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Parental Attitudes and Socio-demographic Factors as Predictors of Smartphone Addiction in University Students

İlhan ÇİÇEK[1], Selami TANRIVERDİ[2], Mehmet Emin ŞANLI[3], Metin BULUŞ[4]

[1]*Batman University, Health College, Batman, Turkey* *0000-0003-0266-8656*

[2]*Van Yüzüncü Yıl University, Faculty of Education, Van, Turkey* *0000-0003-0845-7219*

[3]*Batman University, Health College, Batman, Turkey* *0000-0002-5515-2752*

[4]*Adıyaman University, Faculty of Education, Adıyaman, Turkey* *0000- 0003-4348-6322*

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ABSTRACT

The aim of the study is to examine predictive effect of parental attitudes and socio-demographic variables (age, gender, time spent on smartphone, number of siblings, students' feeling social, and parental education level) in university students' addiction to smartphones. Participants included 670 university students whose age ranged between 18-30 years (M=21.6, SD=6.3). Smartphone Addiction Scale (SAS) and Parental Attitude Scale (PAS) and Socio-Demographic Information Form were used to collect data. The results showed that age, gender, parental education level, time spent on smartphone, number of siblings, and state of feeling social and parental attitudes predicted a significant amount of variance (11%) in smartphone addiction. The students' perception of feeling social and parental attitudes functioned as a moderator on their smartphone addiction. It was revealed that the perception to be social softened the relation between authoritarian parental attitude and smartphone addiction. Furthermore, students experienced less smartphone addiction when their perception of feeling social and democratic parental attitudes were taken together. A negative and significant relation was found between democratic and authoritarian parental attitudes and smartphone addiction. A positive and significant relation was established between protective parental attitude and smartphone addiction. The results have important implication for research and practice in the context of university students.

Keywords:
smartphone addiction, parental attitudes, socio-demographic factors, university students

1.Introduction

With rapid development of information and technology in recent years, and social media use has become a focal point of research (Arslan, Yıldırım & Zangeneh, 2021; Taş, 2017). Human beings who have biopsychosocial spiritual and economic aspects get affected constantly by their contextual factors and college students experience many issues related to these aspects (Tanhan, 2018; Tanhan, Karaman & Nalbant, 2020). One of the fundamental factors of this development is the opportunities provided by digital tehcnologies, computer, internet and social

[1]Corresponding author: Batman University, Batman, Turkey
e-mail: cicekilhan7272@gmail.com
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networking sites and the quick and easy access to the above-mentioned services, and separation-individuation of people from others can be effective today. Therefore, it is more possible that individuals may benefit from infinite number of services such as communication, health, education, game, and self-realization (Aslan & Çiçek, 2020; Çiçek & Aslan, 2019; Geçer, Yıldırım & Akgül, 2020; Taş, 2019). Individuals are aware of reaching ~~to~~ these services through mass communication tools in general through internet use, particularly by using their smartphones. Especially, in recent years, the rapid developments in science and immense evolution in technology have made smartphones important devices in people's lives (Gonçalves, Dias & Correia, 2020). However, the widespread use of internet, social media, and smartphones come forefront with the benefits they provide and with the threats they pose. One of these threats can be smartphone addiction. Although the effects of internet, social media, and smartphone use on psychology and psychological health of individuals have been noted in earlier research (Özaslan, Yıldırım, Guney, Guzel & Iseri, 2021; Sevinç & Taş, 2020; Tanhan, 2020), the wide use of mass communication tools such as internet in general and smartphone in particular by individuals have substantially increased.

The total world population is 7,81 billion according to the report published by "Digital 2020: October Global Statshot" in October 2020 with the title, "We Are Social and Hootsuite", which also includes important information about internet, mobile devices and social media users. For example, in the report, the number of mobile phone users, global internet users, and world-wide social media users have reached ~~to~~ 5,20 billion, 4,66 billion, and 4,14 billion, respectively. Furthermore, nine out of 10 internet users in the world connect to the internet through mobile devices. In addition, when it comes to social media use, these users evidently prefer using mobile devices. Kepios analysis~~,~~ shows that 99% of social media users in the world reach this service through mobile devices~~,~~ while only one in five users use laptop or desktop devices (We Are Social, 2020a). Moreover, "Digital 2020: Global Digital Overview" of We Are Social reports the prevalence of internet, social media, and mobile device users in Turkey. According to the report, there are 62 million internet users in Turkey. This number makes 74% of the total population. There are 54 million social media users, which make 64% of the population of Turkey alongside 77 million of mobile device users, which make 92% of Turkey's population (We Are Social, 2020b).

Since the sub-structure facilities to make internet access available have developed and smartphones have become widespread and their use rates have accordingly increased, all these reasons have showed an increase in internet access, time spent on the internet and social media. In this context, at a point where the dependence of space and time independence created by the mobile connection to social networks and the dependence on social media and smartphone use are taken into account, studies are carried out on university students who are thought to have more of this addiction (Işık & Kaptangil, 2018). Therefore, when the aims of smartphone use of the young population are examined, these aims are mostly for entertainment and game (Şata, Çelik, Ertürk & Taş, 2016). Therefore, the fact that smartphones are used online more means that there could be a problem in smartphone use~~,~~ while the literature in the field of internet addiction has documented that long term smartphone usage addiction is related with higher addiction level (Bonilla-Zorita, Griffths & Kuss, 2020).
Parental attitudes (authoritarian, protective, and democratic), family relations, and individual's socializing state are assumed to have effects on internet, social media, and smartphone usage level of young adults. If an individual has a stronger desire to spend time online, this may create problems for the individual/s (Melodia, Canale & Griffiths, 2020). For this reason, when smartphone addiction is examined, addictive mobile phone use is evaluated as an impulse control disorder similar to alcohol that does not contain an intoxicating substance and pathologic gambling (Park & Lee, 2011; Bian & Leung, 2015). When individuals using smartphone are examined, almost all smartphone users always carry their smartphones with them. In addition, many people on public transport read the news and surf on the social networks via their smartphones.

Furthermore, some people constantly check their smartphones even when they are socializing with their friends. As such, this coercive, inability to control their behaviour, use of smart phones may adversely affect individuals' social, personal, and family relationships (Park & Lee, 2011; Wajcman, Bittman & Brown, 2008). Such behaviors have been more prevalent during the COVID-19 pandemic (Tanhan, 2020). Research conducted during COVID-19 pandemic showed that pandemic related stressors severely affect mental health of people including students

(Arslan et al., 2020; Arslan, Yıldırım & Aytaç, 2020; Çiçek, Tanhan & Tanrıverdi, 2020; Yıldırım & Solmaz, 2020). While positive psychological and behavioural factors were found to positively influence well-being and mental health of individuals (Çeri & Çiçek, 2021; Yıldırım & Arslan, 2020; Yıldırım & Güler, 2021), negative factors adversely affect psychological health during COVID-19 pandemic. Researchers explained well how contextual factors from an ecological systems theory including historical events (e.g., epidemic, pandemic, conflicts, crisis) from micro to macro system levels and even to choronsystem level constantly affect people (Tanhan, 2020).

Therefore, it is considered that this paper will contribute to the extant literature in terms of taking precautions against this addiction by establishing what kinds of predictors have roles in affecting youth adherence to smartphone addiction during the pandemic. The aim of this study is to examine to what extent parental attitudes predict university students' smartphone addiction. This study also aims to examine the effects of socio-demographic factors including gender, siblings number, parental education level, socialization perception, and time spent on smartphone use on smartphone addiction. It is hypothesised that parental attitudes and socio-demographic factors would have significant effects on smartphone addiction.

2. Method

2.1. Research Model

This study was descriptive and relational in nature of a survey method use. Survey method is an approach that aims to describe a case of past or present as it is. They are the survey arrangements carried out on a group of people as whole or part of the population to conclude about the population made up of numerous elements. In general survey method, the case, person or object involved with the investigation are described within their conditions and as they are (Karasar, 2014).

2.2. Research Sample and Procedure

Participants included 670 university students whose ages ranged from 18 to 30 years with a mean ~~age~~ of 21.6 (SD=6.3). Great majority of the participants (70%) were girls. Before the data collection, the necessary permission was obtained from the Batman University ethic comittee (Ethic code: 2020/2-13). The data were collected online during the COVID-19 pandemic between 14 May-1 June 2020. At the first page of online survey, the participants were informed about the aim of the study prior their participation in the study. They were not compensated in return for their involvement. Given that the minimum sample size of 100 required for an analysis (Conroy, 2015), the present sample size can be considered adequate for the analysis.

2.3. Data Collection Tools

Socio—demographic Information Form: This form was created by the researchers of this study. The form included the questions about the students' age, gender, time spent on smartphone, number of siblings, feeling themselves social, and parental education level.

Smartphone Addiction Scale (SAS): Smartphone Addiction Short Form Scale developed by Kwon, Kim, Cho & Yang (2013), ~~,~~ was adapted to Turkish by Noyan, Darçın, Nurmedov & Yılmaz (2015). The scale is a 6-point Likert type with 10 items that range between 1 (certainly disagree) and 6 (certainly agree). The high scores refer to higher level of smartphone addiction risk. A total score can be taken from the questionnaire by summing all items and range between 10 and 60. Noyan et al. (2015) found Cronbach alfa value of .92 in their study. In this study, Cronbach alfa value was found as .83.

Parental Attitudes Scale (PAS): Parental Attitudes Scale developed by Kuzgun & Eldeleklioğlu (2005) includes 40 items split into 3 sub-scales as democratic (15 items), protective/requesting (15 items), and authoritarian (10 items). The high scores taken from sub-scales show high levels of individual characteristics from the related sub-scale. The PAS is a Likert type scale, ranging between 1 (strongly disagree) and 5 (strongly agree). An overall score can be estimated by summing the items on the respective scales. In the original study, Cronbach alfa values were

calculated .89 for democratic attitude sub-scale, .82 for protective/requesting sub-scale, and .79 for authoritarian sub-scale. In this study, Cronbach alfa value was found as .72 for democratic attitude sub-scale, .84 for protective/requesting sub-scale and .75 for authoritarian sub-scale.

2.4. Data Analysis

First of all, descriptive statistics including normality tests were estimated. Normality values were examined with skewness and kurtosis whose values ranging between |2| considered as approximately normally distributed at "acceptable" level (Byrne, 2010; Curran, West & Finch, 1996; Kline, 2015). The normality values of the scales were found to be between |1|. The data were analyzed through independent t-test, ANOVA, Pearson Product Moments correlation, multiple linear regression and moderation analyses.

3. Findings

Table 1. *Descriptive Statistics for Variables*

	Mean	SD	Min	Max	Skew	Kurtosis
Age	21.6	6.3	1	3	1.45	0.99
Gender	1.31	0.46	1	2	0.80	-1.37
Father's Education	2.21	0.59	1	3	-0.10	-0.44
Mother's Education	1.59	0.61	1	3	0.50	-0.64
Time Spent on Smart-phone	1.93	0.81	1	4	0.67	0.09
Number of Siblings	3.99	1.26	1	5	-0.92	-0.43
Perception of Being Social	1.37	0.48	1	2	0.54	-1.71
Democratic Parenting	36.60	6.68	12	52	-0.49	0.21
Protective Parenting	35.29	9.71	15	73	0.56	0.38
Authoritarian Parenting	33.70	6.56	10	49	-0.40	0.16
Smart-phone Addiction	28.10	9.22	10	58	0.37	-0.39

Note. N = 670. Age: 1 = 18 – 21 years (70%), 2 = 22 – 25 years (23%), 3 = 26 years and above (6%). Gender: 0 = Female (69%) and 1 = Male (31%). Father's Education: 1 = No schooling (9%), 2 = Primary / middle school (60%), and 3 = High school and above (30%). %). Mother's Education: 1 = No schooling (47%), 2 = Primary / middle school (46%), and 3 = High school and above (6%). Time Spent on Smart-phone: 1 = 0-2 hours (31%), 2 = 3-5 hours (49%), 3 = 6-8 hours (15%), and 4 = 9 hours and above (5%). Perception of Being Social: 1 = Social (63%) and 2 = Not social (37%).

The study basically was made of university students, and the ages of whom ranged from 18 to 30 years. The majority (69%) were females. Most of the students fathers graduated from primary/middle school (60%), and most mothers had either no schooling (47%) or primary/secondary school diplomas (46%). Nearly half of the students (49%) spent three to four hours on smartphone in a day and percieved themselves as social (63%). Skewness and kurtosis values for the main variables of interest were within |2| acceptable range which posed no immediate threat for further analysis.

The results of independent t-test analysis revealed that male participants got higher scores than female participants in only protective sub-scale of parental attitudes (<.05). No significant difference was found in smartphone addiction in terms of gender (>.05). The students who felt themselves as social had lower scores of smartphone addiction, and ~~that~~ they perceived their parents more democratic and less protective and authoritarian. The results of ANOVA showed that the students aged between 18-21 had significantly high scores on authoritarian parental attitudes (<.05). Students with more siblings had significantly higher scores on smartphone addiction and authoritarian parental attitudes sub-scale. The higher smartphone use of students indicated a higher smartphone use scores. On the other hand, no significant difference was found between mother-father education and smartphone addiction. A significant difference was found between parental attitudes and students' perceived parental attitudes.

Correlation analysis in Table 2 indicates that females had more protective (r = .12, p < .001), and less democratic (r = -.08, p < .001) and authoritarian (r = -.08, p < .001). Participants with older ages are less protective than they are (r = -.09, p < .001). Having a higher degree is associated with higher scores on all three parenting attitudes; however it is not related to smartphone addiction. As number of siblings increase, parents are less prone to inherit democratic and authoritarian parenting attitudes . Democratic and authoritarian parenting attitudes subscales were correlated most with perception of being social. The more parents report they perceived themselves as being social, the less they inherit democratic (r = -.32, p < .001) and authoritarian parenting attitudes (r = -.33, p < .001). Protective parenting style subscale is also correlated with the perception of being social; however, those reporting that they perceived themselves as being social inherited protective parenting characteristics more (r = .24, p < .001). Perception of being social is also correlated with smartphone addiction (r = .20, p < .001).

Table 2. *Correlations Among Variables of Interest*

	1	2	3	4	5	6	7	8	9	10	11
1. Age	-										
2. Gender	0.11**	-									
3. Father's Education	-0.02	0.08*	-								
4. Mother's Education	-0.05	-0.04	0.36***	-							
5. Time Spent on Smart-phone	0.00	-0.04	0.00	0.00	-						
6. Number of Siblings	0.06	-0.06	-0.28***	-0.39***	-0.01	-					
7. Perception of Being Social	-0.01	-0.01	-0.09*	-0.12**	0.07	0.11**	-				
8. Democratic Parenting	-0.07	-0.08**	0.11**	0.14***	0.03	-0.14***	-0.32***	**0.72**			
9. Protective Parenting	-0.09*	0.12**	0.09*	0.02	0.07	0.03	0.24***	-0.26***	**0.84**		
10. Authoritarian Parenting	-0.08	-0.08**	0.13**	0.14***	-0.02	-0.15***	-0.33***	0.83***	-0.25***	**0.75**	
11. Smart-phone Addiction	0.01	-0.07	0.00	0.03	0.21***	-0.04	0.2***	-0.01***	0.18***	-0.09**	**0.83**

Note. *p<.05; **p<.01; ***p<.001. Reliability estimates (Cronbach's α) are stated in bold on diagonal. Correlations for Democratic Parenting and Authoritarian Parenting subscales are based on reduced forms.

Table 3. .*Multiple Regression Results*

	Model 1: Background				Model 2: Background + Parenting attitudes			
Variable	Est. (SE)	t	Standardized β	η^2	Est. (SE)	t	Standardized β	η^2
Intercept	20.74(2.86)***	7.24	0	0	15.33(3.93)***	3.90	0.00	0
Age	0.35(0.58)	0.61	0.02	0	0.57(0.57)	1.00	0.04	0
Gender	-1.33(0.75)	-1.78	-0.07	0	-1.65(0.74)*	-2.23	-0.08	0.01
Father's Education	-0.04(0.63)	-0.06	0	0	-0.25(0.62)	-0.41	-0.02	0
Mother's Education	0.44(0.64)	0.68	0.03	0	0.28(0.63)	0.44	0.02	0
Time Spent on Smart-phone	2.24(0.43)***	5.25	0.2	0.04	2(0.42)***	4.76	0.17	0.03
Number of Siblings	-0.38(0.3)	-1.25	-0.05	0	-0.43(0.3)	-1.43	-0.06	0
Perception of Being Social	3.8(0.72)***	5.3	0.2	0.04	3.27(0.76)***	4.32	0.17	0.02
Democratic Parenting					0.34(0.09)***	3.63	0.24	0.02
Protective Parenting					0.15(0.04)***	3.95	0.16	0.02

Authoritarian Parenting	-0.29(0.09)**	-3.10	-0.21	0.01
Adj. R^2=0.08	Adj. R^2 = 0.11			
F(7,662) = 9.34***	F(10,659) = 9.54***			

Note. *p<.05; **p<.01; ***p<.001. SE=standard error (in parenthesis). η^2= eta-squared that represents proportion of variance in the dependent variable explained by the independent variables. Dependent variable is smart-phone addiction.

We analyzed the data with lme4 package (Bates et al., 2015) in R statistical computing environment (R Code Team, 2020). We ran a regression model that included demographic variables and some background questions (Model 1) which explained 8% of the variance in the smartphone addiction. Time spent on smart-phone use and perception of being social were significant and positive predictors of smartphone addiction (β = 0.20, p < .001 and β = 0.20, p < .001, respectively). When parenting attitudes were added in Model 2, the new variables caused a significant change in the model. Model 2 explains 11% of the variance in the smartphone addiction. Model 2 indicated that democratic and protective parenting attitudes were positively associated with the smartphone addiction (β = 0.24, p < .001 and β = 0.16, p < .001, respectively), whereas authoritarian parenting style was negatively related (β = -0.21, p < .01).

Table 4. *Moderation Analyses*

	Moderator: Gender				Moderator: Age				Moderator: Perception of Being Social			
Variable	Est. (SE)	t	β	η^2	Est. (SE)	t	β	η^2	Est. (SE)	t	β	η^2
Intercept	20.32(8.84)*	2.30	0	0	31.64(7.56)***	4.18	0	0	30.10(8.67)***	3.47	0	0
Age	0.52(0.58)	0.90	0.03	0	-7.08(4.68)	-1.51	-0.46	0	0.57(0.57)	0.99	0.04	0
Gender	-1.04(5.56)	-0.19	-0.05	0.01	-1.73(0.75)*	-2.31	-0.08	0.01	-1.78(0.75)*	-2.38	-0.09	0.01
Father's Education	-0.22(0.63)	-0.35	-0.01	0	-0.22(0.62)	-0.36	-0.01	0	-0.40(0.63)	-0.63	-0.03	0
Mother's Education	0.42(0.64)	0.66	0.03	0	0.43(0.64)	0.67	0.03	0	0.60(0.64)	0.94	0.04	0
Time Spent on Smart-phone	2.14(0.42)***	5.06	0.19	0.04	2.18(0.42)***	5.15	0.19	0.04	2.18(0.42)***	5.17	0.19	0.04
Number of Siblings	-0.43(0.30)	-1.44	-0.06	0	-0.45(0.30)	-1.51	-0.06	0	-0.39(0.30)	-1.31	-0.05	0
Perception of Being Social	2.86(0.77)***	3.72	0.15	0.02	2.93(0.77)***	3.81	0.15	0.02	-3.82(5.57)	-0.69	-0.20	0.02
Democratic Parenting	-0.22(0.36)	-0.61	-0.16	0.01	-0.36(0.31)	-1.14	-0.26	0.01	0.20(0.37)	0.55	0.15	0.01
Protective Parenting	0.10(0.12)	0.82	0.10	0.01	-0.02(0.10)	-0.19	-0.02	0.01	0.07(0.12)	0.60	0.08	0.01
Authoritarian Parenting	0.21(0.36)	0.58	0.14	0	0.09(0.31)	0.28	0.06	0	-0.56(0.36)	-1.56	-0.40	0
Moderator x Democratic Parenting	-0.03(0.24)	-0.11	-0.04	0	0.07(0.21)	0.35	0.16	0	-0.33(0.24)	-1.36	-0.48	0
Moderator x Protective Parenting	0.01(0.08)	0.14	0.03	0	0.10(0.07)	1.41	0.25	0	0.04(0.08)	0.46	0.10	0
Moderator x Authoritarian Parenting	-0.01(0.24)	-0.05	-0.02	0	0.08(0.21)	0.37	0.16	0	0.54(0.24)*	2.24	0.78	0.01
	Adj. R^2=0.10				Adj. R^2=0.10				Adj. R^2 = 0.11			
	F(13,656) = 6.60***				F(13,656) = 6.82***				F(13,656) = 7.13***			

Note. *p<.05; **p<.01; ***p<.001. SE=standard error (in parenthesis). η^2=eta-squared that represents proportion of variance in the outcome explained by the corresponding predictor variable. Dependent variable is smart-phone addiction.

Moderation analyses revealed that gender and age did not moderate the relationship between parenting attitudes and smartphone addiction. However, although not statistically significant it should be noted that standardized coefficients for age moderation were not very small, which may warrant further investigation. Parenting attitudes in conjunction with perception of being social tended to result in more severe smartphone addiction for older ages (democratic parenting: β = 0.16, *n.s.,* Protective Parenting: β = 0.25, *n.s.,* authoritarian parenting: β = 0.16, *n.s.*). Perception of being social moderated the relationship between authoritarian parenting and smart-phone addiction (β = 0.78, p < .05), meaning that authoritarian parenting in conjunction with perception of being social results in more severe smartphone addiction. Perception of being social also moderated the relationship between democratic parenting style and smartphone addiction (β = -0.48, *n.s.*), suggesting that democratic parenting in conjunctionwith perception of being social results in less severe smartphone addiction.

4 . Conclusion and Discussion

This study was carried out in order to determine to what extent parental style and socio-demographic variables predict smartphone addiction among university students. The results showed that age, gender, parental education level, time spent on smartphone, number of siblings, students' feeling of being social and perceived parental attitudes were significant predictors of smartphone addiction. Similar to some other recent studies, the findings of this study comply with other research (Tanhan, 2020).

A negative and significant relation was found between democratic and authoritarian parental attitudes, and smartphone addiction. On the other hand, the study revealed that there was a positive and significant relation between protective parental attitude and smartphone addiction. This shows that the children of parents who are in protective attitude to their children have higher smartphone addiction. Limited studies are available in the literature in relation to smartphone addiction and parental attitudes in university students. These results are considered to contribute to parents' understanding of their attitudes (Özaslan & Yıldırım, 2021) so that they can bring up their children in a democratic environment, and their children can be more social in the future, and they will experience less telephone addiction. Also, it is possible to conclude that the parents' authoritarian attitude towards their children and drawing strict borders are effective in their spending less time on smartphones. At this point, it should be noted that whether students' perceptions of their parents' attitudes as authoritarian will have the same effect on smartphone addiction in the following periods should be considered as an important problem area (Çiçek, 2020). Since parents' attitude and behaviour patterns towards children lay the groundwork for the emergence of unwanted behavioural problems in children in the future (Çiçek & Aslan, 2020).

A positive and significant relationship was found between the time spent by students on smartphones and their smartphone addiction. As the time spent by the students on smartphones increased, their smartphone addiction increased. Similar results have been reported in previous studies (Geçgel, 2020; Yaran, 2020). Tanhan (2020) in a quite new and innovative qualitative study called Online Photovoice (OPV) found that college students reporting technology addiction during the COVID-19 pandemic as one of the most important barriers to their mental health. In their study, Noyan et al. (2015) reported that there had been a positive relation between time spent on smartphones and smartphone addiction in university students. The result of this stuy also showed that as the time that university students spend on smartphones increases, the smartphone addiction occurrence risk increases as well.

Another important result of the study was that the smartphone addiction level of the students who did not regard themselves as sociable revealed to be higher than those who regarded themselves as sociable. These results demonstrate that the students find smartphones as a tool to cope with challenges. Although there are not any studies conducted between direct social self-perception and mental phone addiction, a positive relationship was found between students' depression levels and situations of loneliness (Tanrıverdi, 2017). In this context, it may be assumed that university students who do not have sufficient social relations and who experience loneliness spend more time on their smartphones to cope with these situations and therefore, they are more vulnerable to the risk of smartphone addiction than social people. Furthermore, the results showed that students who viewed themselves as social reported that their parents' attitudes were more democratic. It appears that both the perception of students as social and their parents' attitudes as democratic feed each other. In addition, the scores of authoritarian and protective parent attitudes perceived by students who viewed themselves social were low. This suggests that students' social feelings are related to their perceived parental attitudes. No research has been found in this context in the available literature.

According to gender variable, it was found that the scores significantly differed from protective parental attitude sub-scale. In this study, male perception of parental attitude was more protective than females. Similar findings have been reported in earlier research (Eker & Kaya, 2018; Yıldırım & Sezer, 2018). For instance, Sezer & Oğuz (2010) obtained the similar results in thier study. On the other hand, in this study, no significant difference was found according to gender in democratic and authoritarian parental attitudes which is in accordance with previous studies (Çiftçi & Gülaçtı, 2019). Eker & Kaya (2018) reported no significant difference in gender variable according to university students' perception democratic parental attitudes. Contradicting results have also been

reported (Yıldırım & Sezer, 2018). For instance, a significant difference was found in the authoritarian parental attitude in gender variable in the study carried out by Eker & Kaya (2018).

Moreover, there was no significant difference between the gender variable and smartphone addiction scores. This result is consistent with previousfindings (Chen et al., 2017; Kwon et al., 2013; Tateno et al. 2019). On the other hand, some studies found that there are significant differences in smartphone addiction according to the gender variable (Demirci, Akgönül, & Akpınar, 2015; Tavakolizadeh, Atarodi, Ahmadpour, & Pourgheisar, 2014). The results of the study conducted by Choi et al. (2015) showed the smartphone addiction of girls was significantly higher than that of boys.

A significant difference was found between the number of siblings of the students and the authoritarian parental attitude they perceived. On the other hand, no significant difference was found between the democratic and authoritarian attitude and the number of siblings. Students who grew up in families with many siblings viewed their parents less authoritarian than children with fewer siblings. There are studies that examine the relationship between the number of siblings and perceived parental attitudes among university students (Alshehri, Yildirim & Vostanis, 2020; Eker & Kaya, 2018; Yıldırım & Sezer, 2018). In the study conducted by Eker & Kaya (2018), a significant difference was observed between the perceived democratic parental attitude of university students and the number of siblings, while no difference was found between perceived authoritarian and protective parental attitudes and the number of siblings. According to the results obtained from the study, it was revealed that the perceived parental attitudes of the students according to the education level of the fathers differ significantly. Likewise, the perceived democratic and authoritarian attitude differed significantly according to the mother's educational status. On the other hand, there was no significant difference in perceived protective parental attitude according to the mother's education level. In our study, it was found that the higher the education level of the parents was, the more students perceived their parents as democratic, and the lower their education level was, the more they perceived their parents as authoritarian. These findings are in line with previous findings (Yıldırım & Sezer, 2018). Kaya, Bozaslan & Gülten (2012) reported that a significant difference emerged between the perceived democratic, protective and authoritarian parental attitudes and the education level of the parents among university students.

The results of regression analysis showed that university students' perceived parental attitudes, gender, parents' education status, time spent on smartphones, social feeling and number of siblings together, were significant predictors of smartphone addiction, and they constituted 11% of smartphone addiction. In the light of these results, the way parents raise their children may cause the emergence of some undesirable behaviours in their adulthood. In this context, it is thought that especially students' not feeling social, may cause them to spend more time with smartphones and experience the risk of smartphone addiction as some previous researchers warned against at the beginning of the pandemic (Doyumğaç et al., 2021; Tanhan, 2020).

5. Limitations and Recommendations

It is possible to acknowledge several limitations regarding this research. First, the fact that the study was conducted during the COVID-19 period, this situation may have caused students to spend more time on their smartphones due to compulsory stay at homes. This situation may also have been reflected in the research results. Secondly, although the variables (parental attitudes, time spent on smartphones, gender, age, parents' education status, feeling social) were considered as significant predictors of smartphone addiction, the current study is limited with only these variables. It would be appropriate for researchers to conduct new studies to include more related variables (e.g., quality of life, psychological well-being, negative evaluation, discrimination, satisfaction with one's campus) across contextual levels as some researchers highly recommended (Demir et al., 2021; Uğur, Kaya, & Tanhan, 2020). Third, students may have been biased in their answers as data were collected online. Therefore, it may be healthier to conduct studies using different methodology like face-to-face interview. It is crucial to bring innovative and qualitative or mixed method studies that provide space to capture participants' unique experiences from their own perspective while collaborating with and for them as some researchers have used such methods recently and strongly called for such methods rather than solely cross-sectional quantitative

studies (Tanhan, 2019). Finally, the study was applied only to university students. The reason for this is that there are adults who have the average age of university students but do not attend university. With this in mind, conducting studies on all peopleat a certain age range may result in different situations. Education programs about addiction may be prepared in schools.

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