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Smartphone addiction, cyberloafing, stress and social support among university students: A path analysis

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ABSTRACT

The purpose of this study is to examine the relationships between smartphone addiction, cyberloafing, stress and social support. The research data were collected from 885 undergraduate students studying at a public university in Turkey using an online questionnaire. The relationship between the variables was tested by path analysis. The results of the research showed that class level, family income and place of residence had no significant effect on smartphone addiction, cyberloafing, stress and perceived social support. Smartphone addiction, stress and perceived social support differed significantly by gender. Stress has significant effect on cyberloafing and smartphone addiction, and cyberloafing has significant effect on smartphone addiction. Social support has a small but significant effect on cyberloafing, but it has no significant effect on stress. The results of the research are discussed with regard to higher education students and future studies.

1. Introduction

Alexander Graham Bell would probably never have predicted the current forms his invention would take when he introduced a new communication tool in Philadelphia in 1876 (Gorman & Carlson, 1990). Nowadays, the functions of this invention, which was designed for the sole purpose of transmitting speech, have become ever more diverse, first through mobile phones, and then through smartphones. Smartphones offer applications that appeal to people of all ages and attract users by functioning as mobile computers that they can carry everywhere with them. Smartphones are helpful in overcoming the challenges of everyday life, from organizing everyday tasks to maintaining communication, from entertainment and shopping to mobile learning. For smartphone users, the first thing they look at in the morning and the last thing they look at before sleeping is their smartphone (Lee, Chang, Lin, & Cheng, 2014). Besides the positive features that smart phones add to human life, there are also various negative effects. Problematic phone usage can be classified as 'dangerous' (using a mobile phone while driving), as 'inappropriate' (using it in cinema or class) and as 'overuse' (Walsh, White, & Young, 2007). It is possible that young people today, who have been called the 'Wired Generation' (Barnes, 2009), may overuse their smartphones and that this may cause social, familial and academic problems (Gökçearslan, Mumcu, Haşlaman, & Çevik, 2016).

In parallel with increasing technological development and use of smartphones, one of the issues that researchers have been working on extensively in recent times is addiction. In a survey on smartphone addiction, the level of addiction of undergraduate students was very high at 48% (Aljomaa, Qudah, Albursan, Bakhiet, & Abduljabbar, 2016). This addiction rate of undergraduate students is thought-provoking and significant (Doorn, 2011). These and other research results have further sparked academics' interest in the subject of smartphone addiction (Park, Kim, Shon, & Shim, 2013).

Smartphone addiction leads directly or indirectly to many different problems both inside and outside the classroom (Choi, Lee, & Ha, 2012). The use of smartphones for irrelevant activities in the classroom environment is called cyberloafing (Selwyn, 2008). Cyberloafing is considered to be a negative situation that leads to diminished academic success (Tang & Austin, 2009) and is associated with smartphone addiction (Gökçearslan, Mumcu, Haşlaman, & Çevik, 2016). As a result of phenomological research conducted with university students, smartphone addiction was found to cause anger problems, psychological disturbances in individuals, and disruption in daily work (Ko, Lee, & Kim, 2012). Young adults may also show signs of stress, sleep disturbances and depression that are associated with smartphone use (Thomee, Harenstam, & Hagberg, 2011). Moreover, it has recently been emphasized that the stress levels of university students are both worrying (Regehr, Glancy, & Pitts, 2013) and alarming (Bayram & Bilgel, 2008). Regehr, Glancy, and Pitts (2013) suggest that research should be conducted on how to lower the stress levels of university students. In

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the treatment of stress and related disorders, which are often referred to as psychological disturbances, one of the most important factors is receiving social support. The use of social support networks for stress reduction is one of the topics specifically described in the main reference books on psychology and health (Cohen & McKay, 1984).

This research aimed to reveal university students' perceptions of smartphone addiction, stress, cyberloafing and their social support networks through a path analysis. In the conclusion of the research, descriptive findings from the data collection tools and their relation to some demographic variables (gender, class level, place of residence and income level) will also be discussed. First, however, a literature review regarding the variables used in the study is given below.

2. Literature review

2.1. Smartphone addiction

When thinking about addiction, various different types, such as addictions to drugs, gambling, sex, eating and drinking, shopping, love and sports, may come to mind (Karim & Chaudhri, 2012). Whatever the type, addiction causes medical, psychological and social harm to the individual by removing freedom of choice (West, 2001). The rapid development and transformation of information and communication technologies has thus led to concepts of internet, gaming or smartphone addiction (Kwon, Kim, Cho, & Yang, 2013). The number of smartphone users in 2014 was 1.75 billion people (EMarketer, 2014a, 2014b). According to the data from 2016, 58.7% of the world's population (4.30 billion) was using mobile phones. Nearly half of this number (2.14 billion) is estimated to have been using smartphones (Emarketer, 2016). It is estimated that in 2017 there are 2.4 billion smartphone users (Murphy, 2017). According to Statista (2015), nearly 100 billion free applications had been downloaded from application ("app") stores by 2013. According to data from April 2017, 4.5 million applications are available to access in app stores (Statistica, 2017). By the way, students can not do without smartphone and a study showed that 42.6% of young adult have nomophobia (Yildirim, Sumuer, Adnan & Yildirim, 2016). Although different terms, such as "problematic mobile phone use", "habitual mobile phone use" and "extreme mobile phone use" have previously been used to describe mobile phone addiction in the literature (Kim & Byrne, 2011), nowadays the concept of the "smartphone", with its applications and computer-like features, is more frequently used. Therefore, the term "smartphone addiction" will be used in this study. "Such problematic mobile phone use can be considered to be an addiction-like behavior" (Takao, Takahashi, & Kitamura, 2009).The term "addiction" refers not to a dependency at the clinical level (Yellowlees & Marks, 2007).

Smartphone addiction can be defined as an individual's excessive use of a smartphone and its negative effects on her/his life as a consequence of her/his inability to control this behavior (Park & Lee, 2012). Smartphone addiction has been examined in light of four categories,"tolerance", "withdrawal", "excessiveness" and "functional disorder" (Lin et al., 2014). Overuse of smartphones is related to the following problems: sleep disturbances (Min, Jin-young, Hyun-Jin, & Hye-Jin, 2017); stress and depression (Thomee, Harenstam, & Hagberg, 2011); psychological distress (Chesley, 2005); physical and mental development problems (Hadlington, 2015; Park & Park, 2014); mental health issues (Choi, Lee, & Ha, 2012; Demirci, Akgönül, & Akpinar, 2015). However, most of the factors affecting smartphone addiction have not yet been elaborated (Pi, 2013).

2.2. Cyberloafing

Cyberloafing can be defined as the use of the internet for purposes that are not related to work during working hours (Lim, 2002). Perceived justice is expressed as the root cause of cyberloafing in the workplace (Lim, 2002). Cyberloafing is a withdrawal behavior (Askew et al., 2014), and "is a method of coping with certain workplace stressors" (Henle & Blanchard, 2008). It can lead to professional "burnout" in working life (Aghaz & Sheikh, 2016), but some positive effects have also been noted (Lim & Chen, 2012). Escaping from work stress and increasing creativity have been mentioned as positive aspects of cyberloafing (Block, 2001). Cyberloafing allows the worker to take a break from the work environment and re-focus on their work (Anandarajan & Simmers, 2005; Lim & Chen, 2012).

Cyberloafing at school has been defined as the use of the internet by students during lessons for activities that are not related to school work (Kalaycı, 2010). The working environment and learning environment are very different from each other, and students and employees differ significantly in terms of cyberloafing (Akbulut, Dönmez, & Dursun, 2017). Studies on cyberloafing in educational environments are relatively new and the surroundings and atmosphere of the workplace may not reflect those of the classroom environment (Akbulut, Dursun, Dönmez, & Şahin, 2016). Classroom and business environments differ in terms of how they are regulated, the rights of the employees and the students, the economic situation (e.g. cyberloafing in the form of shopping), the mode of communication, the daily schedule and the systems of monitoring (Akbulut, Dönmez, & Dursun, 2017). While the use of smartphones in learning activities offers mobile learning opportunities, cyberloafing has a negative impact on learning environments and processes (Wagner, Barnes, Lim, & Ferris, 2012), so there are both positive and negative aspects to it. Students may not achieve their learning goals if they use the online environment to meet their personal needs rather than to complete their learning activities in the classroom. The use of social networks and texting in the classroom negatively affect student achievement (GPA) (Junco, 2012). In the classroom environment, students use text messaging extensively, indicating that they are not even aware of the adverse effects of this type of cyberloafing on the learning process (Tindell & Bohlander, 2012).

2.3. Stress

Stress is a specific psychological condition that individuals experience in their lives (Gadzella, 1991). The stress that is part of everyday life today has become an integral part of the experience of the modern individual. The reason for this is the multitude of environmental factors threatening his/her wellbeing. Stress can be defined as a reaction to these threatening environmental factors (Allen, 1983; Arslan, 2017; Baloğlu & ve Bardakçı, 2010; Pehlivan, 1995; Selye, 1997). In the literature in the field two types of stress are generally discussed, beneficial eustress and distress (Le Fevre, Matheny, & Kolt, 2003). In the majority of these studies, a more intense focus has been put on distress.

Nowadays smartphones have become more multi-functional thanks to the applications they run. It is a fact known to everybody that the vast majority of university students carry a smartphone. Individuals, who are now able to access millions of applications using smartphones, also face different challenges. Samaha and Hawi's (2016) study showed that there is a positive relationship between smartphone addiction and stress. Shaw and Black (2008) came to the conclusion that inappropriate and excessive use of technology leads to impairment or distress. A similar result was also found by Hur (2006). Hur (2006) emphasized that the misuse of technology leads to psychological and mental health problems.

2.4. Social support and stress

In the last 50 years in particular there have been many medical studies on the importance of social support (familial support, support of friends, support of partner) for helping individuals to overcome their illnesses and continue to live a healthy life. Many different studies have shown that people who receive social support from their family and friends are healthier than those who do not have any social support (Uchino, Cacioppo, & Kiecolt-Glaser, 1996). There is a negative

relationship between social support and stress (Dunkley, Blankstein, Halsall, Williams, & Winkworth, 2000). The individual experiencing various events in the presence of social support is less distressed by those situations than those individuals without social support (Cox, Buhr, Owen, & Davidson, 2016).The importance of social support for helping an individual to understand a difficult situation and then to eliminate it has been emphasized (Söllner et al., 2001). For this reason, Kiss et al. (1995) stated that social support should be attained as early as possible in order for stress to be successfully relieved.

Given the negative relationship between social support and stress, which is demonstrated in the studies above, the life stress of an individual decreases as the amount of social support offered increases. Based on the results of a study by Chiu (2014) on university students, it can be predicted that social support may be related to smartphone addiction, if there is considered to be a positive relationship between stress and smartphone addiction. From this perspective it is possible to talk about the existence of a negative relationship between social support and smartphone addiction.

H1. Social support negatively affects stress.

2.5. Social support and cyberloafing

By manipulating social relations as well as behaviors regarding how information is searched for and accessed, the internet makes it possible for individuals to feel less lonely and at ease, making social support accessible at all times (Leung, 2007). The amount of social media use, which is one of the aspects of the internet that has an important role in cyberloafing (Andreassen, Torsheim,& Pallesen, 2014), has been found to be related to the perception of social support (Akbulut & Günüç, 2012). In another study, social support and cyberloafing (when playing computer games) were associated (Reinecke, 2009). It has been stated that people who are engaged in various activities such as socializing on the internet, and searching for entertainment and information are able to access positive social support. Smartphones play an important role in these usages of new media. There is a positive relationship between engaging in leisure time activities on the internet and social support (Leung & Lee, 2005). The following hypothesis has been suggested from these studies.

H2. Social support positively affects cyberloafing.

2.6. Stress and cyberloafing

For a variety of reasons, people need to reduce their stress to maintain their good mood and mental health. To reduce stress, the internet is used for “entertainment, relationship maintenance, social recognition, and information for stress reduction” (Leung, 2007). According to research, the use of social and entertainment mobile computers (tablets) has reduced stress (Leung, 2015). However, cyberloafing has a supporting role in solving practical and personal issues and problems (Lim & Chen, 2012). The relationship between stress and cyberloafing has been a topic in a variety of work-related studies involving employees (Henle & Blanchard, 2008; Runing, Sri, & Cahyadin, 2012). Cyberloafing is used to reduce stress levels (Lim & Chen, 2012). When people are stressed, they tend to enter into cyberspace. The following hypothesis has been suggested from these studies.

H3. Stress positively affects cyberloafing.

2.7. Stress and smartphone addiction

According to Regehr, Glancy, and Pitts (2013), the psychological stress levels of university students are of a worrisome dimension and this situation should be seriously addressed and stress reduced. The study included research conducted by university students in the United States, the United Kingdom, Canada and Turkey, emphasizing that the stress levels of undergraduate students in all countries are very high. This situation, which adversely affects the mental health of the students, is a vital problem for universities and one that must be resolved. Moreover, it has also been shown that there is a very important link between university students' life stress and their addiction to smartphones (Chiu, 2014). Life stress can be a predictor of smartphone addiction among students. Excessive telephone use can lead to very serious individual distress in the student (Lin et al., 2015). There are many studies in the literature that investigate the relationship between stress and smartphone addiction, and they reveal many similar results (Beranuy, Oberst, Carbonell, & Chamarro, 2009; Young & Rogers, 1998; Bian & Leung, 2015; Whang, Lee, & Chang, 2003). The following hypothesis has been suggested from these studies.

H4. Stress positively affects smartphone addiction.

2.8. Cyberloafing and smartphone addiction

Cyberloafing behavior can lead to a student's disengagement to class, lack of motivation and discipline problems (Arabaci, 2017). Cyberloafing and smartphone use are associated with sleep problems (Wagner, Barnes, Lim, & Ferris, 2012). This relationship negatively affects university students. “Cyberloafing is a habit and could result in problematic behavior”. Compulsive cyberloafing behavior is associated with addictive behavior and addiction is a category of cyberloafing (Doorn, 2011). The smartphone addiction study with college students by Gökçearslan, Mumcu, Haşlaman, and Çevik (2016) supports the hypothesis that smartphone addiction and cyberloafing are related. In this context, the following hypothesis has been proposed.

H5. Cyberloafing positively affects smartphone addiction.

In accordance with these hypotheses, the path diagram model presented in Fig. 1 has been tested.

3. Method

3.1. Participants

885 undergraduate students from a public university in Ankara, the capital of Turkey, participated in the study. Students participated in the study on a voluntary basis. Demographic information of participants is given in Table 1.

According to Table 1, 364 participants (41%) were male and 521 (59%) were female. When looking at class levels, 263 participants (30%) were in their first year, 467 (53%) in their second year, 71 (8%) in their third year and 84 (9%) in their fourth year. According to the family income, 50 (5.6%) of the participants' families had an income below the minimum wage, 220 (24.9%) were at the minimum wage, 252 (28.5%) earned two times the minimum wage, 151 (17.1%)

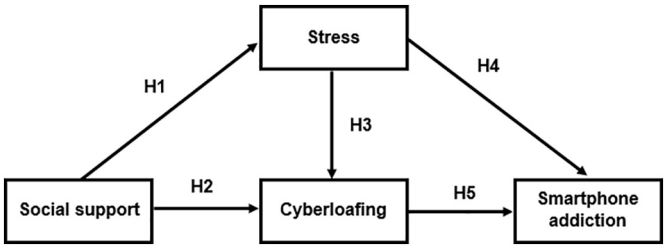


Fig. 1. Hipotetical diagram.
H1: Social support negatively affects stress; H2: Social support positively affects cyberloafing; H3: Stress positively affects cyberloafing; H4: Stress positively affects smartphone addiction; H5: Cyberloafing positively affects smartphone addiction.

Table 1
Participant demographic features.

Variable	n(%)
Gender	
Female	521 (59%)
Male	364 (41%)
Class level	
1st class	263 (30%)
2nd class	467 (53%)
3rd class	71(8%)
4th class	84(9%)
Place of residence	
Family	384 (43.4%)
Public dormitory	212 (24%)
Private house	155 (17.5%)
Private dormitory	111 (12.5%)
Relatives	23 (2.6%)
Family income status	
Under minimum wage	50 (5.6%)
Minimum wage	220 (24.9%)
2 times minimum wage	252 (28.5%)
More than 2 times the minimum wage	151 (17.1%)
3 times minimum wage	88 (9.9%)
More than 3 times the minimum wage	124 (14%)

received more than twice the minimum wage, 88 (9.9%) received three times the minimum wage and 124 (14%) earned than three times the minimum wage (The minimum wage in Turkey during the data collection period was at the level of 400 $). Lastly, place of residence is examined, 384 (43.4%) were living with their family, 212 (24.0%) were living in a public dormitory, 155 (17.5%) were in a private house, 111 (12.5%) were in a private dormitory and 23 (2.6%) were living with their relatives.

3.2. Data collection tools

3.2.1. Smartphone addiction scale (SAS)

The Smartphone Addiction Scale (SAS) was developed by Kwon et al. (2013) to measure young people's smartphone addiction. The scale was adapted into Turkish by Noyan, Darçın, Nurmedov, Yilmaz and Dilbaz (2015) in a study group covering 367 undergraduate students. The one-factor scale, which contains 10 items, was a 6-point Likert-type (1 = “I absolutely disagree”, 6 = “I absolutely agree”). The Cronbach's Alpha internal consistency coefficient was 0.87 and the test-retest reliability coefficient was 0.93. The scale showed a significant correlation with the Internet Addiction Scale. In the study sample (n = 885), construct validity for SAS was tested by principal extraction method and the one-factor structure of scale was verified.The KMO and Bartlett's sphericity tests showed that the sampling was sufficient for factor analysis. It was seen that the scale items had load values in the range of 0.50 and 0.79. The one-factor structure of the scale revealed 42.2% of the total variance and the internal consistency was found to be 0.885.

3.2.2. Perceived social support scale (PSSS)

The Perceived Social Support Scale (PSSS) was developed by Zimet, Dahlem, Zimet, and Farley (1988). The adaptation into Turkish was done by Eker, Arkar, and Yaldız (2001) with data obtained from a sample group of 150 people. The scale, which explains 75% of the total variance, consists of 12 items and 3 dimensions and is a 7-point Likert-type scale (1 = ‘Absolutely no’, 7 = ‘Absolutely yes’). The dimensions consist of family, friends and life partner (wife or girlfriend, husband or boyfriend). The Cronbach's Alpha internal consistency coefficient for all samples was 0.89. The scale showed significant correlations with social support, loneliness, hopelessness, negative social relationship and symptom checklist scales. The scale was used and adapted for various samples including university students (Başol, 2008; Batigün & Kiliç, 2011; Duru, 2007; Gunuc & Dogan, 2013). In the sample of the study (n = 885), the three-factor structure for PSSS (family support, friend support, partner support) was confirmed by principal extraction, 77.97% of the total variance was explained, and the load values of the items changed between 0.95 and 0.73. The KMO and Bartlett's sphericity tests showed that the sampling was sufficient for factor analysis. For the factors, Cronbach's alpha coefficients were found to be high (family support: 0.897, friend support: 0.932; partner support: 0.962).

3.2.3. Stress scale (SS)

The Stress Scale (SS), developed by Cohen, Kamarck and Mermelstein (1983) to measure how stressful individuals perceived their lives to be, is a 5-point, two-factor Likert-type scale with 10 items. The scale was adapted into Turkish by Eskin, Harlak, Demirkıran, and Dereboy (2013). The Cronbach's Alpha internal consistency coefficient of the scale was 0.82 and the test retest reliability coefficient was 0.88 (Eskin, Harlak, Demirkıran, & Dereboy, 2013). A pereception of stress was positively associated with depression, and negatively associated with life satisfaction, self-esteem and perceived social support scores (Eskin, Harlak, Demirkıran, & Dereboy, 2013). In the sample of the study (n = 885), the two-factor 10 item structure for SS (perceived distress and inadequacy) was confirmed by principal extraction. In the factors, the load values ranged between 0.54 and 0.77 and the two-factor structure explained 51.23 of the total variance. KMO and Bartlett's sphericity tests showed that the sampling was sufficient for factor analysis. For the factors, Cronbach's alpha coefficients were found to be high (perception of distress: 0.864; perception of inadequacy: 0.769).

3.2.4. Cyberloafing scale (CS)

The Cyberloafing Scale (CS) was developed by Akbulut, Dursun, Dönmez, and Şahin (2016). The scale is a 5-point Likert-type and consists of a total of 30 items and 5 factors (sharing, shopping, real-time updating, accessing online content, and gaming/gambling). The Cronbach's Alpha internal consistency coefficient values of the factors were reported to be between 0.79 and 0.94 (Akbulut, Dursun, Dönmez, & Şahin, 2016). In the study sample (n = 885), the factor analysis results for the CS confirm that the 5-factor structure of the original scale (sharing, shopping, real-time updating, accessing online content, gaming/gambling) was verified. The principal extraction method was used for factor analysis and the KMO and Bartlett's sphericity tests showed that the sample was sufficient for factor analysis. The load values of the items varied between 0.45 and 0.93 and the 5-factor structure explained 62.1% of the total variance. The Cronbach's Alpha coefficients showed a high level of reliability for each factor (sharing: 0.914; shopping: 0.855; real-time updating: 0.934; accessing online content: 0.913; gaming/gambling: 0.723).

3.3. Data collection and analysis

Requests for participation in the survey were sent to undergraduate students by e-mail and data were collected from 885 students participating voluntarily via online questionnaires. On the first screen of the survey, information, including a research permit, and instructions were presented. The survey was set to take 15 min to complete on average.IBM SPSS Statistics 20 for descriptive statistics and IBM SPSS AMOS 22 software was used for path analysis.

4. Findings

Findings are presented by first providing the results of path model and their relation to some demographic variables.

The path analysis results based on the total scores obtained from data collection tools are presented in Fig. 2. According to these results, the hypothesized path between perception of social support and stress (H1) was not significant and was removed from the model. On the other

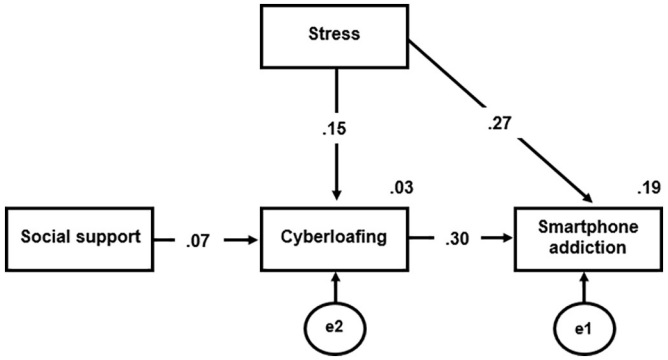


Fig. 2. Path diagram.

hand, the perception of social support and cyberloafing was found to be significant (r = 0.07) (p < .05) and H2 was accepted. H3 (the effect of stress on cyberloafing) was also significant (r = 0.15, p < .001), but only a small percentage (3%) of the perception of cyberloafing could be explained. This conclusion shows the presence of other variables in the model which are not included in the scale. On the other hand, the effect of stress on smartphone addiction was significant (r = 0.27, p < .001) and H4 was accepted. In addition, it was observed that cyberloafing was the variable with the highest effect on the smartphone addiction among the variables in the scale (r = 0.30, p < .001). Moreover, the indirect effect of stress on smartphone addiction was found to be low (r = 0.044) and the effect of the perception of social support was lower (r = 0.022). The entire model is able to explain the 19% of smartphone addiction. In addition, the model fit test of the scale was found to be high (X2/dF = 1.322/2 = 0.661, RMR =0.013, RFI =0.981, NFI = 0.994).

In the findings derived from the model, it was seen that stress had a significant effect on cyberloafing and smartphone addiction, and that cyberloafing had a significant effect on smartphone addiction. While the perception of social support had a small but significant effect on the cyberloafing, it was found that it had no significant effect on the stress.

Descriptive findings showed that participants sometimes suffer from stress (X = 3.05). Cyberloafing and smartphone addiction were low (X = 2.58; X = 2.79), and perceptions of social support were moderate (X = 4.79). On the other hand, one-way analysis of variance showed that class level, familial income, and place of residence had no significant effect on the findings. In addition, after using the independent samples *t*-test gender was also found to have an effect on some variables by Table 2.

The findings presented in Table 2 show that women (n = 521) were found to have significantly higher levels of smartphone addiction (t883 = 4.119; p < .001), perceived stress (t883 = 4.642, p < .001), and perceived social support (t883 = 3165; p < .01) than men (n = 364). There was no significant difference in the level of cyberloafing by gender.

Table 2
Descriptive findings and independent sample *t*-test results by gender.

		M	SD	t	p
Smartphone addiction	Male	2.615	1.024	4.119	0.000
	Female	2.914	1.090		
Cyberloafing	Male	2.619	0.775	1.401	0.162
	Female	2.544	0.789		
Stress	Male	2.952	0.528	4.642	0.000
	Female	3.118	0.517		
Social support	Male	4.607	1.477	3.165	0.002
	Female	4.910	1.347		

p < .05.

5. Results and discussion

Today's students have been referred to as the 'Wired Generation' (Barnes, 2009). Smartphones are their technology of choice for connecting to the internet in their everyday lives. Smartphones are creating new interactive spaces in all aspects of life, from communication to education, from shopping to citizenship, from socializing to health, and in general they make our lives easier. However, this technology has led to negative psychological and social effects on the learning processes of students (Aljomaa, Qudah, Albursan, Bakhiet, & Abduljabbar, 2016). Students may lose their interest, attention, motivation and self- control in the classroom environment as a result of popular smartphone applications and their learning processes may be interrupted (Lee, Cho, Kim, & Noh, 2015). This study examined the relationship between smartphone addiction, stress, cyberloafing and social support. In addition, the relationship between these variables and some other factors, such as class level, familial income and place of residence were examined within the scope of the research.

Descriptive findings showed that class level, familial income and place of residence did not have a significant impact on higher education students' smartphone addiction, cyberloafing, perceived stress or social support. Issues around stress and social support are more likely to be found in divorced families (Cairney, Boyle, Offord, & Racine, 2003). There are significant differences in stress and the perceptions of social support of individuals who have grown up with only one parent or who have grown up without either parent. Socioeconomic level has no significant effect on the perception of stress and social support. In their work with Australian students, Phongsavan, Chey, Bauman, Brooks and Silove (2006) found that the variables that lowered the level of stress were being healthy, and feeling safe and secure. Al-Barashdi, Bouazza, and Jabur (2015) highlighted the expectation that individuals with high socioeconomic levels would use mobile devices more (because they can afford to pay higher prices). According to the literature review they conducted, different results were found in familial income and smartphone usage. In a recent study, familial income and class levels did not have a significant effect on smartphone addiction (Yuchang, Cuicui, Junxiu, & Junyi, 2017). In another study conducted with high school students, there were differences in the level of cyberloafing according to class level (Baturay & Toker, 2015). The place of residence and smartphone addiction were also found to be related. Students living in college/university dormitories showed more addictive behavior (Mohammadbeigi et al., 2016).

According to the results of the current study, there is no significant difference in cyberloafing by gender. However, in other studie, it was determined that male students participate more in cyberloafing (Baturay & Toker, 2015). In this study, smartphone addiction, perceived stress, and perceived social support were higher in women. Similar findings were found in other studies (Demirci, Akgönül, & Akpinar, 2015; Hawi & Samaha, 2016). In contrast, Kwon and Paek (2016) found no significant relationship between gender and smartphone addiction. Van Deursen, Bolle, Hegner, and Kommers (2015) found that girls had more stress than boys and that they had a higher risk of developing smartphone addiction. The stress experienced by female students should be considered in reducing smartphone addiction.

Path analysis found that social support has no effect on stress. This result is not in line with the results of the other studies in the literature. When the literature is examined, there is a direct and inverse relationship between social support and stress (Pinto, Correia-Santos, Levendosky, & Jongenelen, 2016). Social support is used to eliminate the stressful situation experienced by the individual (Lee & Goldstein, 2016). It is stated that social support is required as early as possible in the case of stress and it will affect the individual positively by reducing stress (Nagatti, Anina, Daigle, & O'Brien, 2016). In this context, it is beneficial for the university administration to monitor and evaluate university students with high levels of stress (Denovan, Dagnall,

Dhingra, & Grogan, 2017). It can be predicted that the university administration providing mechanisms to reduce stress and provide social support will contribute positively to the development and learning of students. In addition, the perception of social support has a small but significant effect on cyberloafing.

Stress has a significant positive effect on the smartphone addiction, and this result is in line with other research findings indicating that an increase in stress level causes an increase in smartphone addiction (Chiu, 2014; Deursen, Bolle, Hegner, & Kommers, 2015; Kim & Lee, 2012). Addiction emerges as a way of coping with life stress (Chiu, 2014). Academic status, interpersonal communication, family and the emotional stress levels of university students affect smartphone addiction positively (Chiu, 2014). Another finding of the model is that stress has a positive effect on cyberloafing. The higher the stress, the higher the degree of cyberloafing. Cyberloafing is a way to reduce stress (Lim & Chen, 2012). To reduce smartphone addiction, stressful factors in campus life must be minimized and students should be supported in order to reduce stress.

Another result confirmed in the path model is the positive effect of cyberloafing on smartphone addiction. Similarly, Gökçearslan, Mumcu, Haşlaman, and Çevik (2016) found that there was a positive relationship between smartphone addiction and cyberloafing. An increase in cyberloafing will increase the smartphone addiction. These two variables will also have a negative effect, as learning processes are adversely affected. The dissatisfaction of students with the education provided to them was found to be related to cyberloafing (Zoghbi-Manrique-de-Lara, 2012). Uninteresting and poorly planned classes, problems with campus life or other problems can be a cause of the cyberloafing. As a result of these negative issues, students may resort to cyberloafing to try and change their moods and feel better.

6. Conclusion and recommendations

There was a significant difference between genders in terms of perceived social support, stress, and smartphone addiction, but there was no significant difference between genders in terms of cyberloafing. It was found that smartphone addiction, stress levels and perceived social support were higher among female students. For this reason, gender is an important variable that needs to be considered in studies and practices related to smartphone addiction. The demographic variables indicate that smartphone addiction, cyberloafing, and stress should be tested in different samples and with different measurement tools. Intercultural comparisons and comparisons with different measurement tools may be useful in understanding what effects these have. It would also be beneficial to consider the individual characteristics of those studied.

Cyberloafing and stress have been shown to have an effect on smartphone addiction. Social support has a low effect on cyberloafing. The explanatory rate of the proposed model for smartphone addiction was found to be 19%. New variables could be added to the model in a similar way in order to assess the unexplained parts. It was found that social support did not have an effect on stress, and had a low effect on cyberloafing. Differences in the findings in the literature may be due to differences in cultural influences and attitudes and to differences in the tools used to measure these variables.

Conflict of interest

There is no Conflict of interest.

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