Online Addictions Among Adolescents and Young Adults in Iran: The Role of Attachment Styles and Gender

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Abstract

The present study aimed to investigate the role of attachment styles and gender among different online addictions (social media addiction, online gaming addiction, and internet addiction) among adolescents and young adults via an online survey. The participants comprised 943 Iranian students (440 females) selected by multi-stage cluster sampling. The survey included the nine-item form of the Problematic Internet Use Questionnaire (Laconi et al., 2019), nine-item Internet Gaming Disorder Scale-Short Form (Pontes & Griffiths, 2015), Bergen Social Media Addiction Scale (Andreassen et al., 2016), and Parent and Peer Attachment Styles Questionnaire (Gullone & Robinson, 2005). The results showed that online addictions were negatively correlated with secure attachment style, while insecure styles were positively correlated with all three types of online addiction. The results also showed that young adults were more involved in online activities, online addictive behaviors increased with age, and online gaming addiction was more prevalent among males than females. These findings indicate that individuals with a secure attachment style are less susceptible to online addictions and individuals with an insecure attachment style report more online addiction.

Introduction

The internet and the activities that can be engaged on it help individuals in various ways including connecting individuals and easily accessing different types of information (D'Arienzo, Boursier, & Griffiths, 2019). The usage of the internet and social networks has increased significantly in Iran as a developing country. In Iran, out of a population of about 84 million people, there are about 59 million Internet users, of which 36 million Iranian Internet users are active in social networking and more than 24 million are users of mobile online games (Statista, 2021). Internet penetration in Iran was approximately 70% as of January 2021 (Kemp, 2021).

As a result of this increase, it is believed that addictive internet use has increased among young people and adults (Ostovar, Bagheri, Griffiths, & Mohd Hashima, 2021) As respects the circumstance in Iran, there's expanding evidence that too much screen time and web gaming have gotten to be major public wellbeing concerns (Abdoli et al., 2021). Moreover, recent empirical research findings evidence has shown an association between addictive disorders and adult attachment styles (D'Arienzo et al., 2019; Shaver, Mikulincer, Gross, Stern, & Cassidy, 2016). Research has shown that the two primary dimensions of attachment (i.e., avoidance and anxiety; fear of abandonment or fear of rejection) are related to various factors, including the intensity and experience of using Facebook, social networking addiction, the severity of SNS use, internet use, and internet addiction (D'Arienzo et al., 2019). A growing concern among parents, teachers, policymakers, and researchers is adolescent addictive use of the Internet and social networks (Peris, de la Barrera, Schoeps, & Montoya-Castilla, 2020). Therefore, the purpose of this study was to investigate the role of attachment styles and gender in online addictions among adolescents and emerging adults in Iran.

Online addictions

Despite the immense benefits of the internet, research has consistently shown that a small minority of individuals, especially adolescents, are at risk of problematic online activities including problematic social media use and gaming disorder (Yang, Chen, Huang, Lin, & Chang, 2017). Problematic internet use (PIU) is defined as excessive or inappropriate use of the internet that causes clinical impairment to an individual's daily life and impacts detrimentally on relationships, education, and/or occupation (Stavropoulos et al., 2017). PIU has been frequently associated with psychopathologies such as depression and anxiety (Liang, Zhou, Yuan, Shao, & Bian, 2016), and other addictive disorders (Durkee et al., 2016; Laconi, Tricard, & Chabrol, 2015). PIU is not formally recognized as a disorder (Laconi et

al., 2015), but researchers consider addictions on (or to) the internet to be technological addictions (Griffiths, 1995; Griffiths, Kuss, & Demetrovics, 2014; Błachnio, Przepiórka, & Pantic, 2015). Research results show that the amount of time spent online during the week, especially at weekends, is associated with PIU (Laconi et al., 2015; Wanajak, 2011; Xu et al., 2012).

Using social networks is one of the foremost prevalent online activities. By 2020, more than 3.6 billion people were using social media worldwide Statista (2021). As of January 2020, the use of global social media was 49% Statista (2021). In Iran, the number of social network users has more than doubled from 2017 to 2021, and 61% of the population are currently social network users Statista (2021). In January 2021, 42.6% of the total population in Iran used social media (Kemp, 2021).

In recent years, social media use has become an inseparable part of the lives of adolescents and emerging adults (Masthi, Pruthvi, & Phaneendra, 2018; Yavich, Davidovitch, & Frenkel, 2019). Social media platforms help "social interaction between people who create, share, or exchange information and ideas in networks and cyberspace" (Carlson, Zivnuska, Carlson, Harris, & Harris, 2016). Moreover, it has dramatically changed the way individuals interact with one another and the world (Pittman, 2018). Social media has also had a major impact on lifestyle, language communication, and interests as well as the health and well-being of individuals (Köse & Doğan, 2019). Social media use is a particular type of internet usage and its popularity steadily increases and has been said to contribute to an increase in rates of internet addiction (Zivnuska, Carlson, Carlson, Harris, & Harris, 2019).

Among a minority of individuals, the highly interactive nature of social media networks can lead to addictive behaviors of monitoring and posting (Zivnuska et al., 2019) such that overuse may lead to negative outcomes (Griffiths, Pontes, & Kuss, 2016), as well as psychological, social, and occupational disorders (Carbonell & Panova, 2017). Social media

addiction is a new type of addiction that affects the general population but appears to be more prevalent among young people (Gómez-Galán, Martínez-López, Lázaro-Pérez, & Sarasola Sánchez-Serrano, 2020). It can be defined as excessive participation or attachment to SNS activities and usually causes problems in daily social functioning (Alzougool, 2018).

Games are considered an integral part of human behavior and experience (Paulus, Ohmann, Von Gontard, & Popow, 2018). Due to the features of online videogames (unlimited use, free access, high social interaction, and instant rewards), online gaming has become a common and important part of adults' and adolescents' daily activities (Müller, Beutel, Egloff, & Wölfling, 2014) and is one of the most popular contemporary recreational activities among adolescents and young adults (Mentzoni, 2011). Despite the benefits of videogame playing (e.g., entertainment and socialization), ongoing clinical and experimental research suggests that excessive use of videogames may negatively affect various areas of psychological performance and can lead to addiction in some gamers (Kowert, Festl, & Quandt, 2014; Torres-Rodríguez, Griffiths, Carbonell, & Oberst, 2018).

Gaming disorder (GD) is characterized by declining in control over gaming, which leads to increased gaming time and negative consequences in many aspects of an individual's life including personal, family, social, occupational, and other performance-related areas (World Health Organization, 2018). This usually manifests itself in the form of physical and mental dependence and social dysfunction due to problematic online gambling (Rehbein & Baier, 2013) and has been termed internet gaming disorder (IGD) by APA (American Psychiatric Association, 2013). One of the primary symptoms of IGD is the constant preoccupation with online gaming. Hence, it is difficult for individuals with IGD to control or reduce their playing time, and they may encounter negative consequences such as social isolation, conflict with family members, loss of control, and fatigue, relationship problems, jeopardizing jobs and/or educational activities, apathy towards other activities, playing games

to escape everyday difficulties or managing mood swings, an increase in daily gaming over time (i.e., tolerance), and withdrawal symptoms (King, Haagsma, Delfabbro, Gradisar, & Griffiths, 2013; Petry & O'Brien, 2013).

Among these are various theoretical models of technology-based addictions, the components model of addiction (Griffiths, 2005) has arguably been the most widely used to conceptualize many technology-based addictions including social media addiction (SMA) (Cerniglia et al., 2019). Griffiths (2005) operationally defined addictive behaviors as comprising six core components: salience, tolerance, mood modification, conflict, withdrawal, and relapse. Any behavior comprising all six symptoms can be defined as an addiction (Griffiths, 2005). Therefore, excessive social media can be considered an addictive behavior if it features all these core components (Andreassen, 2015). In relation to internet addiction more generally, research has indicated that it is a complex psychological phenomenon that is influenced by multiple factors, including psychological factors such as attachment styles (D'Arienzo et al., 2019). Therefore, it is necessary to examine the association between some of these variables and internet addiction (Zhang et al., 2018).

Online addictions and attachment styles

Research has identified a solid association between attachment and drug use among adolescents (Becoña, del Elena, Amador, & Ramón, 2014). Consequently, attachment styles are likely to be important determinants of online addictive behaviors (Monacis, de Palo, Griffiths, & Sinatra, 2017). Attachment styles may affect the time spent on the internet and can be utilized as a framework for understanding the reasons for using social networks (D'Arienzo et al., 2019). Research suggests that secure attachment creates a positive image for users and others, enhances trust in social interplays, and may supports positive relationships offline and online, reducing the probability of increasing PIU (Savcı & Aysan, 2016). In contrast, the insecure attachment may lead to feelings of anxiety in real-life social

interactions and provide the medium of internet-based communication as a strategy for avoidance and compensation (D'Arienzo et al., 2019; Monacis et al., 2017). In addition, research has shown that attachment to mother and father was differently related to PIU in that avoidance style (mother) and anxiety (father) were directly related to PIU (Marci, Marino, Sacchi, Lan, & Spada, 2021).

Evidence shows that individuals with anxiety attachment use social networking sites more than avoidance (Chen, 2019), and research indicates a positive and significant association between insecure attachment (avoidance and anxiety) and severe and inefficient use of the internet and social networks (D'Arienzo et al., 2019; Jenkins-Guarnieri, Wright, & Hudiburgh, 2012). A study by Shafiee, Ashouri, and Dehghani's study (2020) among Iranian university students reported a significant association between the worry-ambivalent attachment style and the disorganize-ambivalent attachment style and the social networking site addiction. As a result, individuals with high anxiety attachment and low avoidance attachment may be prone to negative consequences due to the harmful use of social media (Young, Kolubinski, & Frings, 2020).

Studies on the association between parental attachment, peer attachment, and IGD have reported mixed findings. Several studies have found a weak correlation or lack of direct correlation between parental attachment and IGD (King & Delfabbro, 2017; Throuvala, Janikian, Griffiths, Rennoldson, & Kuss, 2019). However, most studies have indicated that perceived insecure attachment (e.g., low trust, lower communication levels, and higher alienation levels) is more common among individuals with IGD (Estevez, Jauregui, & Lopez-Gonzalez, 2019; Throuvala et al., 2019; Wang, Ho, Chan, & Tse, 2015). Other studies have shown that gaming addiction may be associated with poor parent-adolescent attachment (Kim & Kim, 2015; Lee & Kim, 2017).

Online addictions and age

Modern teenagers born in the digital world are encompassed by computers, the internet, video games, and smartphones in every aspect of their lives, at home and school (Tunc-Aksan & Akbay, 2019). Given that the use of social network platforms (e.g., *YouTube* and *Instagram*) is quite common among adolescents (Bányai et al., 2017), adolescents using social networks can be exposed to risk and harmful effects, and increase the probability of addiction (Andreassen, Torsheim, Brunborg, & Pallesen, 2012; Griffiths et al., 2016). Social media addiction in adolescents reduces academic performance, increases behavioral problems, and decreases social commitment (Bányai et al., 2017; Mérelle et al., 2017). Adolescents are more likely to have difficulty in controlling their internet use impulses (Griffiths et al., 2014; Spada, 2014). This type of online addictive behavior appears harmful to adolescents (Boer, Stevens, Finkenauer, & van den Eijnden, 2020). For example, PIU has been associated with poor psychosocial functioning (Boer et al., 2020).

Internet communication through social networking sites is increasing rapidly among adolescents and adults (D'Arienzo et al., 2019), and excessive interest in social networking sites can contribute to social media addiction (Kirik, Arslan, Çetinkaya, & Mehmet, 2015). In this regard, Hawi and Samaha (2017) showed that young individuals with lower self-esteem were more likely to spend time on social media. Poor mental health may cause social media addiction (Huo & Turner, 2019). Individuals with addictive eating patterns have more limited plans for alternative activities and spend most of their free time engaging in potentially addictive behaviors (Mahamid & Berte, 2019).

Adolescents and young adults are more at risk of developing IGD and avoiding face-to-face interaction (Kato, Shinfuku, & Tateno, 2020; Yong & Nomura, 2019). In addition, adolescents widely play video games, and their use has clear psychological, social, and cognitive benefits (Stavropoulos et al., 2017). Studies on the relationship between age and online addictions has reported mixed findings. For example, some research has found no

difference in social media addiction among adolescents and young adults (Simsek, Elciyar, & Kizilhan, 2019), whereas Monacis et al. (2017) reported significant age differences between adolescents and emerging adults (i.e., adolescents reported higher scores than emerging adults for internet gaming disorder, internet addiction, and social media addiction).

Online addictions and gender

Research suggests that gender differences may affect PIU because gender affects time spent on the internet and online activities (Laconi et al., 2015). With respect to gender, some research suggests that PIU is greater among males than females (Durkee et al., 2016; Gómez, Rial, Braña, Golpe, & Varela, 2017), while in other studies, PIU is higher among females than males (Lopez-Fernandez, 2018; Machimbarrena et al., 2018; Munno et al., 2017). Also, research has indicated that gender predicts the use of social networks. In particular, females are more likely to use social media and send text messages, and males are more likely to play and be addicted to videogames (Andreassen, Pallesen, & Griffiths, 2017; Van Deursen, Bolle, Hegner, & Kommers, 2015; Wang et al., 2015; Wittek et al., 2016).

Some research found greater addictive use of social media among males (Çam & Isbulan, 2012; Ryan, Chester, Reece, & Xenos, 2014). However, ongoing studies suggested a higher prevalence of the addictive use of social media among females compared to males (Andreassen, 2015; Griffiths et al., 2014). In Iran, Mousavi (2020) reported higher levels of internet addiction among males than females, and adolescents having higher levels of internet addiction than emerging adults. Poorolajal et al. (2019) reported that 3.27% of university students experienced PIU. Also, Azizi et al. (2019) reported that social network addiction among male university students was significantly higher than female university students.

Research investigating the addictive use of the internet and social media across cultures helps to better understand this issue both demographically and psychosocially

(Laconi et al., 2019). According to prior theoretical and empirical research, the present study proposed the following hypotheses (Hs) and research questions (RQ):

H_1: Online addictions will be negatively associated with a secure attachment style.

H_2: Online addictions will be positively associated with dismissive-avoidance attachment as well as anxious-preoccupation attachment styles.

RQ: Are individual differences (gender and age) associated with online addictive behaviors?

Methods

Participants and procedure

The present study was cross-sectional correlational research conducted among Iranian students in 2020. Multi-stage clustering was used as the sampling method and at each stage, a lottery was used to randomly select the districts, educational establishments, and participants. In the adolescent group, in the first stage, four districts were randomly selected. In the second stage, 12 schools were randomly selected. In the third stage, three classes from each school (i.e., 36 classes in total) were randomly selected. In the final stage, 11 high school students from each class were selected at random and were asked to complete the survey. In the young adult group, in the first stage, among the faculties of Hormozgan University, four faculties including Management, Humanities, Technical and Engineering, and Science were randomly selected. In the second stage, three fields of study from each faculty (i.e., 12 fields of study in total) were randomly selected. In the third stage, two classes from each field of study (i.e., 24 classes in total) were randomly selected. In the final stage, 24 university students from each class were selected at random and were asked to complete the survey. All participants were informed that participation in the study and answering the survey questions were entirely voluntary and they were asked to provide honest answers to the questions. Moreover, the participants were assured confidentiality and anonymity of their answers. In total, 943

surveys were completed (440 females and 503 males). Basic demographic data were collected including gender, age, education, and employment status, as well as information on internet use. Using an open-ended question, the duration of internet use during weekdays and weekends was assessed separately. Based on the information collected, the participants were divided into two age groups: the adolescent group (N=372) included individuals aged 17 to 19 years, and the young adult group (N=571) included individuals aged 20 years or older.

Measures

Weekly social media use: To assess social media use on computers or other devices (such as smartphones), two variables were combined: (i) "*How many days of the previous week did you spend using the internet for social media use*?" (range of 0 days to 7 days); (ii) in the past 30 days, on average, how many hours a day did you spend on average using the internet for social media use? (*I do not use social media/less than half an hour/1 hour/2 to 3 hours/4 to 5 hours/more than 6 hours*).

Nine-item Internet Gaming Disorder Scale–Short-Form (IGDS9-SF Pontes & Griffiths, 2015; adapted to Persian by Wu et al., 2017). The IGDS9-SF was used to assess the risk of IGD utilizing the *Diagnostic and Statistical Manual of Mental Disorders* (DSM–5) criteria [35]. The nine items assess the severity of IGD and its adverse effects over 12 months. Items (e.g., "*Do you feel more irritability, anxiety, or even sadness when you try to either reduce or stop your gaming activity*?") are rated on a five-point scale from 1 (*never*) to 5 (*very often*). The total score ranges between 9 and 45. Higher scores indicate a greater risk of IGD. In the present study, the scale showed very good internal consistency (α=.88).

Nine-Item Problematic Internet Use Questionnaire (PIUQ-9; Laconi et al., 2019; adapted to Persian by the authors of the present study): The PIUQ-9 was used to assess the risk of PIU comprising three 3-item subscales (i.e., obsession, neglect, and control disorder). Items (e.g., "*Do you spend time online when you'd rather sleep*?") are rated on a five-point

scale from 1 (never) to 5 (always/almost always). The total score ranges between 9 and 45. Higher scores indicate a higher risk of developing PIU. In the present study, the scale presented with very good internal consistency (α=.87).

Bergen Social Media Addiction Scale (BSMAS, Andreassen et al., 2016; adapted to Persian by Lin, Brostrom, Nilsen, Griffiths, & Pakpour, 2017). The six-item BSMAS was used to assess the risk of social media addiction and is based on the components model of addiction (Griffiths, 2005). Items (e.g., "*How many times in the last year have you tried unsuccessfully to reduce the use of social networks?*") are rated on a five-point scale from 1 (*rarely*) to 5 (*very often*). The total score ranges between 6 and 30. A score higher than 19 indicates that the person is at risk of problematic use of social media use. In the present study, the scale presented with very good internal consistency (α=.82).

The Attachment Style Questionnaire, (ASQ; Feeney et al. 1994; adapted to Persian by Khodabakhsh, 2012) is a 40-item test that measures attachment styles in five areas: *Confidence* indicating a sense of security in relationships with individuals (secure attachment style), *Need for Approval* (*NfA*) and *Preoccupation with Relationship* (*PwR*) reflecting the concept of anxious-preoccupied attachment style, *Discomfort with Closeness* (*DwC*) and *Relationship as Secondary* (*RaS*) indicating the aspects of dismissive-avoidant attachment style. Items (e.g., "*I feel confident that other people will be there for me when I need them*") are rated on a six-point scale ranging from 1 (*total disagree*) to 6 (*totally agree*). The range of scores is between 1 and 126 which higher scores representing greater attachment. Previous studies reported acceptable internal consistency and test–retest reliability (Fossati et al., 2003). In the present study, Cronbach's alpha values for the ASQ subscales ranged from 0.73 to 0.85.

Ethical considerations

Ethical approval was obtained from the Ethical Board of Hormozgan University of Medical Sciences (approval no.IR.HUMS.REC.1397.312) and conducted in accordance with the Declaration of Helsinki and its later amendments. All participants were informed about the purpose and procedures of the study. Informed consent was obtained from participants (with parental consent being provided for those participants below the age of 18 years).

Data analyses

The SPSS for Windows 24 was used to calculate all analyses. The Pearson product-moment correlation coefficient (r) was estimated between main variables and demographic variables to identify possible demographic control variables. Then, hierarchical regression analyses were used to determine the strength of primary associations between criterion variables (social media weekly use, internet gaming disorder, problematic internet use, and social media addiction) and predictor variables (confidence, discomfort with closeness, need for approval, preoccupation with relationship, and relationship as secondary).

Results

Descriptive statistics

Table 1 presents mean scores and standard deviations for all variables of the study. Significant gender differences emerged in the scores of the weekly internet usage (WIU), females reported higher scores on the WIU (t [941] =-4.45, $p<.001$) whereas males reported higher scores on the IGD9-SF than females (t [941] =8.15, $p<.001$). There were no significant differences in scores on the BSMAS, SMWU, and PIUQ-9. With regard to age, significant differences between adolescents and adults were found in the scores of IGDS9-SF (t [914] =8.32, $p<.001$), BSMAS (t [914] =5.13, $p<.001$), and PIUQ-9 (t [914] =4.31, $p<.01$), with young adults reporting higher scores on the IGDS9-SF, BSMAS, and PIUQ-9.

With regards to WIU, 7.1% of participants reported social media use on 1-2 days,

18.2% 3-4 days a week, 22.7% 5-6 days a week, and 48% seven days a week. As for the average daily use of social media on the internet in the past 30 days, 12.5% reported one hour daily, 10.5% two hours daily, 14.2% three hours daily, 21.8% four hours daily, 19.2% five hours daily, and 21.8% six or more hours daily.

Correlational analyses

The interrelationships among all variables were reported in Table 2. Findings indicated that WIU, SMWU, BSMAS, PIUQ-9, and IGDS9-SF were significantly and positively correlated (ranges from 0.59 to 0.80). Scores on the BSMAS, PIUQ-9, and IGDS9-SF were positively associated with age, DwC, NfA, PwR, and RaS, while WIU, SMWU, BSMAS, PIUQ-9, and IGDS9-SF were negatively correlated with confidence. Also, PIUQ-9 and IGDS9-SF correlated with gender (i.e., scores were higher among males for IGD but higher among females for PIU).

Regression analyses

Hierarchical regression analyses were used to examine the associations after controlling for gender and age.

Weekly social media use

Results showed that gender and age significantly contributed to the regression model ($F_{2, 940}$=77.28, $p<.05$) and accounted for 9% of the variance in weekly social media use (SMWU). In step 2, Confidence, DwC, NfA, PwR, and RaS were entered together and explained a further 5% of the variance in dependent variable ($F_{7, 935}$= 52.11, $p<0.42$). Therefore, no predictors were statistically significant (see Table 3).

Internet gaming disorder

As shown in Table 3, results indicated that gender and age explained 24% of the variance in IGD (F $_{2, 940}$=99.76, p<.01). Attachment styles in Model 2 accounted for a further 19% of the variance in the IGD score ($F_{7, 935}$=98.45, p<0.01). Therefore, the final model explained 43% of the variance. The predictors (confidence, DwC, NfA, and RaS) were statistically significant, but PWR was not (see Table 3 for all the beta coefficients).

Problematic internet use

Results suggested that gender and age contributed significantly to the regression model ($F_{2, 940}$=91.47, p<0.01) and explained 19% of the variance in problematic internet use (PIU). In step 2, Confidence, DwC, NfA, PwR, and RaS were entered and explained a further 15% of the variation in dependent variable ($F_{7, 935}$=92.11, p<0.01). Consequently, the final model explained a total of 34% of the overall score of problematic internet use (see Table 3). The predictors (Confidence, DwC, NfA, and RaS) were statistically significant, but PWR was not. In Table 3, all beta coefficients can be seen.

Social media addiction

Results indicated that gender and age significantly contributed to the regression model ($F_{2, 940}$= 82.32, p<0.01) and explained 17% of the variance in SMA. Attachment styles in Model 2 accounted for a further 12% of the variance in SMA score ($F_{7, 935}$= 92.06, p<.01). The final model explained a total of 29% of the overall score. The predictors (Confidence, DwC, NfA, and RaS) were statistically significant, but the PWR was not (see Table 3). All beta coefficients are displayed in Table 3.

Discussion

The present study investigated different types of online addictions (internet addiction, online gaming addiction, and social media addiction) in relation to gender, age (adolescents vs. young adults), and attachment styles. Results indicated that internet gaming disorder,

problematic internet use, and social media addiction were intercorrelated and predicted by attachment styles.

Associations between online addictions and attachment styles

It was hypothesized that online addictions would be negatively associated with secure attachment style and positively associated with dismissive-avoidance attachment and anxious-preoccupation attachment styles. The findings supported the hypotheses. These findings are in line with the previous studies (e.g., Andreassen et al. 2013, 2016; Bashir, Malik, & Mansoor, 2017; Eroglu, 2015; Monacis et al., 2016; 2017; Sinatra et al., 2016). Also, these findings are consistent with previous Iranian studies such as those by Hashemi, Ahmadi, and Farajpour Niri (2020) who reported that attachment styles predicted internet addiction among university students, and Gorjinpour and Tavana's (2022) who reported a negative association between attachment styles and internet addiction among female high school students. In explaining these results, studies have shown that the experience of early deprivation appears to show that individuals seek something in the outside world to replace the lost part within themselves (D'Arienzo et al., 2019). It appears that substance use can overcome the lack of intimacy (Flores, 2004), and cause the unrealistic feeling of a secure base (Hofler & Kooyman, 1996).

However, as stated by many researchers, the same appears to be true for non-substance-related addictions (Estevez, Jauregui, Sanchez-Marcos, & Griffiths, 2017). Consequently, self-object needs (Kohut, 1971) can be replaced in different ways such as taking medication, using activities such as social media, or any distraction that helps individuals overcome feelings of emptiness (Flores, 2004). Furthermore, it is assumed that a strong attachment bond with parents is associated with less need to use the internet for escape (Soh et al., 2014; Yang, Zhu, Chen, Song, & Wong, 2016). Moreover, several studies have

shown that attachment styles may be considered as a protective factor (Eichenberg et al., 2017; Mazaheri Nejadfard & Hosseinsabet, 2017; Kozan et al., 2017).

Secure individuals admit their emotional needs (Estevez et al., 2017), while insecure individuals suffering from anxiety-avoidance behavior do not admit their needs (D'Arienzo et al., 2019). The feeling that they cannot rely on the support of others (Estevez et al., 2017) results in more avoidance of interpersonal relationships and consequently seek compensation via online interaction (Eichenberg et al., 2017; Estevez et al., 2017; Lei & Wu, 2007; Yang et al., 2016).

Role of gender and age

According to the results of the present study, the mean IGD scores among males were greater than females. These results are consistent with the many studies reporting that males are more likely to report problematic gaming use than females (e.g., Van Deursen, Bolle, Hegner, & Kommers, 2015; Wang, Ho, Chan, & Tse, 2015; Wittek et al., 2015; Andreassen, Pallesen, & Griffiths, 2017). These findings support males have a higher preference for online activities (e.g., playing video games) (Monacis et al., 2017). Our findings also showed higher PIU scores among females compared to males. It has also been noted that females tend to develop addictive behaviors in online social interaction/networking activities (e.g., Andreassen et al., 2013; Kuss, Griffiths, Karila, & Billieux, 2014; Van Deursen, Bolle, Hegner, & Kommers, 2015). The lack of correlation between gender and social media addiction in the present study is in line with the research carried out by Sinatra et al. (2016). However, unlike other studies, conflicting findings show a higher prevalence rate of problematic social media use among females (Andreassen et al., 2016; Monacis et al., 2016a; Pfeil et al., 2008) or males (Bonds-Raacke & Raacke, 2010). According to the present study, there was no evidence that problematic social media use was more prevalent in either gender.

Tutgon-Unal and Deniz (2016) found that females are more likely to use social media to change their moods. The discrepancies in the previous results relating to problematic internet use are mainly explained by methodological differences such as the different screening instruments used and the fact that most studies comprise small self-selected samples (American Psychological Association, 2013; Kuss et al., 2014; Laconi et al., 2014).

Another finding indicated that age appeared to be a risk factor because young adults had greater problematic involvement in online activities. In addition, previous studies have found a greater prevalence of problematic social media use among young individuals (e.g., Andreassen et al., 2012; Kuss & Griffiths, 2014), which may indicate that online platforms play an important role in the leisure and social life of adolescents and young adults (Allen, Ryan, Gray, McInerney, & Waters, 2014). Moreover, young individuals are more likely to adapt to new technologies faster than older individuals (Prensky, 2001). Furthermore, social media may serve as a platform for the younger generation to develop their identity and culture without being interrupted by parents or individuals in authority (Andreassen, 2015; Mazzoni, & Iannone, 2014).

Limitations, future directions, and conclusion

The present study had some limitations. First, although the instruments used in this study were reliable and valid, the scales were self-report and therefore subject to well-known biases (e.g., social desirability and memory recall). In future studies, multi-method approaches can be used provide a better understanding concerning the studied variables. Secondly, the cross-sectional nature of the present study limited the possibility of determining any cause and effect between the studied variables. Therefore, future researchers are encouraged to conduct studies utilizing longitudinal and experimental designs. Moreover, the present study's sample comprised Iranian high school and university students so is not

representative of the total Iranian population or populations in other countries. It is recommended that future studies used more representative samples from a wide range of adolescents and young people, as well as older cohorts. Finally, the use of social media networks, the internet, and online games can be affected by many factors such as the effects of society and culture, which due to the diversity of the factors, the research team were not able to control. Due to this limitation in generalizing the results, it is suggested that further research be conducted with different samples and in different cultures and countries to provide a basis for confirming the results found in the present study.

Conclusion

Not surprisingly, results indicated that internet gaming disorder, problematic internet use, and social media addiction were all negatively associated with a secure attachment style and positively associated with dismissive-avoidance attachment and anxious-preoccupation attachment styles among Iranian adolescents and young adults. Therefore, the hypotheses regarding the association between online addictions and attachment styles were supported. Furthermore, the findings supported the hypotheses concerning the relationships between individual differences and online addictive behaviors. The findings of the present study improve the current understanding of online addictions among young people in Iran and contribute to the existing literature. The findings of the study have important implications for researchers and clinical experts in understanding the effects of online addictions on attachment styles among Iranian adolescents and young adults. For example, these findings may contribute to future research on internet addiction prevention and interventions. Moreover, the findings of the study show the importance of attachment styles in explaining some aspects of online addictions in identifying young individuals with online addictions and providing support and interventions to reduce the adverse effects of online addictions.

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Table 1: Mean and standard deviations of study variables (addiction scores and attachment styles)

	Total sample (N =943) Mean (SD)	Males (N=440)	Females (N =503)	Adolescents (N=372)	Young adults (N =571)
WIU	5.24 (0.89)	4.98 (0.86)	5.45 (0.91)	5.58 (0.88)	5.46 (0.89)
Technological addictions					
SMWU	7.60 (1.03)	7.57 (1.06)	7.69 (0.91)	7.75 (0.81)	9.84 (1.11)
BSMAS	17.15 (3.97)	16.64 (3.75)	17.26 (4.19)	16 (3.49)	18.5 (4.16)
PIUQ-9	23.25 (6.59)	22.84 (6.08)	24.54 (7.15)	22.06 (6.17)	24.76 (6.71)
IGDS9-SF	17.24 (19.31)	18.81 (9.22)	15.16 (7.12)	15.61 (16.55)	18.11 (19.12)
Attachment styles					
Confidence	3.86 (.85)	3.81 (.76)	3.94 (.81)	3.87 (.76)	3.83 (.87)
Discomfort with closeness	3.91(.86)	3.94 (.82)	3.85 (.83)	3.83 (.80)	3.93 (.87)
Need for approval	3.12 (.99)	3.14 (.94)	3.22 (1.02)	3.08 (.94)	3.06 (.98)
Preoccupation with relationship	3.97 (.81)	3.87 (6.29)	4.14 (5.97)	3.95 (6.63)	4.11 (5.88)
Relationship as secondary	2.73 (1.03)	2.41 (1.01)	2.73 (.98)	2.71 (1.02)	2.47 (1.01)

WIU=Weekly Internet Usage; SMWU=Social Media Weekly Usage; BSMAS=Bergen Social Media Addiction Scale; PIUQ-9=Nine-item Problematic Internet Use Questionnaire; IGDS9-SF=Nine-item Internet Gaming Disorder Scale Short Form

Table 2. Bivariate correlations between various variables and gaming, social media use, and internet use

	WIU	SMWU	BSMAS	PIUQ-9	IGD9-SF
Socio-demographics					
Age	0.13	-0.11	0.26**	0.26**	0.39**
Gender	-0.19	-0.16	0.08	-0.24**	−0.41**
Technological addictions					
WIU	1				
SMWU	0.62**	1			
BSMAS	0.65*	0.68*	1		
PIUQ-9	0.63**	0.67**	0.73**	1	
IGDS9-SF	0.67**	0.65**	0.76**	0.80**	1
Attachment styles					
Confidence	-0.17*	-0.18*	-0.44**	-0.45**	-0.53**
Discomfort with closeness	0.12	0.12	0.13*	0.31**	0.26**
Need for approval	0.16*	0.14	0.47**	0.54**	0.48**
Preoccupation with relationship	0.14	0.15	0.24**	0.29**	0.29**
Relationship as secondary	0.12	0.13	0.38**	0.48**	0.44**

*$p<.05$; **$p<.001$*

WIU= Weekly internet usage; SMWU= Social Media Weekly Usage; BSMAS=Bergen Social Media Addiction Scale; PIUQ-9=Nine-item Problematic Internet Use Questionnaire; IGDS9-SF=Nine-item Internet Gaming Disorder Scale Short Form

Table 3. Regression coefficients between addiction scores (gaming, social media use, and internet use), age, gender, and attachment styles

	WIU			SMWU			BSMAS			PIUQ-9			IGDS9-SF		
	B	S.E.	β	B	S.E.	β	B	S.E.	β	B	S.E.	β	B	S.E.	β
Step 1															
Gender [a]	-.11	0.51	-0.14*	-0.2	0.13	-0.13	0.23	0.51	0.21**	-0.69	0.51	-0.22**	-0.87	0.51	-0.25**
Age	0.09	0.12	0.12	-0.23	0.14	-0.15**	0.30	0.55	0.20**	.51	0.34	0.19**	0.77	0.83	0.23**
Step 2															
Confidence	-1.01	0.37	-0.14	-1.37	0.31	-0.15	-0.97	0.34	-0.21**	-2.75	0.34	-0.24**	-3.4	0.48	-0.28**
Discomfort with closeness	-1.02	0.31	-0.12	-1.02	0.37	-0.14	-0.24	0.26	-0.15**	-0.15	0.36	-0.17**	-1.32	0.37	-0.19**
Need for approval	1.01	0.30	0.12	1.04	0.39	0.03	-0.87	0.29	-0.17**	-0.10	0.34	-0.15**	1.91	0.26	0.23**
Preoccupation with relationship	-1.0	0.31	-0.11	1.01	0.31	0.04	0.12	0.27	0.09	0.12	0.34	0.09	-0.5	0.31	-0.09
Relationship as secondary	1.01	0.27	0.10	1.04	0.29	0.03	-0.25	0.24	-0.15**	-0.11	0.31	-0.15**	1.02	0.26	0.12**

**p<.001

[a] 1=Male; 2=Female

WIU= Weekly Internet Usage; SMWU=Social Media Weekly Usage; BSMAS=Bergen Social Media Addiction Scale; PIUQ-9=Ninr-item Problematic Internet Use Questionnaire; IGDS9-SF=Nine-item Internet Gaming Disorder Scale Short Form