu University Scientific Research and Publication Ethics Committee, dated 23/11/2021 and numbered 2021-080, this study received ethical approval.

Author Contributions

This article was written with the joint contributions of two authors.

Conflict of Interest

The authors declare that they have no conflict of interest.

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References

Akın, A., Arslan, S., Arslan, N., Uysal, R., & Sahranç, Ü. (2015). Self-control management and internet addiction. *International Online Journal of Educational Sciences, 7*(3), 95-100.

Akkus-Cutuk, Z. (2020). Relationship between self-control and internet addiction in university students. Trakya *Journal of Education, 10*(3), 854-863.

Al-Barashdi, H.S., Bouazza, A., & Al-Zubaidi, A. (2014). Psychometric properties of smartphone addiction questionnaire among Sultan Qaboos University undergraduate students. *Journal of Education and Psychological Studies, 8*(4), 637-644.

Arpaci, İ. (2021). Relationships between early maladaptive schemas and smartphone addiction: The moderating role of mindfulness. *International Journal of Health and Addiction, 19*, 778-792. doi.org/10.1007/s11469-019-00186-y

Arpaci, İ., & Esgi, N. (2020). Psychometric properties of the Turkish version of the smartphone addiction inventory (SPAI). *Current Psychology, 39*, 2246-2251. https://doi.org/10.1007/s12144-018-9913-8

American Psychiatric Association (2013). *Diagnostic and Statistical Manual of Mental Disorders 5th Edition (DSM-5).* American Psychiatric Publishing

Aloi, M., Verrastro, V., Rania, M., Sacco, R., Fernandez-Aranda, F., Jimenez-Murcia, S.,…Segura-Garcia, C. (2020). The potential role of the early maladaptive schema in behavioral addictions among late adolescents and young adults. *Frontiers in Psychology, 10*, 3022. DOI: 10.3389/fpsyg.2019.03022

Bach, B., Lookwood, G., & Young, E.J. (2017). A new look at the schema therapy model: Organization and role of early maladaptive schemas. *Cognitive Behaviour Therapy*. DOI: 10.1080/16506073.2017.1410566

Bal, F. (2019). Şema terapinin sigarayı bırakma davranışı üzerindeki etkisinin incelenmesi. Avrasya Sosyal Ekonomi Araştırmaları Dergisi, 6, 187-199. [Bal, F. (2019). Investıgation of the effect of schema therapy on the behavior of quitting smoke. Eurasian *Journal of Researches in Social and Economics, 6*, 187-199.

Bojed, B. F., & Nikmanesh, Z. (2013). Role of early maladaptive schemas on addiction potential in youth. International Journal of High-Risk Behaviours and Addiction, 2(2), 72-6. DOI: 10.5812/ijhrba.10148

Bolle, C. (2014). Who *is a smartphone addict? the impact of personal factors and type of usage on smartphone addiction in a dutch population* (Unpublished Master's Thesis). University of Twente, Enschede.

Büyüköztürk, Ş., Kılıç-Çakmak, E., Akgün, Ö.E., Karadeniz, Ş., & Demirel, F. (2015). *Bilimsel araştirma yöntemleri*. [*Scientific research methods*]. Ankara. Pegem Academy.

Cheever, N.A., Rosen, L.D., Carrier, L.M. & Chavez, A. (2014). Out of sight is not out of mind: The impact of restricting wireless mobile device use on anxiety levels among low, moderate, and high users. *Computers in Human Behavior, 37*, 290–297.

Cudo, A., Macik, D., Griffiths, M.D., & Kuss, D.J. (2020). The relationship between problematic Facebook use and early maladaptive schemas. *Journal of Clinical Medicine, 9,* 3921. doi:10.3390/jcm9123921

Demirci, K., Orhan, H., Demirdas, A., Akpinar, A., & Sert, H. (2014). Validity and reliability of the Turkish version of the smartphone addiction scale in a younger population. *Bulletin of Clinical Psychopharmacology, 24*(3), 226-234. doi: 10.5455/ bcp.20140710040824

Durak-Batıgün, A. D., & Kılıç, N. (2011). İnternet bağımlılığı ile kişilik özellikleri, sosyal destek, psikolojik belirtiler ve bazı sosyo-demografik değişkenler arasındaki ilişkiler [The relationship between internet addiction, personality traits, social support, psychological symptoms and some socio-demographic variables.] *Türk Psikoloji Dergisi*, [*Turkish Journal of Psychology*], *26(*67), 1-10.

D'Souza, C.G. (2019). *The role of early maladaptive schemas in the development of depression, anxiety and academic burnout* (Unpublished master's thesis). Unites Arab Emirates University, Abu Dhabi.

Fırat, N., & Çelik, S.B. (2017). Cep telefonu bağımlılığı ölçeği'nin Türkçe'ye uyarlanması: Geçerlilik ve güvenilirlik çalışması [The adaptation of mobile phone addiction scale into Turkish: Validity and reliability study]. Journal of Human Sciences, 14(3), 2875-2887. doi:10.14687/jhs.v14i3.1592

Imperatori, C., Innamorati, M., Lester, D., Continisio, M., Balsamo, M., Saggino, A.&, Fabbricatore, M. (2017). The association between food addiction and early maladaptive schemas in overweight and obese women: A preliminary ınvestigation. *Nutrients, 9*, 1259. doi:10.3390/nu9111259.

Griffiths, M.D. (2014). Early maladaptive schemas in the development of addictive disorder as parts of the complex addiction jigsaw. *International Journal of High-Risk Behaviours and Addiction, 3*(3). DOI: 10.5812/ijhrba.16746

Kim, H.Y. (2013). Statistical notes for clinical researchers: assessing normal distribution (2) using skewness and kurtosis. *Restorative Dentistry & Endodontics*, 2234-7658. http://dx.doi.org/10.5395/rde.2013.38.1.52

Kim, S., & Kim, R. (2002). A study of internet addiction: Status, causes, and remedies. *Journal of Korean Home Economics Association English Edition, 3*(1). Retrieved October 6, 2021, from ResearchGate.

Kim, E. J., Namkoong, K., Ku, T., & Kim, S. J. (2008). The relationship between online game addiction and aggression, self-control, and narcissistic personality traits. *European Psychiatry, 23*(3), 212-218.

Koivusilta, L., Linyonen, T. P., & Rimpela, A. H. (2007). Orientations in adolescent use of information and communication technology: A digital divide by sociodemographic background, educational career, and health. *Scandinavian Journal of Public Health, 35*, 95-103. DOI: 10.1080/14034940600868721

Köse, N. (2016). Ergenlerde internet bağimliliğinin yaşam doyumuna etkisi [The effect of internet addiction on life satisfaction among adolescents]. *Elektronik Mesleki Gelişim ve Araştırmalar Dergisi [Electronic Journal of Occupational Improvement and Research]*, *4*(1), 58-65.

Lian, L., & You, X. (2017). Specific virtues as predictors of smartphone addiction among Chinese undergraduates. *Current Psychology, 36*, 376-384. DOI: 10.1007/s12144-017-9612-x

Noyan, C.O., Darçın, A.E., Nurmedov, S., Yılmaz, O., & Dilbaz, N. (2015). Akıllı telefon bağımlılığı ölçeğinin kısa formunun üniversite öğrencilerinde Türkçe geçerlilik ve güvenilirlik çalışması [Validity and reliability of the Turkish version of the smartphone addiction scale-short version among university students]. *Anadolu Psikiyatri Dergisi [Anatolian Journal of Psychiatry]*, 16, 73-81.

Ostovar, S., Bagheri, R., Griffiths, M.D., & Hahima, I. (2021). Internet addiction and maladaptive schemas: The potential role of disconnection/rejection and impaired autonomy/performance. *Clinical Psychology Psychother*, 1-16. DOI: 10.1002/cpp.2581

Panova, T., & Carbonell, X. (2018). Is smartphone addiction really an addiction? *Journal of Behavioral Addictions, 7*(2), 252-259. DOI: 10.1556/2006.7.2018.49

Punamäki, R.L., Wallenius, M., Nygard, C.H., Saarni, L., & Rimpela, A. (2007). Use of information and communication technology (ICT) and perceived health in adolescence: The role of sleeping habits and waking-time tiredness. *Journal of Adolescence, 30*(4), 569-585.

Pundir, P., Andrews, T., Binu, V. S., & Kamath, R. (2016). Association of problematic mobile phone use with psychological distress and self-esteem among college students in South India: A cross-sectional study. *International Journal of Community Med Public Health, 3*(10), 2841-2849.

Razavi, V., Soltaninezhad, A., & Rafiee, A. (2012). Comparing of early maladaptive schemas between healthy and addicted men. *Zahedan Journal of Research in Medical Sciences*. Retrieved December 21, 2021, from ResearchGate.

Shajari, F., Sohrabi, F., & Jomehri, F. (2016). Relationship between early maladaptive schema and ınternet addiction: A cross-sectional study. *Asian Journal of Pharmaceutical Research and Health Care, 8*(3), 84-91. DOI: 10.18311/ajprhc/2016/4334

Shorey, R.C., Stuart, G.L., & Anderson, S. (2013). Differences in early maladaptive schemas in a sample of alcohol- and opioid-dependent women: Do schemas vary across disorders? *Addiction Research and Theory, 21*(2), 132–140. DOI: 10.3109/16066359.2012.703266.

Slater, M. D. (2003). Alienation, aggression, and sensation-seeking as predictors of adolescent use of violent film, computer, and website content. *Journal of Communication, 53*, 105-121.

Soygüt, G., Karaosmanoğlu, A., & Çakır, Z. (2009). Assessment of early maladaptive schemas: A psychometric study of the Turkish Young Schema Questionnaire-Short Form-3. *Turkish Journal of Psychiatry, 20*(1), 75-84.

Sülün, A., Günay, U., Sarman, A., & Dertli, S. (2020). Akıllı telefon kullanan Adölesanlarda gündüz uykuluğu [Daytime sleepiness in adolescent using smartphone]. *Journal of Dependence, 21*(2), 129-136.

Webolizma (2021). Hootsuite ve we are social 2021 Dijital Türkiye Raporu. Retrieved from https://www.webolizma.com/hootsuite-ve-we-are-social-2021-dijital-turkiye-raporu/

World Health Organization (2018). Addictive behaviour. Retrieved from https://www.who.int/health-topics/addictive-behaviour#tab=tab_3

Young, J.E., Klosko, J.S., & Weishaar, M.E. (2003). *Schema therapy: A practitioner's guide*. NY: Guilford Publications

Young, J. E. (1994). *Cognitive therapy for personality disorders: A schema-focused approach.* (2nd ed.). Sarasota, Florida: Professional Resource Exchange.