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The Effects of Smartphone Addiction and Cyber Victimisation on Suicidal Ideation of Adolescents in Turkey

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Abstract: This study aims to examine whether gender, smartphone addiction, and the level of cyberbullying victimisation are significant predictors of suicidal ideations. The correlational model was used in the study. The participants of the study consisted of 211 high school students. The convenience sampling method was used in the selection of the participants. Among the participants, 137 are female, 74 are male, 157 are ninth, and 54 are tenth-grade high school students. Three scales, namely Smartphone Addiction, Cyber Bullying / Victimisation, and Suicidal Ideations, were used to collect data in the study. In addition to these scales, students' gender and grade information were asked. For the statistical analysis, correlation and linear hierarchical regressions were utilized to evaluate how well variables predicted suicide ideation. The study revealed that grade and gender were not significant predictors of suicidal ideations. Still, smartphone addiction and cyberbullying victimisation were significant predictors of suicidal ideations.

Key words: Gender, smartphone addiction, cyberbullying victimisation, suicidal ideations, high school student.

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Introduction

Technological devices renew their features every day and become more widely used for both communication and information—these devices oversimplified people's connection to the touch of the fingers on the screen. In recent years, they have facilitated people's lives parallel with the developments in information and communication technologies.

Smartphones, one of these technological devices, are widely used by students in the school environment for various reasons, such as talking, texting, listening to music, playing games, or spending time using many other phone features while they are at school.

Smartphone addiction can be defined as being addicted to smartphones and other applications related to smartphones (Won-jun, 2013). Smartphone addiction is also expressed as the inability of users to control their smartphone usage (Jeong & Lee, 2015). Internet and smartphone addictions differ from substance and alcohol addiction in that they are behavioural addictions. Although behavioural addictions have serious negative consequences on the individual, they can be defined as behaviours that individuals exhibit to eliminate stress and pain and enjoy (Bolle, 2014).

It is possible to say that smartphones provide many benefits that will facilitate people's lives due to many applications, easy access to the Internet, and some adverse effects resulting from misuse. Excessive use of smartphones causes negative social, psychological and physiological consequences for individuals (Choi, Lee, & Ha, 2012). Insensible smartphone use also causes problems such as loss of nerves, desperate efforts to connect, excessive time spent on smartphones, psychological disorders and disruptions in daily work (Ko, Lee, & Kim, 2012). Smartphone addiction also leads to the formation of addicted individuals who live by creating a virtual identity away from reality, isolated from society, having difficulty communicating face-to-face, and expressing themselves with the virtual identity they create (Polat, 2017). The excessive use of the smartphone is known to cause extreme insomnia, fatigue, and stress; and affect individuals psychologically (Gross, 2014).

When recent studies related to smartphones are reviewed, it is seen that smartphone addiction is closely related to psychosocial characteristics such as stress, depression, anxiety,

loneliness and shyness (Bian & Leung, 2015; Chiu, 2014; Long et al., 2016; Wang et al., 2015). These negative psychological symptoms are directly related to suicide and increase suicide ideation (Katsumata, Matsumoto, Kitani, & Takeshima, 2008; Takeuchi & Nakao, 2013). There is a significant relationship between smartphone use and suicide attempt (Kim, Min, Ahn, An, & Lee, 2019).

As a result of the increase in smartphone use, individuals may experience conflicts with their families and friends. As a result of these conflicts, the individual may be rejected from his environment. Individuals rejected by their environment are observed to have a higher suicidal tendency (Richards, 1999). Depressive symptoms and suicide ideation of those with good social relationships are lower than those with poor social relations (Murray, McKenzie, Murray, & Richelieu, 2016). Twenge et al. (2018), in their study with adolescents in the United States, stated that adolescents spend more time on smartphones and electronic devices and spend less time on off-screen activities. The study revealed an increase in depression and suicide rates among adolescents who spend much of their time online.

Along with the negative consequences mentioned above due to excessive use of smartphones, it is seen that, due to using this technology to harm others, cyberbullying incidents have started to occur frequently, and individuals are negatively affected by such events. A study conducted by the Seoul Metropolitan Government (Lee, 2014) with the participation of 4,998 students aged between 10 and 17 who have smartphone addiction found that students with a high tendency to be addicted to smartphones also had a higher tendency to become cyberbullies and cyber-victims. While only 3% of the participants in the study stated that they were cyberbullying their peers, it was determined that 4% were cyberbullying victims. This rate increased to 14.7% among those in the risk group for smartphone addiction. It was determined that 43.7% of people who were determined to bully their peers were involved in bullying by chance, 23.5% stated that they were cyberbullying to threaten someone, 18% indicated that they were bullying for revenge and 12% because of distress. Based on this study, it can be said that smartphone addiction has negative consequences such as cyberbullying or cyberbullying victimisation. Gross (2014)

stated that excessive use of smartphones causes many adverse effects as well as cyberbullying.

Another critical point that is not explicitly stated in this definition but expressed in many other definitions is that the individual exposed to cyberbullying is relatively lacking the power of self-defense. While this situation says a physical power imbalance in traditional bullying, it describes a power imbalance in using technological tools more developed in cyberbullying. Those exposed to negative behaviours by others in virtual environments are referred to as cyberbullying victims.

Arıcak, Tanrıkulu, and Kınay (2012) state that cyberbullying victimisation exposes individuals or groups to harmful behaviours through information and communication technologies. These behaviours lead to physical or psychological victimisation in individuals. Many psychological symptoms are observed in individuals exposed to cyberbullying due to this event's effect. In their study, Kowalski and Limber (2007) found that victims' self-esteem decreased, and their social anxiety scores were higher than cyberbullies. Ubertini (2010) found that participants determined to be cyberbullying victims had significantly high levels of depression and low self-confidence levels. Nishina, Juvonen, and Witkow (2005) stated that depression, anxiety, loneliness, paranoid thoughts could be seen in people exposed to cyberbullying, and their academic performance will be negatively affected by such events. Ayas (2014) found that depression, anxiety, and gender are significant predictors of cyberbullying. Adolescents exposed to cyberbullying are either excluded by peer groups or cut off from their peers because they feel embarrassed and anxious. In this process, they experience despair as they cannot find anyone they can trust around them (Anderson, 2010).

Sourander et al. (2010) found that individuals exposed to cyberbullying experience emotional problems and problems with their peers. In addition to these problems, they also suffer from headaches and stomach aches and have problems sleeping with the event they have experienced. Along with the adverse psychological, physical, and academic effects of cyberbullying on individuals, it also increases alcohol and drug use (Ybarra, Espelage, & Mitcheel, 2007).

In his study on the current literature on the effects of cyberbullying on adolescents' health, Nixon (2014) determined that cyberbullying is a threat to the health and well-being of adolescents. The study found that the increasing depressive mood, anxiety and loneliness of cyberbullying victims lead adolescents to suicidal behaviour. Suicide is the leading cause of death among children and adolescents worldwide and is a significant public health problem that requires attention and intervention (Shain, 2007). Individuals exposed to cyberbullying may turn to suicide to get rid of the adverse effects of these events. Feinberg and Robey (2008) stated that cyberbullying could lead to externalized violence and suicide. Hinduja and Patchin (2010) found that both cyberbullying and traditional bullying are significantly associated with increased suicidal ideation in individuals. It is stated that those who are exposed to cyberbullying incidents think of suicide and attempt suicide more than those exposed to traditional bullying. Hinduja and Patchin (2019) stated that being exposed to cyberbullying at school is a risk factor for suicidal ideation and suicide attempts.

Depression symptoms, suicide attempts and self-mutilative behaviours are observed in students exposed to cyberbullying (Schneider, O'Donnell, Stueve, & Coulter, 2012). Price and Dalgleish (2010) found that 78% of cyberbullying victims stated that they lost their self-confidence, 35% were academically negatively affected, school attendance of 28% decreased, and 19% had family problems. Also, in this study, 2% of the participants stated that they harmed themselves, and 3% indicated that they thought of committing suicide. According to Kowalski and Witte (2006), cyberbullying victims were asked how they felt after being cyberbullied. One of the participants stated that one of his friends was in depression and often had thought of committing suicide.

In their study conducted with 4,693 high school students, Litwiller and Brausch (2013) found that physical bullying and cyberbullying are associated with substance use, violent behaviour, unsafe sexual behaviour and suicide ideation. This study determined that cyberbullying affects physical bullying on suicide ideation, substance use, violent behaviour, and unsafe sexual relationship. Schenk and Fremouw (2012) stated that cyberbullying victims are more likely to think about committing suicide, planning for it, and attempting suicide than people who have never been cyber victims. Schenk, Fremouw, and Keelan

(2013) conducted a study with 79 students (60 students cyberbully, 19 students cyber bully-victim and 79 control group) found that cyberbullies and cyber bully-victims were significantly more likely to attempt suicide than those in the control group. It has been determined that cyberbullying victims are more likely to tell someone that they consider committing suicide than cyberbullies and control group members.

Kelly et al. (2015) conducted a study with 1588 students. It was determined that suicide ideation among the participants was more common among the bullies than among those who were not involved in bullying. Generally, the highest rate of suicide ideation was seen among the bully-victims. This study determined that frequent suicide ideation was more common among the bully-victim and victim students than those who were not involved in bullying. Ferrara et al. (2014) determined that suicide was more common among boys (58.2%) than girls (41.8%) in a total of 55 suicide cases in which victims were younger than 18 years in Italy between 2011 and 2013.

While no significant difference was found in some studies examining the relationship between suicide and gender (Langhinrichsen-Rohling, Arata, Bowers, O'Brien, & Morgan, 2004; Thomas, Crawford, Meltzer, & Lewis, 2002), some studies indicated that women have more suicide ideation than men do (Molina & Duarte, 2006; Park, Schepp, Jang & Koo, 2006; Whetstone, Morrissey, & Cummings, 2007). On the other hand, some studies indicate that men have more suicide ideation than women (Batıgün, 2005; Kumar, Mohan, Ranjith and Chandrasekaran, 2006). Kaltiala-Heino et al. (1999) conducted a study with 16,410 students aged 14-16 in Finland and found that 2% of girls and 2% of boys had severe suicide ideation. It has been determined that suicide ideations are common among both victims and bullies and that depression occurs equally among bullies and victims. While it has been determined that severe suicide ideation among girls is often associated with being a victim or bullying others, it has been determined that serious suicide thought among boys is related to being a bully.

When studies on smartphone addiction and cyberbullying are examined, it is found that studies are showing that both situations affect individuals negatively. As a result of literature review of studies conducted in Turkey, it can be said that there is no study

researching the relationship between smartphone addiction, cyberbullying and suicide ideations. Even in studies outside Turkey, no research is conducted to research the relationship between suicide ideation, cyber victim and smartphone addiction. Therefore, to fill this literature gap, the present study investigates the relationship between smartphone addiction, cyberbullying and suicidal ideations.

Methods

Model

Correlational research design, one of the quantitative research methods, was used in the study. Correlational research design is used in studies that examine the relationship between multiple variables measured at once without any intervention in a descriptive or predictive way. In the current study, the correlational model was used because the study aims to examine in a predictive way the relationship between the variables of smartphone addiction, being a cyber victim, and suicide ideation data of which was collected at once without any intervention.

Participants

The participants of the research are 211 high school students from a city in Northwest Turkey. The convenience sampling method was used in the selection of the participants. 137 (64.9%) of the research participants are female, and 74 (35.1%) are male. Of the participants, 157 (74.4%) were ninth-grade, and 54 (25.6%) were tenth-grade students.

Instrument

Three scales were used to collect data in the study. These are Smartphone Addiction Scale, Cyber Victim Scale, and Suicidal Ideation Scale. A form has been added to these scales to collect demographic information. In this form, information of the students related to their gender and grade were asked. Detailed information about the scales used in the study is presented below.

Smartphone Addiction Scale (SAS)

The original Smartphone Addiction Scale was developed by Şar, Ayas and Horzum (2015). The scale was rearranged by taking the pilot application and expert opinion. Subsequently, factor analysis, construct validity and reliability studies were conducted. In order to develop SAS and at the same time to perform factor analysis in the first application, the scale was applied to 234 high school students. The second application was re-applied to a different group of 228 high school students to make the confirmatory factor analysis.

Convergent and discriminant validity were applied to measure the construct validity of the scale. As a result of the research, it was concluded that it is a scale with proven validity and reliability. The scale consists of 30 items, and factor loading values of items were measured between 0.444-0.813. These results show that the scale can explain the quality measured by variance adequately.

Cyberbully / Cyberbullying Victim Scale (CB/CV-S)

In the research, the "CyberBully / Cyberbullying Victim Scale" developed by Ayas and Horzum (2010) was used to determine cyberbullies. CB/CV-S consists of two parallel scales, one of which is the "Cyberbully Scale (CB-S)" and the other one is the "Cyberbullying Victim Scale(CV-S)". The scale consists of the same items asking the same question from two different points of view. Students are expected to mark how often they use the words and do the actions in CB-S and how often they are exposed to these words and actions in CV-S. In this study, of the whole scale, only Cyberbullying Victim Scale part was used. Ayas and Horzum (2010) developed the scale and determined that this part of CB/CV-S consists of 19 items. Evidence for factorial validity was obtained with exploratory and confirmatory factor analysis. The total internal consistency coefficient of CV-S with 19 items was found to be .81. Participants are expected to answer 19 items by marking each item on a 5-point Likert scale between “never” and “always”. The scale can be scored between 17 and 85 points in the CV-S part of CB/CV-S, and a high score indicates a high level of cyberbullying victimisation.

Suicidal Ideation Scale

The study employed the "Suicidal Ideation Scale" developed by Levine et al. (1989) to determine suicidal ideation. The scale contains 17 questions for parameters such as; uncontrollable anger, desire to harm oneself or others, hopelessness, thought and intention of death, decreased self-esteem, guilt, slow thinking, slow speech, depression, and despair, and lastly, an increased risk of the suicide attempt. The questionnaire aims to determine the severity of suicidal ideation. The patient himself answers the questionnaire. The total score ranges from 0 to 17, and a high score means the patient has significant suicidal ideation. Dilbaz et al. (1995) examined the validity and reliability of the scale. They found that the

Suicidal Ideation Scale was significantly associated with Hamilton Depression Scale, Hopelessness Scale, and Suicidal Intention Scale.

Procedure

The research was carried out by ensuring the anonymous participation of volunteer participants after obtaining permission from the Provincial Directorate of National Education. The questionnaires were filled in by participants as paper and pen tests without the participant's name and number. For the statistical analyses, correlational and linear hierarchical regressions were utilized to evaluate how well the variables predicted suicidal ideations. These analyses were performed via SPSS 18.

Results

Within Participants' smartphone addiction (SA) scores ranged from 30 to 130 ($\overline{X}$ ± SD; 63.33±24.96), cyberbullying victimisation (CV) scores ranged from 19 to 95 ($\overline{X}$ ± SD; 23.38 ± 10.05), suicidal ideations (SI) scores ranged from 0 to 16 ($\overline{X}$ ± SD; 4.50 ± 3.89). It was found that the participants' smartphone addiction was higher than the midpoint. However, the suicidal ideations and the cyberbullying victimisation level were lower than the midpoint. Correlation scores were used to assess bivariate relationships with suicidal ideation, smartphone addiction and cyber victimisation. The findings are presented in Table 1:

Table 1. Correlations between suicidal ideations and the participants' smartphone addiction, and cyberbullying victimization.

	SA	CV
SI	.393**	.191**
SA		.170**

** p< .010.

Significant positive relationships have been found between suicidal ideation scores and smartphone addiction, and cyber victimisation. These findings mean that smartphone addiction and cyberbullying victimisation are positively related to suicidal ideations.

The hierarchical regression model contained gender and grade as predictors of suicidal ideations in the first block. In the first block, F change was not significant: F change (2,208) = 1.328, $p > .05$, R^2 change = 0.013. In the second block, smartphone addiction was added as a predictor. The second block's F change was significant and R^2 change increased compared to the previous block: F change (1,207) = 36.360, $p < .001$, R^2 change = 0.148. Third, cyberbullying victimisation was added as a predictor of suicidal ideations scores. The third and final block's F change was significant and R^2 change increased compared to the previous block: F change (1,206) = 4.467, $p < .05$, R^2 change = 0.018. The results of the hierarchical regression model are presented in Table 2:

Table 2. Hierarchical regression analyses of suicidal ideations.

Predictor	B	S. E.	Beta	t	p
Block 1 (R^2 = 0.013; ΔR^2 = 0.003; F(2,208) = 1.328; p. > 0.05)					
Gender	-.948	.586	-.117	-1.617	.107
Grade	.180	.641	.020	.281	.779
Block 2 (R^2 = 0.160; ΔR^2 = 0.148; F(1,207) = 36.360; p. < 0.001)					
Gender	-.416	.549	-.051	-.758	.449
Grade	-.384	.600	-.043	-.640	.523
Smartphone Addiction	**.061**	**.010**	**.392**	**6.030**	**.000**
Block 3 (R^2 = 0.122; ΔR^2 = 0.115; F(8,952) = 16.577; p. < 0.001)					
Gender	-.613	.552	-.075	-1.110	.268
Smartphone Addiction	**.057**	**.010**	**.364**	**5.534**	**.000**
Cyberbullying victimization	**.053**	**.025**	**.138**	**2.114**	**.036**

Predictors were entered in three steps. First, gender and grade were input, in step 2 smart phone addiction was added, in step 3 cyberbullying victimization was added. Gender: 0 = female, 1 = male.

When Table 2 was examined, it was found that grade and gender, taken as primary variables in the study, were not significant predictors of suicidal ideation. It was found that smartphone addiction, which is included in the second block of the study, is a significant predictor of suicidal ideation. The suicidal ideation of smartphone-addicted individuals is higher than those who are not addicted to the smartphone. The smartphone addiction variable explains 14.8% of suicidal ideation. In the third block of the study, cyberbullying victimisation scores were included in the study. It was found that cyberbullying victimisation scores were also a significant predictor of suicidal ideation. It was found that individuals who are victims of cyberbullying have higher suicidal thoughts than non-victims. However, the cyberbullying victimisation scores can only explain 11.5% of suicidal ideation on their own.

Discussion, Conclusion and Suggestions

In The study aims to examine the relationship between gender, smartphone addiction and cyberbullying, and suicidal ideations. As a result of the research conducted for this purpose, it was revealed that students with high smartphone addiction also have high suicidal ideations. This finding is consistent with the studies in the literature (Kim, Min, Ahn, An, & Lee, 2019; Twenge et al., 2018) that smartphone addiction is associated with suicidal tendency, attempt and ideations. In addition, the findings of studies showing that smartphone addiction is closely related to psychosocial characteristics such as stress, depression, anxiety, loneliness, and shyness (Bian & Leung, 2015; Chiu, 2014; Long et al., 2016; Wang et al., 2015) show that these negative psychological symptoms are directly related to suicide and they increase suicidal ideations (Katsumata, Matsumoto, Kitani, & Takeshima, 2008; Takeuchi & Nakao, 2013).

The studies reveal that individuals using smartphones for a long time encounter psychological problems (Gross, 2014; Ko, Lee, & Kim, 2012). Kwon & Paek (2016) found that depression, low self-esteem, negative stress, insufficient social support are among the problems triggering suicide for adolescents and adults. Considering that smartphones are

associated with psychological problems, and psychological problems have an essential effect on leading individuals to suicide, this may be accepted as influential in forming a positive relationship between smartphone addiction and suicidal ideations. There is a positive relationship between overuse of the Internet and psychological problems and suicidal ideations (Messias, Castro, Saini, Usman, and Peeples 2011). Considering that smartphones are generally used for internet access, the relationship between smartphone addiction and suicidal ideations may also be related to this situation.

In addition, the increase in the use of smartphones may reduce the time that young people spend with their social environment and families. Young people start to experience problems resulting from their weak relationships with their social environments and even have mental problems because of not being able to share these problems they encounter in different fields with their families or people in their social environment. This result may be an essential factor in the formation of suicidal ideations or suicide attempts. Pompili et al. (2012) stated that individuals with interpersonal problems, poor social support, living alone, and in despair are more prone to suicide. A study conducted with adolescents in Korea reveals that conflicts within the family have increased with smartphone addiction (Kim, Min, Min, Lee, & Yoo 2018). Another study shows that the use of smartphones negatively affects friendships (Bae, 2015).

Prolonged use of smartphones may cause social relationships problems, and the negative mood resulting from this may affect individuals to develop suicidal ideations. Effective strategies may be needed to solve the mental problems that may arise due to the increased use of smartphones by young people. These findings reveal the necessity of taking preventive and corrective measures for smartphone addiction, especially in adolescents. In this respect, it may be suggested to develop training, social media posts, public announcements and other materials that will raise awareness about the use of smartphones to prevent thoughts, tendencies and even attempts of suicide and other psychological, biological, cognitive, social and academic negative results of smartphone addiction,

The World Health Organization stated that the excessive use of the Internet and electronic devices, including smartphones, can cause physical harm and psychosocial

problems. Cyberbullying incidents are among the solid reasons for these problems (WHO, 2014). Within the scope of the study, a significant relationship was found between smartphone addiction and cyberbullying victimisation. This finding is consistent with the research on smartphone addiction conducted by the Seoul Metropolitan Government in Seoul (Lee, 2014) and the study conducted by Gross (2014), which state that smartphone-addicted students are also more prone to becoming both cyberbullies and cyberbullying victims.

Cyberbullying is an action performed using information and communication technologies. Usually, cyberbullying acts are considered as all kinds of activities that other people will not like on social media on the Internet. Because smartphones are one of the tools that allow individuals to perform these actions in the shortest time possible nowadays, cyberbullying cases are thought to increase due to the increasing use of smartphones. Nam (2019) reveals a positive relationship between the time spent on smartphones and cyberbullying. The same study found that the probability of being exposed to cyberbullying increases with increased time spent on the smartphone.

These findings prove that smartphone addiction also affects cyberbullying and cyber victimisation. The results also show that the relationship between smartphone addiction and cyberbullying/victimisation has turned into a swirl, and both negative situations continue to increase by triggering each other. When the findings are evaluated from this point of view, they reveal the necessity of applying preventive actions to prevent cyberbullying / victimisation and smartphone addiction starting from an early age. As a preventive action, it may be suggested that primary care physicians and public health specialists carry out informative studies for both families and school administrators, teachers and students.

The study also found that as cyberbullying victimisation increases, it also increases suicidal ideation. This finding is consistent with studies showing that there is a relationship between cyberbullying victimisation and suicide in the literature (Feinberg & Robey, 2008; Ferrara et al., 2014; Hinduja & Patchin, 2010, 2019; Kelly et al.,2015; Kowalski & Witte, 2006; Litwiller & Brausch, 2013; Price & Dalgleish, 2010; Schenk & Fremouw, 2012; Schenk, Fremouw & Keelan, 2013; Schneider, O'Donnell, Stueve & Coulter, 2012; Van Geel, Vedder &

Tanilon, 2013). These studies found that when compared to face-to-face bullying cases, suicidal ideations and the tendency to commit suicide increased more in cyberbullying cases. In addition, studies show that cyberbullying victims have higher suicidal tendencies and ideations compared to cyberbullies in terms of suicidal tendencies and ideations. In this respect, cyberbullying victims are more prominent in suicidal ideations and tendencies, supporting the research findings.

Exposure to cyberbullying can cause many negative results for individuals. Individuals exposed to cyberbullying may experience feelings of fear, anger, sadness, and helplessness (Hoff & Mitchell, 2009). However, it is observed that individuals exposed to cyberbullying have more suicidal attempts and ideations than individuals who are not exposed to cyberbullying (Hinduja & Patchin, 2010). Schneider, O'Donnell, Stueve, & Coulter, 2012 revealed a strong relationship between cyberbullying and suicidal ideations in their study on cyberbullying and suicidal ideations. Medrano, Lopez Rosales, & Gámez-Guadix, 2018 found that the rate of those exposed to cyberbullying was 34%, and 12.2% of them stated that they had suicidal thoughts in the last two weeks.

Cyberbullying victims experience emotional and social problems such as low self-esteem, instability, hopelessness, stress, and depression. Accordingly, suicidal ideations of these individuals increase, and as a result, suicidal acts increase (Hinduja & Patchin, 2010). As De Man, Leduc, and Labreche - Gauthier (1992) stated, cyberbullying victims also experience similar psychological symptoms. Thus it can be thought that this situation may affect cyberbullying victims' suicidal ideations, considering that psychological symptoms such as depression, low self-esteem, harmful stress, and insufficient social support trigger suicide.

Studies in literature state that cyberbullying victims live with the thought that they cannot get rid of their psychological situation, which may increase suicidal ideations. All these findings reveal the need to focus on cyberbullying victimisation and smartphone addiction and to take precautions. Thus, it may be recommended that non-governmental organizations fighting addiction should be established. Experts for technology addiction and cyberbullying should be employed in institutions such as ANATEM (Alcohol and Substance

Addiction Treatment Centre). More studies should be conducted on technology addiction. In addition, since cyberbullying and cyberbullying victimisation require interdisciplinary work, research centers on these subjects should be established in universities and carry out more studies focusing on these problems. Furthermore, the Ministry of National Education should carry out events to educate and raise awareness for administrators, teachers, students and families on these issues. In this process, the Ministry of National Education should cooperate with other stakeholders such as the Ministry of Health and universities.

The current study found that gender is not a significant predictor of suicidal ideation. It is seen that there are different findings in the literature regarding gender variable. Some studies found no difference between genders (Kjoller & Helweg-Larsen, 2000; Thomas, Crawford, Meltzer, & Lewis, 2002), while some studies show that women have more suicidal ideations than men (Molina & Duarte, 2006; Park, Schepp, Jang and Koo, 2006). Other studies found that men have more suicidal thoughts than women (Batıgün, 2005; Harriss, Hawton, & Zahl, 2005; Kumar, Mohan, Ranjith, & Chandrasekaran, 2006). Different findings have many reasons, which can be explained with the fact that the ages of the participants in each study are different, different variables such as suicidal ideation, suicidal tendency and suicidal attempt are measured in the studies, the various tools are used for measurement, and gender and perceptions can differ in different cultures and societies. The current study found no difference between genders. This finding may be explained by the fact that participants were from a similar social environment, and thus there was no difference in suicidal thoughts in terms of gender. Considering all these findings and differing views regarding gender, more detailed studies are required and recommended.

In this study, it is seen that the grade of the participants is not a significant predictor of suicidal ideations. Elevli (2012) found no significant difference between grade regarding suicide probability in adolescents. Considering the grade in which this study was conducted, since the participants are from similar age groups and similar living conditions, it can be thought that this situation was influential in the absence of a significant difference in suicidal ideations in terms of grade. However, considering that there are not many studies on grade and age, it may be recommended to carry out studies aiming at these variables in the future.

Limitation

The study has some limitations. One of these limitations is the number and level of participants. A limited number of participants from only one province is included in the research. In this respect, it is recommended to conduct more comprehensive studies at a national level for more generalizable results. In addition, students from two grades at the high school level were included in the study. This sampling characteristic limits the representation of both high school level and adolescents. In this respect, it can be suggested to conduct studies that will focus on adolescent age groups and participants from all grades of high school in future studies. The current study employed a questionnaire to gather data. Future studies can use smart bands, watches or phones to gather data for studying the relationship between smartphone addiction and cyberbullying. This study was conducted before the CoVid-19 outbreak. In this respect, considering that cyberbullying may also increase in parallel with the increase in smartphone addiction during the epidemic period, and considering that psychological negativities may occur due to the disease, it is recommended to conduct similar studies during and after the epidemic and to present comparative results.

Studies in literature state that cyberbullying victims live with the thought that they cannot get rid of their psychological situation, which may increase suicidal ideations. All these findings reveal the need to focus on cyberbullying victimisation and smartphone addiction and to take precautions. Thus, it may be recommended that non-governmental organizations fighting addiction should be established. Experts for technology addiction and cyberbullying should be employed in institutions such as ANATEM (Alcohol and Substance Addiction Treatment Centre). More studies should be conducted on technology addiction. In addition, since cyberbullying and cyberbullying victimisation require interdisciplinary work, research centers on these subjects should be established in universities and carry out more studies focusing on these problems. Furthermore, the Ministry of National Education should carry out events to educate and raise awareness for administrators, teachers, students and families on these issues. In this process, the Ministry of National Education should cooperate with other stakeholders such as the Ministry of Health and universities.

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