The Relationship Between Problematic Internet Use, Alexithymia, Dissociative Experiences And Self-Esteem In University Students

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ABSTRACT

The main purpose of this study is to determine the time-dependent learning difficulty of "solving problems that require making four operations with natural numbers" of the sixth grade students. The study, adopting the scanning model, consisted of a total of 140 students, including 69 female and 71 male students at the sixth grade. Data was collected using an assessment tool consisting of 12 open-ended questions. The findings show that the learning group consisting of 140 students was behind the value that is closest to the full learning level by a score of 0.011. While the female students reached the lower limit of 0.989 specified for the full learning level in a period of 2.55 course hours, the male students reached this limit in 2.87 course hours. The learning amount of 0.999, which is the closest value to the full learning level, was reached by the learning group in a period of 6.1 course hours, the female students in 5.65 course hours, and the male students in 6.71 course hours. In addition to this, the data obtained showed that learning difficulties belonging to the learning groups decreased as the space below the curve of time and learning amount decreased. As a result of the study, it was recommended that it is possible to determine the closest course hours for the full learning level for each of the gains included in all levels of education and all teaching programs.

Keywords: *Problematic internet use, Alexithymia, Dissociative experiences, Self-esteem*

INTRODUCTION

Internet use has increased all over the world at a rapid rate (Davis, Flett & Besser, 2002; Widyanto & McMurran, 2004; Shaw & Black, 2008). According to data from the Turkish Statistical Institute (TUIK), the internet use of individuals in Turkey aged between 16-74 years, as a percentage, was 30.1% in 2007, 35.9% in 2008, 38.1% in 2009, 41.6% in 2010, 45.0% in 2011, and 47.4 % in 2012 (TUIK, 2012).

Research has shown both the advantages of healthy internet use and the disadvantages of unhealthy internet use (Kraut, Patterson, Lundmark & Kiesler, 1998; Kraut, Kiesler, Boneya, Cummings, Helgeson et al., 2002; Widyanto & McMurran, 2004). Internet, have allowed people to affordably communicate at long distances as well as facilitating many tasks, including science, shopping, taking educational classes, working, and keeping in touch with loved ones (Chang, & Hung, 2012). Problematic internet use is defined as a multiple psychiatric situation, which includes maladaptive thoughts (e.g. depression and loneliness), pathological

behaviours (e.g. diminished impulse control, social isolation and avoidance of responsibilities) and negative effects on individuals' daily functioning (Caplan, 2002; Caplan, 2007; Davis, Flett & Besser, 2002; Kaltiala-Heino, Lintonen & Rimpela, 2004). Unhealthy internet use is defined as excessive use of the Internet and this behavior, including problematic internet use (Caplan, 2002; Davis, Flett & Besser, 2002, Kaltiala-Heino, Lintonen & Rimpela, 2004; Shapira, Goldsmith, Keck, Khosla & McElroy, 2000; Shapira, Lessig, Goldsmith, Szabo, Lazoritz et al., 2003), internet addiction (Chou & Hsiao, 2000; Young & Rogers, 1998), internet dependency (Tvedt, 2007), excessive internet use (Yang, Choe, Baity Lee, & Cho, 2005) and pathological internet use (Davis, 2001; Morahan-Martin & Schumacher, 2000).

Several studies have based their explanation on bio-psycho-social models (Griffiths, 2005). The studies based on biological models have indicated that diminished serotonin and dopamine levels are related to problematic internet use (Kurtaran, 2008). The studies on social models have pointed out that an unhealthy family environment (Armstrong, Phillips & Saling, 2000; Park, Kim & Cho, 2009; Ko, Yen, Chen, Chen & Yen, 2005), intra-family conflicts (Yen, Yen, Chen, Chen & Ko, 2007), lower levels of family satisfaction (Lam, Peng, Mai & Jing, 2009), relatively few friends or a lack of friends, poor quality intimate relationships, and a lack of success in school or at work (Yen et al., 2007) are all associated with problematic internet use.

The studies based on psychological model have explained the ways in which depression (Caplan, 2002; Ceyhan & Ceyhan, 2008; Huang, Lu, Lui, You, Pan et al., 2009; Jang, Hwang & Choi, 2008; Özcan-Keser & Buzlu, 2005; Thatcher & Goolam, 2005; Young & Rogers, 1998; Yen, Ko, Yen, Chen, Chung et al., 2008), low self-esteem (Ceyhan & Ceyhan, 2008; Kim & Davis, 2009; Yen, Yen, Chen, Tang & Ko, 2009), loneliness (Caplan, 2002; Caplan, 2007; Moody, 2001; Nalva & Anand, 2003, Kim, LaRose & Peng, 2009), interpersonal cognitive distortions (Kalkan, 2012; Çelik & Odacı, 2013), a lack of social skills and introversion (Caplan, 2002; Caplan, 2007; Chak & Leung, 2004; Engelberg & Sjöberg, 2004), attention deficit hyperactive disorder (Yolga-Tahiroğlu, Çelik, Fettahoğlu, Yıldırım, Toros et al., 2010; Yen et al., 2009; Yoo, Cho, Ha, Yune, Kim et al., 2004) and substance abuse (Ko, Yen, Chen, Chen, Wu et al., 2006; Yen et al., 2007; Yen et al., 2008) all have relationships to problematic internet use.

One of these studies (Berardis, D'Albenzio, Gambi, Sepede, Valchera et al., 2009) has investigated the relationships among alexithymia, dissociative experiences and internet addiction. Alexithymia can be defined as the inability to distinguish between one's feelings and the feelings of another the inability to communicate feelings to others, and an externally-oriented cognitive style reflecting an absence of inner thoughts and fantasies. It is also considered a predictor factor for dissociative tendencies (Berenbaum & James, 1994; Grabe, Rainermann, Spitzer, Gansicke & Freyberger, 2000; Irwin & Melbin-Herber, 1997).

Alexithymia

The personality construct of alexithymia designates a cognitive-affective deficiency in which a person has difficulty experiencing and verbalising emotions, instead experiencing an impoverishment of fantasy and a poor capacity for symbolic thought, reflected as a tendency toward externally-oriented thinking (Taylor, Bagby & Parker, 1991). Alexithymia is firstly explained by somatic factors, then by cognitive and affective regulatory systems (Taylor, Bagby & Parker, 1999), neurological structures (Lane, Ahern, Schwartz & Kaszniak, 1997; Parker, Taylor & Bagby, 1992), and deficiencies in cognitive development (Stoudemire, 1991).

However, while alexithymia is accounted for by many different factors, the construct is commonly formulated as having four features. These features are: (1) a difficulty in developing an awareness of emotions, (2) a difficulty in differentiating between feelings and bodily sensations, (3) a diminished capacity for fantasy and imaginative processes, and (4) a cognitive style that is operational, and directed toward procedural and externally-oriented thinking (Taylor, Bagby & Parker, 1991). These features of alexithymia are evident in many disorders; they include psychosomatic disorders (Lipsanen, Saarijärvi & Lauerma, 2004), such as eating disorders (Berardis et al., 2009), dissociative disorders (Tutkun, Savaş, Zoroğlu, Esgi, Hergen, et al., 2004), depression (Demet, Deveci Özmen, Şen & İlçelli, 2002; Honkalampi, Hintikka, Tanskanen, Lehtonen & Viinamäki, 2000; Lipsanen, Saarijärvi, & Lauerma, 2004), and maladaptive behaviours such as compulsive

behaviours, problematic gambling, alcohol and substance addiction (Helmes & Mente, 1999; Lumley, Neely & Burger, 2007; Taylor, Bagby & Barker, 1999). Individuals with alcohol and substance addiction have particular difficulties in recognising and expressing their feelings, instead expressing their feelings in general, ambiguous and somatic ways, and showing a low pain tolerance which leads to an increase in individual stress levels and compulsive behaviours (Taylor, Bagby & Parker, 1999).

Furthermore, several studies have stated that alexithymia can be significantly associated with problematic gambling (Lumley & Roby, 1995; Parker, Wood, Bond & Shaughnessy, 2005), and alcohol and substance addiction (El Rasheed, 2001; Haviland, Hendryx, Shaw & Henry, 1994; Kauhanen, Julkunen & Salonen, 1992). Problematic internet use is included in maladaptive behaviours; its features are based on those of alcohol and substance addiction (Shapira, Goldsmith, Keck, Khosla & McElroy, 2000; Shapira, et al., 2003). Hence, alexithymia might be significantly related to problematic internet use. Many studies also indicate that alexithymia is a predictor of dissociative tendencies (Clayton, 2004; Wise, Man & Sheridan, 2000) as well as internet addiction (Berardis, et al., 2009).

Dissociative Experiences

Dissociative experiences can disrupt an individual's consciousness, memory, identity, and perception of environment and time (APA, 2001). Thus people affected by dissociative experiences have difficulties in integrating and using information in a normal way, and may display amnesia, depersonalisation and derealisation symptoms (Kihlstrom, 2005; Spielge & Cardene, 1991).

The relevant literature states that dissociative experiences are significantly and positively related to borderline personality disorders (Sherar, 1994; Stiglmayr, Shapirob, Stieglitzc, Limbergerd & Bohusd, 2001; Stiglmayr, Ebner-Priemer, Bretz, Behm, Mohse et al., 2008; Şar, Kundakci, Kiziltan et al., 2003), to somatisation disorders (Brown, Schrag & Trimble, 2005; Lipsanen, Saarijarvi & Laurema, 2004; Nijenhuis, 2001), to depression (Lipsanen, Saarijarvi & Laurema, 2004), and to eating disorders (Berardis et al., 2009).

Furthermore, people affected by dissociative experiences cope with negative emotions in the same way as people with alexithymia, and have difficulties in recognising and differentiating emotions (Elinzga, Bermond & Dyck, 2002; Wise, Mann & Sheridan, 2000). As dissociative and alexithymia studies have stated, there is a significant association between dissociative experiences and alexithymia, and alexithymia can also be a good predictor of dissociative experiences (Clayton, 2004; Berenbaum & James, 1994; Sayar, Köse, Grabe & Topbaş, 2005; Grabe, Rainermann, Spitzer, Gansicke & Freyberger, 2000; Irwin & Melbin-Herber, 1997). Research has reported a correlation between problematic internet use and dissociation (Bernardi & Pallanti, 2009; Berardis et al, 2009).

Self -Esteem

Self-esteem has been defined as "the extent to which an individual accepts himself/herself, or [the] overall self-evaluation of his or her worth (Rosenberg, 1986). In recent times, self-esteem has been described as a multi-dimensional and general construct in the hierarchical system, which has been affected by many facets of self concept (Crocker & Wolfe, 2001; Rosenberg, Schooler, Schoenbach & Rosenberg, 1995). In this regard, people with high self-esteem exhibit adaptive and confident behaviours, while people with low self-esteem exhibit maladaptive behaviours (Rosenberg, 1986). Low self-esteem has been recognized as a risk factor for problematic Internet use (Douglas, Mills, Niang, Stepchenkova, & Byun, 2008; Ko, Yen, Yen, Lin, & Yang, 2007). Studies have especially indicated that low self-esteem is a strongest predictor of dissociative disorders, alexithymia (Sayar, Köse, Grabe & Topbaş, 2005) and problematic internet use (Ceyhan & Ceyhan, 2008; Kim & Davis, 2009; Yen et al., 2008).

The Present Study

Although many studies have attempted to explain problematic internet use, there is more research to be done, due to the increase in problematic internet use across the world. In this context, many factors have been suggested to explain problematic internet use. Two of these are dissociative experiences and alexithymia.

Only one study carried out in the field, on 312 university student (Berardis, et al., 2009), attempts to link dissociative experiences, alexithymia and problematic internet use. The results of this study found that alexithymia, dissociative experiences and low self-esteem are all risk factors of problematic internet use. We hypothesized that alexithymia, dissociative experiences and self-esteem are associated with problematic internet use. However no study was found in the literature that investigates the relationships among these variables concurrently a Turkish university population. Therefore we hypothesized that the alexithymia, dissociative experiences and self-esteem predict problematic internet use and also alexithymia and dissociative experiences predict self-esteem. The model has presented in figure 1.
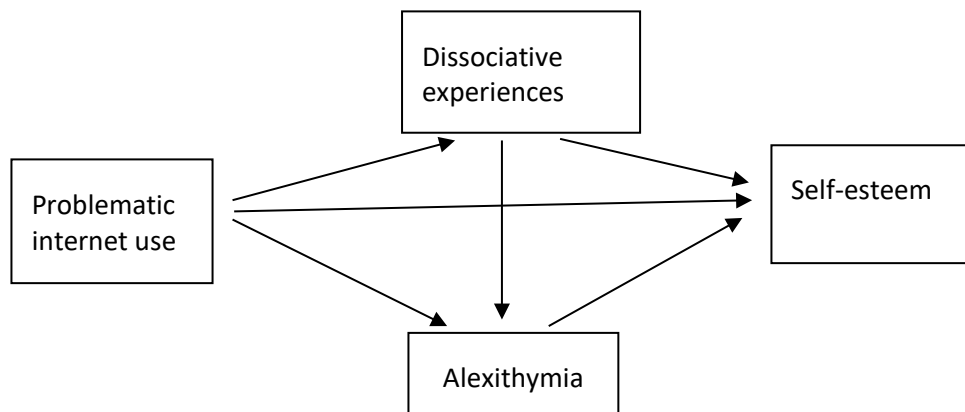

Fig. 1. Proposed model

METHODS

Participants

463 university students participated to the study. 141 of the participants (45%) were male and 170 (55%) were female. A large majority of the students (91%) were between 18 and 26 years of age (20.93 ± 1.87).

Instruments
Online Cognition Scale (OCS)

Problematic internet use was measured using the Online Cognition Scale. It was developed by Davis, Flett and Besser (2002) and Turkish adaptation of The OCS and validity and reliability studies were conducted by Ozcan and Buzlu (2005). This scale contains 36 items on a 7-point Likert-type scale (1 = strongly disagree to 7 = strongly agree). It has four sub-dimensions: diminished impulse control (10 items), loneliness/depression (6 items), social comfort (13 items), and distraction (7 items). The sum of all the scores yields a total score that ranges from 36 to 252; higher scores indicate a higher internet addiction level.

The Cronbach's α internal consistency coefficients of the adapted Turkish form were .79 for diminished impulse control, .60 for loneliness/depression, .84 for social comfort, .73 for distraction, and .91 for the entire scale. For test–retest reliability, the scale was administered to 148 undergraduate students twice in 4 weeks. The Pearson correlation coefficients were .89, .76, .87, .85, and .90, respectively. Turkish version of the Online Cognition Scale was observed that the structure of the determined factor was in good harmony with the original scale (Ozcan & Buzlu, 2005). The Pearson correlation coefficient was .93.

Toronto Alexithymia Scale (TAS-20)

The Toronto Alexithymia Scale (TAS-20), developed by Bagy, Parker and Taylor in 1994, is a reliable and valid scale for measuring alexithymia. The TAS has 20 items on a 5-point Likert-type scale (1 = strongly disagree to 5 = strongly agree). The maximum score of the TAS-20 is 100, while the minimum score is 20.

Higher scores indicate a stronger presence of alexithymia.

The TAS-20 is composed of three factors. These factors are: difficulty identifying feelings and distinguishing them from bodily sensations (Factor 1), difficulty expressing feelings (Factor 2), and externally-oriented thinking (Factor 3). The three-factor solution accounts for 31.0% of the total variance. The first factor explains 12.6% of the total variance (internal consistency, r=0.78); the second factor explains 10.0% of the total variance (internal consistency, r=0.75); and the third factor explains 8.80% of the total variance (internal consistency, r=0.66). The internal consistency of the scale is r=0.81 and the test–retest reliability is r=0.77. The Pearson correlation coefficient was .70.

Turkish adaptation of The TAS and validity and reliability studies were conducted by Güleç, Köse, Güleç, Çitak, Evren, Borckardt, and Sayar, (2009) and found to have statistical reliability as (α =0.76). Three factors were found to comprise the original scale's structure and the Cronbach's alpha for the total TAS-20 scale was 0.78, and for the three subscales (factors 1, 2, and 3); 0.80, 0.57, and 0.63, respectively. The total–item correlations of the Turkish version of the TAS-20 ranged from 0.22 to 0.48, and were found to be statistically significant (Güleç, Köse, Güleç, et al., 2009).

Dissociative Experience Scale (DES)

The Dissociative Experience Scale (DES), developed by Bernstein and Putnam to screen chronic dissociative disorders (1986), has 28 items ranging from 0 to 100. The sum of the items is divided by item number 28, and if the remaining number is above 30, it indicates dissociative experiences. The DES is a highly reliable and internally consistent scale.

Turkish adaptation of The DES and validity and reliability studies were conducted by Şar, Kiziltan and Kundakci (1997) and was found reliable and valid scale as the original form. Cronbach alfa of the Turkish version of DES was 0.97. The Pearson Correlation of the scale ranged from 0.40 to 0.84 and was statistical significant (p<0.001). Test–retest of the Turkish, version of DES was 0.77 (p<0.001) and item- total correlation ranged from to 0.27 to 0.80 (p<0.05). The Pearson correlation coefficient was .92.

Rosenberg Self-Esteem Scale

The Rosenberg Self-Esteem Scale, developed by Rosenberg (1965) to assess an individual's overall value of himself/herself, is a significantly reliable and valid measure to use. The Scale has 10 items on a 4-point Likert-type scale (1 = strongly disagree to 4 = strongly agree) and some of the items are negatively worded. Higher results imply higher self-esteem, lower results imply lower self-esteem.

Turkish adaptation of The Self-Esteem Scale and validity and reliability studies were conducted by Çuhadaroglu (1985), and was found to be reliable (r= 0.71) and valid (0.75). The Cronbach's alpha of the Turkish version of the scale ranged from 0.77 to 0.88.

Procedure

Permission for the participation of the students was obtained from the relevant heads of department, and students participated in the research voluntarily. Completion of the questionnaires was anonymous and there was a guarantee of confidentiality. The instruments were administered to the students in groups in the classrooms. The measures were counterbalanced in administration. Prior to the administration of measures, all participants were informed of the purposes of the study.

Statistical analysis

In this study, the Pearson correlation coefficient and structural equation modelling were utilised to determine the relationships between problematic internet use, alexithymia, dissociative experiences and self-esteem. The variables that were entered into the structural equation modelling were measured by summing the items of each scale. These analyses were carried out via LISREL 8.54 (Joreskog & Sorbom, 1996) and SPSS 13.0.

RESULTS

Descriptive data and inter-correlations

When Table 1 is examined, it can be seen that there are correlations between problematic internet use, alexithymia, dissociative experiences and self-esteem. Problematic internet use relates positively to alexithymia (r = .24), dissociative experiences (r = .31) and self-esteem (r = .23). Similarly, while alexithymia was found to be positively associated with dissociative experiences (r = .40) and self-esteem (r = .89), dissociative experiences were found to be positively associated with self-esteem (r = .37).

Table 1. Descriptive statistics, Cronbach's α coefficients, and inter-correlations of the variables

Variables	1	2	3	4
1.Problematic internet use	1.00			
2.Alexithymia	.24**	1.00		
3.Dissociative experiences	.31**	.40**	1.00	
4.Self esteem	.23**	.89**	.37**	1.00
Mean	80.01	53.55	23.79	26.37
Standard deviation	31.62	8.60	13.25	4,96
Range	36-249	20-100	0-100	10-40
Cronbach's α	.93	.70	.92	.33

**p<0.01

Structural equation modelling

We hypothesized that the alexithymia, dissociative experiences and self-esteem predict problematic internet use and also alexithymia and dissociative experiences predict self-esteem.

Fig. 2 presents the results of the SEM analysis, using maximum likelihood estimations. The model fitted well ($\chi 2$ = .81, df = 1, p = .36952, GFI = 1.00, AGFI = .99, CFI = 1.00, NFI = 1.00, RFI = .99, IFI = 1.00, SRMR = .0062, and RMSEA = .000) and also accounted for 13% of the dissociative experiences, 21% of the alexithymia, and 0.1% of the self-esteem variances.

The standardised coefficients in Fig. 2 clearly showed that dissociative experiences were positively explained (.36) by problematic internet use. Also, self-esteem was explained positively by problematic internet use (.22) and dissociative experiences (.15). Alexithymia explained positively by problematic internet use (.07) and dissociative experiences (.86). However, self-esteem was not predicted by alexithymia.
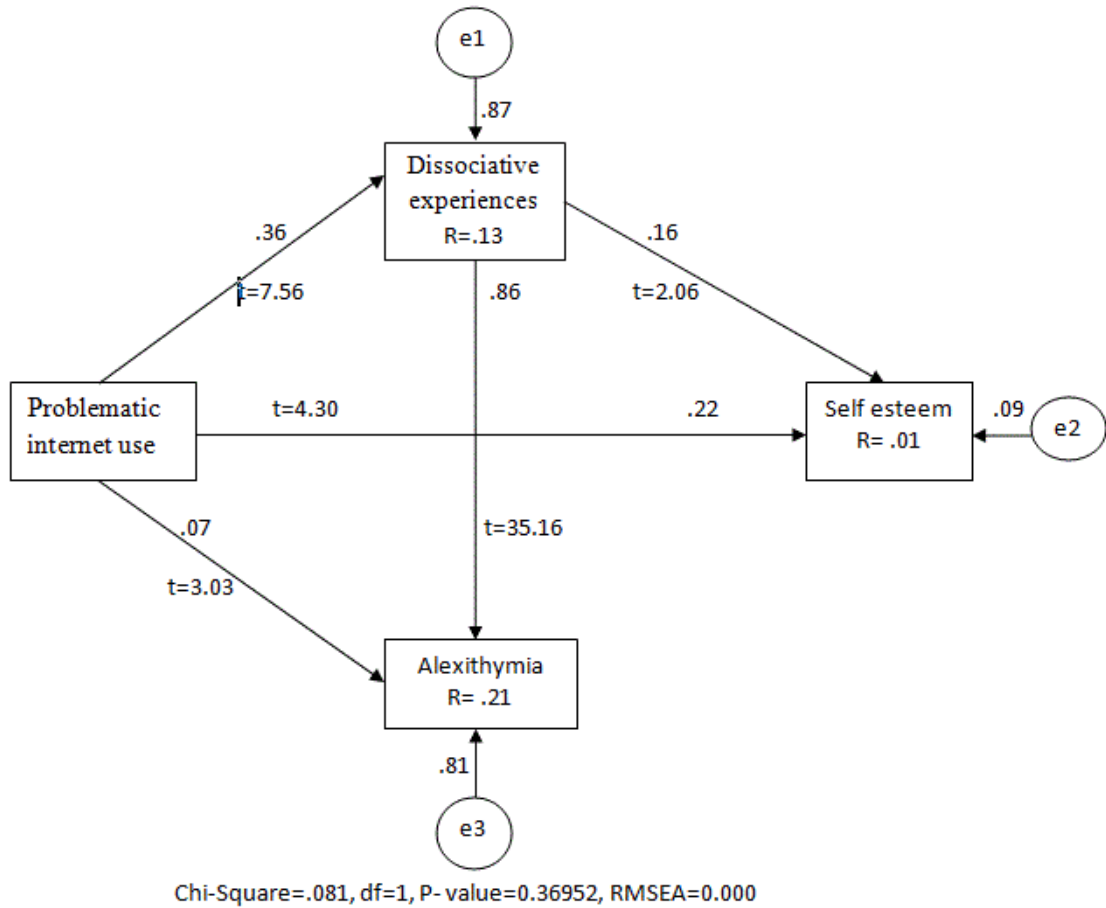
Fig. 2. Path analysis between problematic internet use, alexithymia, dissociative experiences and self-esteem.

DISCUSSION

The aim of this study was to investigate the relationships between problematic internet use, alexithymia, dissociative experiences and self-esteem. The findings have shown that there are relationships among these variables. The goodness of fit indexes of the path model also indicate that the model is acceptable and that correlations among measures can be explained by the model (Hu & Bentler, 1999).

As expected, alexithymia, dissociative experiences and self-esteem were predicted positively by problematic internet use. Recent studies on problematic internet use have demonstrated that problematic internet use relates positively to alexithymia (Canan, Ataoglu, Ozcetin & Icmeli, 2012; Craparo, 2011), dissociative experiences (Yen et al., 2009; Shapira et al., 2000; Shapira et al., 2003) and low self-esteem (Ceyhan & Ceyhan, 2008; Kim & Davis, 2009; İskender & Akin, 2010). So, it can be said that this finding is consistent with other studies that have found a positive relationship between low self-esteem and problematic internet use (Ceyhan & Ceyhan, 2008; Kim & Davis, 2009; Yen et al, 2008; Greenberg, Levis & Dodd, 1999; Young & Rogers, 1998; Ko et al., 2007). Because low self-esteem is related to rejection, abandonment and indifference shown by significant others (Leary & MacDonald, 2003; MacDonald & Leary, 2005), as well as social anxiety, depression and loneliness (Leary & MacDonald, 2003), the degree of self-esteem should be a predictor of problematic internet use (Kim & Davis, 2009).

Secondly, as anticipated, alexithymia and dissociative experiences were positively related to problematic internet use. Supportive data can also be found in other studies, which found that people experiencing dissociative tendencies and alexithymia are more likely to engage in problematic internet use (Canan, Ataoglu, Ozcetin & Icmeli, 2012; Craparo, 2011). As is stated in these studies, there is a significant

association between dissociative experiences and alexithymia, while alexithymia is also a good predictor of dissociative experiences (Clayton, 2004; Berenbaum & James, 1994; Sayar, Köse, Grabe & Topbaş, 2005; Grabe, Rainermann, Spitzer, Gansicke & Freyberger, 2000; Irwin & Melbin-Herber, 1997; Wise, Mann & Sheridan, 2000).

This study has several implications for future research. Firstly, this study, which is about problematic internet use, may encourage the future studies. Still, there is a need for new studies in the literature, in order to better understand the concept of problematic internet use and to find out other variables affecting it. Secondly, since sample of this study includes limited university students, there is a limitation in generalizability. Therefore, conducting similar studies with a sample from different student levels and with different professionals or individuals might increase the generalizability of this study. Thirdly, the data reported here for alexithymia, dissociative experiences and self-esteem, and problematic internet use are limited to self-reported data. However, because it is the first study carried out on Turkish university students using a combination of these variables, it is hoped that we could be a source for future studies.

These findings suggest that problematic internet use is related to negative psychological symptoms as alexithymia, dissociative experiences and lower self-esteem and these variables and their interactions can be examined in deeply by applying both quantitative and qualitative research methods to clarify the relationships between them.

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