# Problematic Internet use, loneliness and dating anxiety among young adult university students☆

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## ARTICLE INFO

## ABSTRACT

The Internet, an important modern means of obtaining information and establishing communication with others, has become an increasingly essential element of human life. Although Internet use makes life easier, it can become problematic in the event of non-functional use. Debate and research into whether Internet addiction is a cause or an effect are continuing. This study investigates problematic Internet use among young adult university students and examines correlation between problematic Internet use and loneliness and dating anxiety. University student Internet use patterns are also investigated. The study was conducted among 493 students from the Karadeniz Technical University Fatih Faculty of Education. The Online Cognition Scale, Dating Anxiety Scale, Loneliness Scale and Personal Information Questionnaire were employed in the collection of data. Pearson correlation analysis, the $t$-test, one-way analysis of variance and chi-square test were used for data analysis. The Pearson correlation analysis results reveal a significant positive correlation between problematic Internet use and loneliness ($r = 0.194$, $p < 0.001$), communication anxiety ($r = 0.15$, $p < 0.001$), unpopularity anxiety ($r = 0.174$, $p < 0.001$) and physiological symptoms ($r = 0.125$, $p < 0.001$) dating anxiety sub-scales. One-way analysis of variance was used to examine whether problematic Internet use varies according to length of Internet use, and a significantly high level of problematic Internet use was observed among those going online for more than 5 h a day compared to other users ($F = 14.327$, $p < 0.001$). Chi-square results reveal a significant association between length of Internet use and how students feel when they do not go online (chi-square $= 116.543$, $p < 0.001$). The t-test was used to determine whether there was a significant difference in levels of Internet use according to gender, and levels of problematic Internet use were significantly higher among male students than females ($t = 4.046$, $p < 0.001$).

## 1. Introduction

User profile diversity has been observed to rise in parallel with the increasing number of Internet users, and a deviation from such positive features of the Internet as sharing information and facilitating communication has been observed in terms of both aim and frequency of use.

While "healthy internet use" has been defined as using the Internet to achieve a specific aim, within an appropriate time frame, with no conceptual or behavioral difficulties (Davis, 2001), the number of "problematic internet users" using the Internet in a manner outside the conception of "healthy" in this definition is known to be not insignificant. This was first referred to as "internet addiction" by Goldberg (1997), and subsequently as "internet dependency," (Scherer, 1997), "pathological internet use" (Davis, 2001) and "problematic internet use" (Davis, Flett, & Besser, 2002). The common feature in these definitions is that they emphasize length of time spent on the Internet, unease and irritability observed at times of no Internet use, and signs such as a need for longer periods to be spent online (Young & Rodgers, 1998). One significant measure of Internet dependency is the frequency of daily or weekly use. As a point of agreement among studies,

Internet use of 5 h a day and more is regarded as problematic. According to Goldberg's diagnostic criteria (Goldberg, 1997), "a significantly increased Internet use duration in order to obtain the desired pleasure" has been reported (Öztürk, Odabasıoğlu, Eraslan, Genç, & Kalyoncu, 2007).

Research reveals a correlation between problematic Internet use and depression (Shapira, Goldsmith, Keck, Khosla, & McElroy, 2000), loneliness, a decrease in family communication and tension (Kraut et al., 1998), intolerance and obstinacy (Yang, Choe, Baity, Lee, & Cho, 2005) and shyness (Lavin, Yuen, Weinman, & Kozak, 2004). However, it is still a matter for debate whether, as in other substance and phenomenon dependencies, Internet use gives rise to pathological behaviors, or whether excessive Internet use is an indication of existing psychological problems (Gönül, 2002). There is therefore a clear need for research into whether problematic Internet use is a cause or an effect.

The fact that Internet use is highest among young adults, the age group (16–24 years) at a critical period for social and emotional development (Oğuz, Zayim, Özel, & Saka, 2008; TUİK, 2007) suggests that these may be regarded as a risk group for Internet addiction. Young people's efforts to establish their own identity, to belong to a group and receive group acceptance and approval may cause them to turn to a variety of instruments and make the "advantages" provided by Internet use appear attractive.

Males and females generally exhibit differences in terms of the purpose behind Internet use, adolescent girls using it to communicate, meet new people, join various groups and for personal reasons, while males generally use it for surfing or to play violent games (Gross, 2004). Female students in Britain spent more time on the Internet for academic study than male students (Li & Kirkup, 2007). Boys use the Internet for entertainment (Aslanidou & Menexes, 2008; Papastergiou & Solomonidou, 2005) and web page creation more than girls do, and no other gender differences have been noted regarding pupils' other Internet activities (Papastergiou & Solomonidou, 2005). According to Hardie and Yi-Tee (2007), problematic Internet use is similar in both sexes. The fact that young people regard online communication as easier makes establishing friendships by this means more attractive (Lin & Tsai, 2002; Tsai & Lin, 2003). In addition, individuals without many friends and with high levels of loneliness and social anxiety have a greater tendency to establish interaction with strangers (Caplan, 2007; Gross, Juvonen, & Gable, 2002). This makes becoming acquainted and chatting over the Internet, where there is no obligation to reveal one's own character, very attractive. In this way, the young person can conceal "deficiencies, flaws or aspects they dislike" and on the other hand comfortably display "the ideal character they would like to have." It is thought that these "reinforcing" relations provided by the Internet enhance the young person's loneliness, and that a rise in loneliness levels leads to a greater tendency toward "cyber relationships" (Genuis & Genuis, 2005).

Youth, in which friendships occupy an important place, is also usually a time of first romantic relationships, and these relations are observed to contribute to a young person's well-being. Having a romantic relationship and the nature of that relationship are correlated with young people's sense of identity, and are also indicative of belonging to a group of friends and of status. They also assist young people's abilities to share, compromise, open up and establish proximity (Glickman & La Greca, 2004). Research reveals a correlation between social skills and romantic liaisons, and also shows that individuals with low social skills experience greater dating anxiety (Larsen & Shackelford, 1996) and that young people with high social anxiety avoid or postpone dating relationships (La Greca & Harrison, 2005). Dating anxiety, defined as anxiety felt over initiating or maintaining a romantic liaison, is correlated with such states as loneliness, depression and substance dependence (Glickman & La Greca, 2004). In addition, there are studies showing that individuals with high levels of dating anxiety, social anxiety or shyness also have a greater tendency to establish romantic relationships over the Internet (Kim, Kwon, & Lee, 2009; Sheeks & Birchmeier, 2007; Stevens & Morris, 2007; Valkenburg & Peter, 2007). Bearing in mind that young people exhibiting excessive Internet use, regarded as a non-functional way of avoiding social relations (Mittal, Tessner, & Walker, 2007), experience more emotional and identity problems than their peers (Yao-Guo, Lin-Yan, & Feng-Lin, 2006), we postulated a correlation between problematic Internet use and dating anxiety. We concluded that research revealing a correlation between Internet use and psychological health in young people could thus contribute to the determination of preventive and therapeutic measures.

This study therefore investigates problematic Internet use in young adult university students and examines the relation between problematic Internet use and loneliness and dating anxiety. The following hypotheses were tested in the study:

1. There is a significant difference between levels of problematic Internet use and students' length of Internet use.
2. There is a significant correlation between students' problematic Internet use and loneliness and dating anxiety levels.
3. There is a significant difference between students' establishing dating relationships over the Internet and levels of problematic Internet use.
4. There is a significant difference between students' gender and levels of problematic Internet use.
5. There is a significant association between length of Internet use and how individuals feel when not online.

## 2. Methods

### 2.1. Sampling

The study sample was made up of 493 students, chosen using haphazard sampling, studying at the Karadeniz Technical University Faculty of Education in Turkey during the 2008–2009 academic years. Three hundred and eight of the students were female and 185 male. Average age was 17.71 years ($S = 0.45$) and all were first-year students. Two hundred and thirty-three students (47.3%) had their own computers and 260 (52.7%) did not. The number of students establishing dating relationships over the Internet was 59 (12%).

### 2.2. Means of data collection

Three instruments were used in data collection. The "Online Cognition Scale" (OCS) was used to determine students' problematic Internet use behaviors, the "University of California, Los Angeles Loneliness Scale" (UCLA-LS) to determine loneliness levels and the "Dating Anxiety Inventory Scale for Adolescents" to determine dating anxiety levels.

**Table 1**
Mean and standard deviation for problematic Internet use according to Internet use duration.

|  | N | X | S |
| --- | --- | --- | --- |
| More than 5 h a day | 52 | 100.6538 | 37.49504 |
| 1–5 h a day | 193 | 80.4404 | 32.41283 |
| Less than 1 h a day | 248 | 67.2742 | 51.49660 |
| Total | 493 | 75.9493 | 44.69239 |

### 2.2.1. Online cognition scale

The original of the scale drawn up by Keser-Özcan and Buzlu (2005) studying validity and reliability in university student sampling with the aim of determining problematic Internet use was developed by Davis et al. (2002). The OCS consists of 36 statements (e.g., the Internet represents an important part of my life; I feel helpless when not online; I can escape my worries when I am online) to which responses are given on a 7-point scale ranging from 1 (strongly disagree) to 7 (strongly agree). OCS scores range from 36 to 252, with higher scores indicating higher levels of problematic Internet use. During testing of the scale's test-repeat test reliability, 0.90 was significant for Pearson Product Moment Correlation Coefficient total scale scores, 0.87 for social support sub-group scores, 0.76 for loneliness/depression sub-group scores, 0.89 for reduced impulse control sub-group scores and 0.85 for distraction sub-groups cores at a level of $p < 0.001$. OCS has an internal consistency coefficient of $\alpha = 0.91$ and items' total reliability coefficients range between 0.17 and 0.66. In the relationship between item variation and sub-group score variation, values range between 0.40 and 0.73. In testing of validity with similar scales, OCS was determined to have a positive correlation with depression ($r = 0.336$, $p < 0.001$) and loneliness ($r = 0.326$, $p < 0.001$) and a negative correlation with perceived social support ($r = -0.413$, $p < 0.001$), and it was reported that the factor structure described demonstrated excellent agreement with the original scale (Keser-Özcan & Buzlu, 2005).

### 2.2.2. UCLA loneliness scale

The UCLA-LS, developed in 1978 by Russel, Peplau and Ferguson in order to measure individuals' general levels of loneliness, was first employed in Turkey by Yaparel (1984). Demir (1989) subsequently thought it would be useful to review the scale and performed a separate translation of the UCLA-LS to that of Yaparel (1984). The UCLA-LS consists of 20 (10 negative and 10 positive) statements to which responses are given on a 4-point scale ranging from 1 (never) to 4 (often). UCLA-LS scores range from 20 to 80, with higher scores indicating higher levels of loneliness. Demir (1989) determined that the scale had an internal consistency coefficient of 0.96, and, using the test-repeat technique, a reliability coefficient of 0.94. In research into the validity of the scale the $t$-test was used to analyze average scores for individuals in "patient" (psychiatric patients complaining of loneliness) and "normal" (individuals selected from students and staff at the Middle East Technical University in Ankara with no psychiatric complaints and with similar features to the patient group in terms of demographic characteristics) groups, revealing that the patient group had a higher level of loneliness at the 0.001 level. In terms of the validity of the scale using similar scales, the Beck Depression Inventory (BDI) and Multilateral Depression Scale Social Introversion (SI), the OCS exhibited a correlation of 0.77 with the BDI and 0.82 with the SI.

### 2.2.3. Dating anxiety scale-adolescent form

Developed by Kalkan (2008), the inventory is intended to determine dating anxiety in young people. The scale consists of 47 statements. A 5-point Likert-type scale, ranging from 1 = extremely uncharacteristic of me to 5 = extremely characteristic of me, was used. In testing the validity of the Dating Anxiety Scale-Adolescent Form, structural validity and similar scale validity were used. Factor analysis was used to test the inventory structural validity, and according to principal component analysis, performed together with the varimax rotation technique in order to examine factor structure and determine sub-dimensions, three factors were determined, accounting for 50.26% of the variance, with equivalence greater than 1. This variance is made up of 20 items stemming from the first factor (Unpopularity Anxiety- e.g., I think that other people look better or more attractive than me), at 19.86%. The second factor (Communication Anxiety- e.g., I have difficulty making eye contact) is made up of 15 points accounting for 15.24% of the total variance, and the third factor (Physiological Symptoms- e.g., My voice trembles when I speak) consists of 11 points accounting for 15.15% of the total variance. A correlation equivalence coefficient of 0.72 ($p < 0.01$) was determined between the scores from the Social Introversion scale and the Dating Anxiety Scale-Adolescent Form used for the validity of similar scales. A Cronbach Alpha reliability coefficient for the whole inventory of 0.96 was calculated, together with 0.94 for the Unpopularity Anxiety sub-scale, 0.90 for the Communication Anxiety Sub-scale and 0.88 for the Physiological Symptoms sub-scale (Kalkan, 2008).

### 2.3. Data collection and analysis

Measurement was performed during students' class time and completed in around 20 min. The data obtained from the collection procedure was then prepared for the appropriate statistical procedures on computer, using SPSS 15.0. The $t$-test, one-way analysis of variance, chi-square and Pearson's Product Moments correlation technique were employed for statistical analysis.

**Table 2**
Variance analysis results for problematic Internet use according to Internet use duration.

|  | KT | sd | KO | F |
| --- | --- | --- | --- | --- |
| Between groups | 54293.043 | 2 | 27 146.522 | 14.327* |
| Within group | 928432.689 | 490 | 1894.761 |  |
| Total | 982725.732 | 492 |  |  |

*$p < 0.001$.

**Table 3**
Post hoc test LSD results for problematic Internet use according to Internet use duration.

| Internet use duration | | Mean differences |
|---|---|---|
| More than 5 h a day | 1–5 h a day | 20.21* |
| | Less than 1 h a day | 33.37* |
| 1–5 h a day | Less than 1 h a day | 13.16* |

*$p < 0.01$.

## 3. Results

Results and analysis regarding the correlation between problematic Internet use and loneliness and dating anxiety in young university students and problematic Internet use patterns are provided below.

### 3.1. Problematic Internet use levels according to Internet use duration

One-way analysis of variance was used to determine whether problematic Internet use varied with Internet use duration. One-way analysis of variance indicates significant differences between groups ($F = 14.327$, $p < 0.001$) (Tables 1 and 2). Post-hoc analysis was used to determine those groups between which there was a difference. The mean problematic Internet use levels for subjects using the Internet were 100.65 for more than 5 h a day, 80.44 for 1–5 h a day, and 67.27 for less than 1 h a day (Table 1). LSD test results reveal that problematic Internet use levels significantly higher among those using the Internet for more than 5 h a day compared to those using it for 1–5 h and for less than 1 h a day. Table 3 gives the results of this analysis, showing that problematic Internet use levels are higher among those using the Internet for more than 5 h a day compared to others.

### 3.2. Correlation between young university student problematic Internet use and levels of loneliness and dating anxiety

The correlation between problematic Internet use and loneliness and dating anxiety levels among university students was tested using Pearson's correlation analysis, and the results are shown in Table 4. Pearson correlation analysis results reveal significant positive correlations between problematic Internet use and loneliness ($r = 0.194$, $p < 0.01$), communication anxiety ($r = 0.175$, $p < 0.01$), unpopularity anxiety ($r = 0.174$, $p < 0.01$) and physiological symptoms ($r = 0.125$, $p < 0.01$).

### 3.3. Problematic Internet use levels by dating relationships established over the Internet

Students' problematic Internet use levels according to dating relationships established online were analyzed using the *t*-test to determine whether or not there was a significant difference ($t = 2.652$, $p < 0.001$), and the results are given in Table 5. Problematic Internet use levels among students establishing dating relationships over the Internet ($X = 90.33$) were therefore significantly higher than those of other students ($X = 73.99$).

### 3.4. Problematic Internet use among university students by gender

The *t*-test was used to analyze whether or not there was a significant difference between the genders in terms of problematic Internet use (Table 6). The mean problematic Internet use levels were 86.29 for males and 69.73 for females. As shown in Table 6, male students were found to have a significantly higher level of problematic Internet use than females ($t = 4.046$, $p < 0.001$).

### 3.5. The relation between individuals' feelings between Internet use duration and not going online

Chi-square results reveal a significant association between Internet use duration and how students feel when not going online (chi-square $= 116.543$, $p < 0.001$) (Table 7). As shown in Table 7, none of those using the Internet for more than 5 h a day felt "very happy" when not online, and 2.6% felt "very unhappy; " 2.2% of those using the Internet 1–5 h a day felt "very happy" and 1% "very unhappy." Among those using the Internet for less than 1 h a day, 8.1% felt "very happy" when not online, and 2% "very unhappy."

## 4. Discussion and recommendations

This study investigating the relationship between problematic Internet use and dating anxiety and examining a number of variables in problematic Internet use was performed among young adult university students. The findings of the research reveal that that individuals using the Internet for more than 5 h a day exhibit significantly higher levels of problematic Internet use than those using the Internet for 1–5 h or less than 1 h a day. One significant measure of Internet dependency is frequency of daily or weekly use. There are varying opinions regarding thus: Morahan-Martin and Schumacher (2000) reported an average Internet use of 8.48 h per week among problematic users,

**Table 4**
Correlation coefficients for problematic Internet use, loneliness and dating anxiety.

| | Loneliness | Communication anxiety | Unpopularity anxiety | Physiological symptoms |
|---|---|---|---|---|
| Problematic Internet use | 0.194* | 0.175* | 0.174* | 0.125* |

*$p < 0.001$.

**Table 5**
Problematic Internet use levels according to dating relationships established over the Internet.

| | Dating relationship established online | N | X | S | t |
|---|---|---|---|---|---|
| Problematic Internet use | Yes | 59 | 90.3390 | 34.6448 | 2.652* |
| | No | 434 | 73.9931 | 45.5713 | |

$^*p < 0.001$.

compared to 2.47 h a week for healthy users. Scherer and Bost (1997) reported an average weekly Internet use of 8.1 h in a study among students, while Brenner (1997) reported 19 h a week. Keser-Özcan and Buzlu (2005) reported an average Internet use of 2.5 h a week. In terms of the point of agreement of the studies, Internet use of 5 h a day and more is regarded as problematic. According to Young's criteria for Internet addiction, "feeling the need for an increase in online duration," while in Goldberg's diagnostic criteria (Goldberg, 1997) "a significantly increased Internet use duration in order to obtain the desired pleasure" and "a reduction in the amount of enjoyment obtained through constantly using the Internet for the same amount of time" were reported (Öztürk et al., 2007).

In this study, problematic Internet use is significantly correlated with loneliness and levels of dating anxiety. Similar results have been obtained in various other studies on the subject. Research has shown a positive correlation between problematic Internet use and shyness, loneliness and avoiding social relations (Ceyhan & Ceyhan, 2008; Gross et al., 2002; Kraut et al., 1998; Lavin et al., 2004; Mittal et al., 2007).

Loneliness has been reported to be greater in adolescence than at other times (Brage, Meredith, & Woodward, 1993; Medora & Woodward, 1986) and has been observed to be correlated with a low level of peer acceptance (Sletta, Valas, Skaalvik, & Sobstad, 1996), peer rejection (Cassidy & Asher, 1992; Rotenberg, Bartley, & Toivonen, 1997) and alienation from society (Anderson & Harvey, 1988; Page & Cole, 1991). In addition, a negative correlation between secure bonding established between parents and other individuals at this time and loneliness (DiTommaso, Brannen-McNulty, Ross, & Burgess, 2003; Wiseman, Mayseless, & Saharabany, 2006), failure in relations with family and friends and a non-functional relationship style may lead adolescents toward online relationships with an "acceptable character."

Loneliness, due to a failure to establish close and meaningful relationships with people around or existing relations being at an insufficient level and described as a painful emotion (DiTommaso & Spinner, 1997; Nelson-Jones, 1996), is linked to a person's negative impressions of themselves and others. These negative impressions stimulate feelings of self-dislike in the adolescent; individuals with a high level of loneliness having low self esteem and being pessimistic in social relations (Man & Hamid, 1998; Nurmi & Salmela-Aro, 1997) may cause them to avoid other people and turn to cyber relationships. According to Morahan-Martin and Schumacher (2000), the fact that individuals can establish control in relationships established online also reduces social anxiety.

In addition, physiological reactions in people experiencing dating anxiety, such as difficulty in establishing eye contact, reluctance to speak, sweating in proximity to the opposite sex and blushing, impede genuine romantic relationships and the comfort provided by cyber relations may encourage adolescents in the direction of excessive Internet use. Morahan-Martin (1999) reports that with Internet use replacing social relations in real life, individuals find themselves in a vicious circle and say that excessive Internet use and psychological problems may trigger one another, for which reason it is difficult to establish which is cause and which is effect. The relationship between problematic Internet use and negative psychological states such as loneliness may therefore be two-way (Morahan-Martin, 1999). It has been also reported that time distortion is the major consequence of excessive Internet use. Excessive use of the Internet may cause students to experience significant academic problems, eventually resulting in poor grades, academic probation and even expulsion from universities (Chou & Hsiao, 2000; Wainer et al., 2008).

The findings of the research reveal that students forming dating relationships online have a significantly higher level of problematic Internet use than other students. The fact that adolescents with shyness, dependency and depression and low self-esteem exhibit greater Internet dependency than other students (Yang & Tung, 2007) may explain how such young people experience virtual romantic relationships rather than establishing direct social relationships. Research exists suggesting that individuals with high levels of anxiety in dating relationships regard themselves as less attractive (Zakahi, Duran, & Adkins, 1994) while individuals with high social competence have more dating relationships (Larsen & Shackelford, 1996).

The findings indicate that male students exhibit a higher level of problematic Internet use than females. Problematic Internet use is widespread among adolescents of both genders, though findings show a level 2 or 3 times higher in males compared to females (Öztürk et al., 2007; Tahiroğlu, Çelik, Uzel, Ozcan, & Avci, 2008). Amichai-Hamburger and Ben-Artzi (2003) report that Internet use was identity-related in women, but make no mention of any such thing for men as a result of their research. According to their research, female participation in social network sites is negatively correlated with extroversion and positively with neuroticism. According to Hardie and Yi-Tee (2007), problematic Internet use is similar in both sexes.

The findings of the research reveal that there is a significant association between Internet use duration and how students feel when not using the Internet. An individual possessing "obsessive ideas about what is on the Internet" and "inventing dreams and fantasies about the Internet" is described in the diagnostic scale adapted according to the DSM-IV classification system developed by Goldberg (1997). Problematic Internet users might not be expected to feel at ease when not online. But individuals' tendencies not to use the Internet for work or education must not be ignored in producing such an analysis (Goldberg, 1997; Öztürk et al., 2007).

In conclusion, individuals' levels of loneliness and dating anxiety rise as problematic Internet use increases. In addition, daily length of Internet us (more than 5 h a day) is a significant variable in problematic Internet use.

The following recommendations may be proposed in the light of these findings: As with other kinds of dependency, Internet dependency is a state in which the individual finds it difficult to control himself. States such as spending a long time online and feeling uneasy in

**Table 6**
Problematic Internet use levels by gender.

| | Sex | N | X | S | t |
|---|---|---|---|---|---|
| Problematic Internet use | Female | 308 | 69.7338 | 49.31796 | 4.046* |
| | Male | 185 | 86.2973 | 33.32259 | |

$^*p < 0.001$.

**Table 7**
Association between length of Internet use and how individuals feel when not online.

| Length of Internet use | How do you feel when not online? | | | | | | | | | | | |
| | Very unhappy | | Unhappy | | Neither happy nor unhappy | | Happy | | Very happy | | Total | |
| | N | % | N | % | N | % | N | % | N | % | N | % |
| More than 5 h a day | 13 | 2.6 | 11 | 2.2 | 20 | 4.1 | 8 | 1.6 | – | – | 52 | 10.5 |
| 1–5 h a day | 5 | 1.0 | 14 | 2.8 | 114 | 23.1 | 49 | 9.9 | 11 | 2.2 | 193 | 39.1 |
| Less than 1 h a day | 1 | 0.2 | 8 | 1.6 | 119 | 24.1 | 80 | 16.2 | 40 | 8.1 | 248 | 50.3 |
| Total | 19 | 3.9 | 33 | 6.7 | 253 | 51.3 | 137 | 27.8 | 51 | 10.3 | 493 | 100 |

Chi-square = 116.543 ($p < 0.001$).

environments with no Internet access are symptoms that can be reduced or eliminated by increasing an individual's internal control. And internal control can be improved with psychological support. Use should be made of psychological counseling activities to increase internal control in order for students to achieve restricted Internet use. The presence of a correlation between problematic Internet use, loneliness and dating anxiety in this study necessitates the overcoming of individuals' lack of knowledge and skills and faulty learning with regard to establishing relationships with others. Psychological counseling assistance and skills improvement training will help individuals to establish healthy communication and interpersonal relations. We think that improving these skills will help increase the number and quality of face-to-face relations and assist in reducing virtual relationships. Therefore, levels of anxiety in individuals with high dating anxiety experiencing romantic relationships over the Internet should be reduced with the help of psychological counseling based on a cognitive-behavioral approach, and the acquirement of skills aimed at establishing face-to-face romantic relations. Interpersonal relations should be improved with training such as Friendship Training, Human Relation Skills Training and Social Skills Training to be given to individuals with high levels of loneliness, thus contributing to reducing the levels of problematic Internet use.

Since daily Internet use of more than 5 h may be regarded as problematic, it is important for individuals in the school and home environments, where adolescents spend most of their time, to be made aware of this issue and to be guided on the subject of precautions to be taken. Parents and teachers must be made aware of harmful Internet use and seminars and educational activities arranged for that purpose. In addition, precautionary measures should be taken to ensure students use the Internet in academic activities for educational purposes, and group guidance should be provided so that students can develop such behavior. The uncontrolled spread of cyber cafes also raises security questions. Precautions should be taken to bring web sites that may damage children's and adolescents' mental, emotional, sexual and social development under control. Otherwise, as also revealed in this study, adolescents turn more to virtual romantic relations than to genuine ones, and become increasingly lonely, and are thus exposed to those dangers that may come from virtual relationships. The findings from our study revealing a correlation between problematic Internet use and loneliness demonstrate that adolescents need social support, and especially that received from friends. Therefore, adolescents need group activities to meet their need to spend time with their peers and belong to a group. We think that the perception of peer group support and a decrease in loneliness will also reduce problematic Internet use. Therefore, sporting, musical and similar activities should be arranged to attract adolescents away from Internet dependency, according to their areas of interest. The overcoming or treatment of a problem requires greater effort, work and expense than precautions aimed at preventing the problem. Preventing a problem before it appears will therefore help eliminate the damage caused by potential problems. The correlation between problematic Internet use and loneliness and dating anxiety, revealed in this study, shows that these variables may be both causes and consequences of one another. Therefore, preventive and protective psychological counseling policies should be introduced with regard to problematic Internet use, loneliness and dating anxiety.

This study investigated those variables thought to be correlated to problematic Internet use, though predictive variables were not considered. The determination of factors encouraging adolescents in the direction of problematic Internet use is important in terms of precautionary measures and interventions to be taken. Therefore, research should be conducted into predictor variables of problematic Internet use. In determining daily length of Internet use, reasons why subjects used the Internet were not investigated. For that reason, those subjects using it for education, business etc. were considered in the same category as those using it for entertainment or to play games etc. Research is needed based on different sampling groups and capable of distinguishing education or work-based Internet use from amusement or chat-based use in testing the influence of Internet use duration, one of the fundamental criteria of problematic Internet use.

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