

The Relationship Between Problematic Internet Entertainment Use and Problem Solving Skills Among University Students

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Published online: 4 March 2014

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Abstract The current study aimed to investigate the relationship between Internet addiction and problem solving skills of university students. The study also examined the psychometric properties of the Turkish version of Problematic Internet Entertainment Use Scale for Adolescents, which centers on major Internet entertainments such as online video games and social networking sites, specifically with regard to normative, reliability, and validity information. Problem Solving Inventory was utilized in order to measure the problem solving skills of students. Both instruments were administered to 371 students aged 17 to 36 years from different departments in Marmara University and Istanbul Technical University (Istanbul, Turkey). This study showed that the Turkish version of the Problematic Internet Entertainment Use Scale for Adolescents was a reliable and valid instrument for measurement of maladaptive patterns in the use of online entertainments such as OVG and SNS. The results revealed that there is a close relationship between problematic internet entertainment use and Avoidant ($r=.443$; $p<.01$) and Impulsive problem solving styles ($r=.402$; $p<.01$) among university students.

Keywords Problematic Internet entertainment use · Problem solving · University students

Internet addiction is a common disorder that is being included in DSM-V. It is accepted as a compulsive-impulsive spectrum disorder that involves online and/or offline computer usage and consists of at least three subtypes: excessive gaming, sexual preoccupations, and e-mail/text messaging. All of the subtypes share the following four components: 1) *excessive use*, often associated with a loss of sense of time or a neglect of basic drives, 2) *withdrawal*, including feelings of anger, tension, and/or depression when the computer is inaccessible, 3) *tolerance*, including the need for better computer equipment, more software, or more hours of

This study was granted by Marmara University, Scientific Research Projects Center with the EGT-D-110913-0387 research number.

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use, and 4) *negative repercussions*, including arguments, lying, poor achievement, social isolation, and fatigue (Shapira et al. 2000, 2003).

Many researchers indicate that Internet addiction is currently one of the most serious public health issues (Ahn 2007). Additionally, studies have reported that a series of ten cardiopulmonary-related deaths occurred in Internet cafés (Choi 2007) and a game-related murder (Koh 2007) in South Korea was one of the severe cases. It is reported that 13.7 % of Chinese adolescent Internet users meet Internet addiction diagnostic criteria, which is about ten million teenagers. As a result of these findings in 2007, China began restricting computer game use; current laws now discourage more than 3 h of daily game use (Block 2007). The Internet addiction issue is further complicated by comorbidity. About 86 % of Internet addiction cases have other DSM-IV diagnoses present (Ahn 2007). It was reported that increased levels of depression are associated with those who become addicted to the Internet (Young and Rodgers 1998). This suggests that clinical depression is significantly associated with increased levels of personal Internet use. In a similar study, it was reported that Internet addiction groups have higher scores in neuroticism and psychoticism temperament categories than those of the control group, suggesting that children with high scores in these two temperament categories may be more likely to exhibit Internet addiction behaviors than their peers (Morahan-Martin and Schumacher 2000). The studies revealed that the students with Internet addiction were easily affected by feeling, emotionally less stable, imaginative, absorbed in thought, self-sufficient, experimenting and preferred their own decisions.

The students with Internet addiction have less ability in overall time management and in each subcategory time management disposition. Consequently, Internet addicts weaker sense of time management may lead to their weaknesses in planning for study and daily life, time monitoring and self-management (Cao and Su 2006). On the other hand, weak time management ability may also result in inefficient time allocation and can therefore cause more emotional and psychological problems in adolescents (Huang and Zhang 2001). Adolescents with Internet addiction were more likely to have substance use experience in high schools in southern Taiwan (Whang et al. 2003a,b). Studies among personality characteristics between adolescents with and without Internet addiction and substance use experience revealed that high novelty seeking (NS), high harm avoidance (HA), and low reward dependence (RD) predicted a higher proportion of adolescents with Internet addiction (Ko et al. 2006). Adolescents with Internet addiction usually suffer from problems with their daily routines, school performance, family relationships, and mood (Young and Rodgers 1998). Depression, lower self-esteem and lower life satisfaction have been reported in adolescents with Internet addiction (Ko et al. 2006; Young and Rodgers 1998).

Adolescents with Internet addiction have higher psychiatric symptoms; hostility and depression were associated with Internet addiction as well as substance use (Yen et al. 2009). There is close correspondence between the level of attention deficit-hyperactivity/impulsivity symptoms (ADHD) symptoms and the severity of Internet addiction in children. In addition, current findings suggest that the presence of ADHD symptoms, both in inattention and hyperactivity-impulsivity domains, may be one of the important risk factors for Internet addiction (Yoo et al. 2004). There is a relation between the Internet addiction and attention deficit and hyperactivity symptoms and also with anxious temperament. Furthermore, behavioral problems are more frequent in adolescents who have problematic Internet use (Ozturk et al. 2013). Internet users in Korea were investigated in terms of Internet over-use and related psychological profiles by the level of Internet use. Among the sample, 3.5 % had been diagnosed as Internet addicts (IA), while 18.4 % of them were classified as possible Internet addicts (PA). The IA group reported the highest degree of loneliness, depressed mood, and compulsivity compared to the other groups. The IA group seemed to be more vulnerable to

interpersonal dangers than others, showing an unusually close feeling for strangers (Whang et al. 2003a,b). In a similar research with Chinese high school students showed that the rate of Internet use among the surveyed adolescents was 88 %, among which the incidence rate of Internet addiction was 2.4 %. The Internet addiction group had significantly higher scores on the Eysenck Personality Questionnaire (EPQ) subscales of neuroticism, psychoticism, and lie than the control group (Cao and Su 2006).

Similar to Internet addiction, problem-solving skills of individuals in daily life is closely related to person's psychological well-being. Many studies were conducted in order to understand how people solve real-life personal problems (Heppner 1978; Heppner and Krauskopf 1987). There is close correspondence between ineffective problem solving results in stressful outcomes and psychological maladjustment (D'Zurilla and Nezu 2001; Nezu and Perri 1989). It is becoming increasingly clear that problem solving and coping play an important role in adaptational responses to stress (Lazarus and Folkman 1984). In many studies indicated the relationship between problem-solving skills and styles and indices of physical and psychological health of people. For example, those who praise themselves as having confidence, personal control, and approaching problems towards daily life problems reported fewer personal problems (Nezu and Ronan 1985); more positive self concepts, and fewer dysfunctional thoughts and irrational beliefs (Heppner et al. 1983); fewer physical health symptoms (Tracey et al. 1986); more adaptive study habits and attitudes among academically unprepared students (Elliott et al. 1990).

Both problematic Internet using/internet addiction levels and problem-solving skills are interrelated concepts, which have close correspondence with individual psychological well-being and cognitive skills. In related literature, a number of studies indicate the relationship between individuals' emotional well-being and internet-addiction and the relationship between one's psychological well-being and problem-solving skills. However, there is no study that is questioning the relationship between problematic-internet using procedures and problem solving skills of individuals. In this study it was aimed to investigate the relationship between Internet addiction and problem solving skills of university students. It was questioned whether the problem solving skills and styles are different for the internet-addicted and non-addicted university students. In addition, this study examined the psychometric properties of the Turkish version of Problematic Internet Entertainment Use Scale for Adolescent (PIEUSA) specifically with regard to normative, reliability, and validity information.

Method

Participants

Students from public universities (Marmara University and Istanbul Technical University) in the city of Istanbul (Turkey) participated in this study. A randomly selected sample comprised of 371 students 239 girls (64.4 %) and 132 boys (35.6 %) aged 17 to 36 years ($M=20.50$, $SD=2.32$).

Materials

The students were administered a paper-pencil questionnaire that is organized into four sections: (1) demographic information form (age, gender, department, grade level); (2) attainment and patterns of Internet use (computer owner, user, age at the first use, prefer online entertainments, duration (average length of a regular session), types of Social Networking

Sites, the factors affecting Social Networking Sites; and (3) “*Problematic Internet Entertainment Use Scale for Adolescents*” (PIEUSA). PIEUSA is one-dimensional, has excellent consistency (Cronbach alpha of .92), good construct validity, and positive associations with alternative measures of maladaptive Internet use (Lopez-Fernandez et al. 2013). The scale was translated into Turkish by researchers, and the accuracy of translation was tested by back-translations of fluent speakers of the English language (professors of English Language and literature). PIEUSA contains 30 items rated on a 5 point Likert scale; from 1 strongly disagree, to 5, strongly agree. So the total score ranges from 30 to 150, with the highest score representing the maximum presence of the problematic Internet entertainment use, (4) *The Problem-Solving Inventory* (PSI). It is a 32-item Likert-type instrument designed to assess individuals’ perceptions of their problem-solving ability and problem-solving styles. The responses to the items range between 1 (strongly agree) to 6 strongly disagree. The total score range is 32 to 192. The higher score means less in skills of problem solving (Heppner and Peterson 1982). It was reported that estimate of internal consistency (Cronbach’s alpha) revealed alpha coefficients of .88 for the total inventory, and .78, .76, .74, .69, .64, and .59 for the six factors (Impulsive Style, Reflective Style, Problem-Solving Confidence, Avoidant Style, Monitoring, Planfulness). They reported strong relationship between the PSI and anxiety. They also reported the discriminative power of PSI scores between non-anxious/anxious groups. In this study the internal consistency analysis (Cronbach’s alpha) revealed .82 alpha coefficients for the Problem-Solving Inventory total inventory. The alphas coefficients for the six factors (Impulsive Style, Reflective Style, Avoidant, Monitoring, Problem-Solving Confidence, Planfulness) were .74, .75, .72, .62, .67, and .69 (Şahin et al. 1993).

Procedure

Researchers administrated the demographic information form, PIEUSA and PSI during a regular hour course, having previously obtained permission from the teaching staff of the courses. The participants were asked to answer honestly, and guaranteed the confidentiality of their responses; all the students gave voluntary consent to participate.

Results

Psychometric Properties of the PIEUSA

Factor Validity An EFA using the principle components technique was conducted on the 30 items of PIEUSA. The value of the Kaiser-Meyer-Olkin Index (KMO=.922) verified the sampling adequacy ($N=371$), while Barlett’s test of sphericity ($\chi^2_{(435)}=4210,069$ $p<.000$) indicated sufficient correlations between items. Application of the Kaiser criterion ($\lambda \geq 1$) indicated that a combination of seven components explained 57.9 % of the variance, while the screen plot showed two inflections after the first and five components. The largest fall was after the first factor, which explained 32.12 % of the variance and had the highest eigenvalue. So PIEUSA could be considered one-dimensional. A factor loading of .30 was used as a cut-off for items (Floyd and Fidaman 1995).

Item Analysis and Internal Consistency Table 1 shows that the items have scores between 3.36 and 2.06. The standard deviations of the items were between 1.10 and 2.01. According to homogeneity, it is indicated that all of the items have high correlation values with corrected total scores and for none of items got higher Cronbach’s alfa if item deleted. The internal consistency of the scale was excellent ($\alpha=.92$).

Table 1 Item analysis and internal consistency reliability in PIEUSA

| Item | M | SD | Corrected item-total correlation | Cronbach's Alpha if item is deleted |
|------|--------|---------|----------------------------------|-------------------------------------|
| 1 | 3,3612 | 1,26235 | ,353 | ,917 |
| 2 | 2,9407 | 1,33831 | ,431 | ,916 |
| 3 | 2,3693 | 1,10087 | ,640 | ,913 |
| 4 | 2,4016 | 1,13561 | ,635 | ,913 |
| 5 | 2,4313 | 1,20472 | ,533 | ,915 |
| 6 | 2,4501 | 1,20565 | ,595 | ,914 |
| 7 | 2,2291 | 1,25581 | ,475 | ,915 |
| 8 | 2,4043 | 1,16868 | ,546 | ,914 |
| 9 | 2,7278 | 1,21867 | ,460 | ,916 |
| 10 | 2,7251 | 1,22138 | ,490 | ,915 |
| 11 | 2,4286 | 1,14945 | ,620 | ,914 |
| 12 | 2,3935 | 1,18155 | ,470 | ,916 |
| 13 | 2,4609 | 1,22825 | ,609 | ,914 |
| 14 | 2,3046 | 1,13968 | ,562 | ,914 |
| 15 | 3,1240 | 1,15816 | ,391 | ,917 |
| 16 | 2,6469 | 2,01262 | ,327 | ,920 |
| 17 | 2,7601 | 1,26240 | ,521 | ,915 |
| 18 | 2,8275 | 1,91365 | ,407 | ,918 |
| 19 | 2,7601 | 1,17134 | ,517 | ,915 |
| 20 | 2,2776 | 1,16990 | ,576 | ,914 |
| 21 | 2,5580 | 1,29396 | ,525 | ,915 |
| 22 | 2,1105 | 1,15836 | ,622 | ,913 |
| 23 | 2,3288 | 1,13171 | ,490 | ,915 |
| 24 | 2,0647 | 1,12999 | ,589 | ,914 |
| 25 | 2,3962 | 1,67877 | ,381 | ,918 |
| 26 | 2,1563 | 1,17971 | ,598 | ,914 |
| 27 | 2,0863 | 1,12375 | ,599 | ,914 |
| 28 | 2,5040 | 1,24634 | ,475 | ,915 |
| 29 | 2,9084 | 1,20683 | ,393 | ,917 |
| 30 | 2,3288 | 1,23231 | ,611 | ,914 |

Construct Validity The Mean score on the PIEUSA of 371 Turkish university students was 75.47 (SD=20.88). In order to compare the PIEUSA total score with patterns of Internet usage, Spearman's correlation coefficient was calculated. The results revealed a positive relationship with the PIEUSA total score and average internet usage duration ($r=.393$, $p<.000$), average social networking sites usage duration ($r=.418$, $p<.05$). In addition, the analysis of individual items related to the time of Internet attainment and social networking sites of the students showed significant relationships to PIEUSA scores. Specifically, the Mean total score was significantly higher for the students who responded to the following items. “*I started to attain a computer*” ($t_{(369)}=3,185$; $p<.05$; $r=-.157$); in primary-secondary education years: $M=86.51$, $SD=17,034$; In high school and university education years: $M=67,23$, $SD=16,956$); “*I attain OVG/SNS*” ($t_{(366)}=4,008$; $p<.000$; $r=.22$; in primary-secondary education

years: $M=80.17$, $SD=20.89$; In high school and university education years : $M=70.45$, $SD=16.956$).

Patterns of Internet Usage in Relation to Gender and Age In this study 95.4 % of the sample owned a computer in their home, and 84.6 % owned internet connection in their home, 82.7 % of the students reported using a computer for an entertainment (OVG/SNS) for 1–3 h a day; 11.9 % of the participants used a computer for OVG/SNS for 4–6 h a day; 3.2 % of them use it for 7–9 h a day and 2.2 % of the students used it for 9 h or more a day. There is no difference between age groups using internet as an entertainment OVG/SNS: 83 % of younger students and 81.5 % of older students use the internet for 1–3 h a day; 12.1 % of young students and 11.1 % of older students use it for 4–6 h a day and 4.7 % of young group and 7.4 % of older group use internet as an entertainment more than 6 h a day.

PIEUSA Total Score in Relation to Gender, Age Groups and Internet/OVG-SNS Attainment Dates and Duration of Using Internet-OVG-SNS

Inferential bivariate analyses showed that Mean scores on PIEUSA were higher in male students ($f_{(1,360)}=5.343$; $p<.05$) and in the younger age group ($f_{(1,369)}=7.246$; $p<.01$). In addition, the results showed that the students who attain computer/internet in early ages (primary/elementary education levels) got higher mean PIEUSA scores than the students who got computer/internet in later ages (high schools/university education levels) ($f_{(1,369)}=3.451$; $p<.05$). Similarly the students who could use internet entertainment (OVG-SNS) in early years got higher mean PIEUSA total score than the students who could get this opportunity in later years ($f_{(1,369)}=16.288$; $p<.00$). The students using computer/internet longer hours in a day got higher mean PIEUSA total scores than the students using them shorter hours in a day ($f_{(2,268)}=9.738$; $p<.00$). The students who were playing online video games and using social networking sites in internet longer hours in a day got higher PIEUSA total scores than the students doing same activities less hours ($f_{(1,268)}=11.492$; $p<.00$) (See Table 2).

Prevalence for the Use of Internet Entertainment It was used rigorous statistical criteria based on the 15, 80, and 95 percentiles for which the corresponding PIEUSA scores were 52, 93, and 111 (out of 150). Out of the sample who answered the entire scale, 14.8 % were occasional internet users, 66.1 % regular users, 14.5 % at-risk users, and 6 % problematic users. The ANOVA analyses on problem solving skills total and sub-scale scores between the different patterns of internet usage revealed significant results ($f_{(3,367)}=9.997$; $p<.00$). The occasional internet usage group got significantly lower problem-solving skills total score than at-risk and problematic groups, similarly regular internet usage group got lower scores than the group named at-risk (See Table 3). The results revealed the same pattern for differences on problem-solving sub-scale scores (Avoidant and Impulsive problem-solving styles) between different patterns of internet usage ($f_{(3,367)}=28.069$; $p<.000$; $f_{(3,367)}=19.958$; $p<.000$). The students who grouped into occasional Internet usage got lower avoidant styles of problem-solving scores than the students who were grouped in all other patterns of Internet usage. The students from at-risk groups got higher avoidant styles of problem-solving scores than the students from problematic Internet usage group. Similarly, the students from occasional Internet usage group got lower impulsive problem-solving style scores than the students from the other Internet usage groups.

Table 2 ANOVA analyses on PIEUSA total score, gender, age groups and internet/OVG-SNS attainment dates and duration of using internet-OVG-SNS

| Age | <i>N</i> | Mean | SD | <i>f</i> | <i>p</i> |
|----------------------------------|----------|---------|----------|----------|----------|
| 17–20 | 237 | 76,1224 | 20,86270 | 7.246 | .01 |
| 21–35 | 134 | 74,3060 | 20,93212 | | |
| Total | 371 | 75,4663 | 20,87779 | | |
| Sex | | | | | |
| Female | 239 | 74,2176 | 21,00368 | 5,343 | .05 |
| Male | 132 | 77,7273 | 20,53375 | | |
| Total | 371 | 75,4663 | 20,87779 | | |
| Computer/internet attainment | | | | | |
| Primary/Elementary School | 292 | 76,5103 | 21,03467 | 3,451 | .04 |
| High School/University | 79 | 71,6076 | 19,94442 | | |
| Total | 371 | 75,4663 | 20,87779 | | |
| Daily computer/internet duration | | | | | |
| 1–3 h (1) | 266 | 72,5602 | 20,68029 | 9,738 | 1–2 |
| 4–6 h (2) | 80 | 83,5375 | 18,57448 | | .00 |
| 7-more h (3) | 25 | 84,5600 | 22,89483 | | 1–3 |
| Total | 371 | 75,4663 | 20,87779 | | |
| OVG/SNS attainment | | | | | |
| Primary/Elementary School | 168 | 80,1786 | 20,83477 | 16,288 | .00 |
| High School/University | 203 | 71,5665 | 20,14379 | | |
| Total | 371 | 75,4663 | 20,87779 | | |
| Daily OVG/SNS duration | | | | | |
| 1–3 h (1) | 306 | 73,5392 | 20,27808 | 11,492 | 1–2 |
| 4–6 h (2) | 44 | 89,2273 | 18,58965 | | .000 |
| 7-more h (3) | 21 | 91,7143 | 24,00030 | | 1–4 |
| Total | 371 | 75,4663 | 20,87779 | | |

Table 3 ANOVA results of students' problem solving inventory total and sub-scale scores according to categories related with patterns of internet usage

| | Source of variance | Sum of squares | df | Mean square | <i>f</i> | <i>p</i> |
|--------------------------------|--------------------|----------------|-----|-------------|----------|----------|
| Problem solving skills (Total) | Between groups | 7494,645 | 3 | 2498,215 | 9,997 | .000 |
| | Within groups | 91711,768 | 367 | 249,896 | | |
| | Total | 99206,413 | 370 | | | |
| Avoidant style | Between groups | 1094,500 | 3 | 364,833 | 28,069 | .000 |
| | Within groups | 4770,250 | 367 | 12,998 | | |
| | Total | 5864,749 | 370 | | | |
| Impulsive style | Between groups | 1683,179 | 3 | 561,060 | 19,958 | .000 |
| | Within groups | 10317,149 | 367 | 28,112 | | |
| | Total | 12000,328 | 370 | | | |

Table 4 Problem solving inventory total and sub-scale scores' mean and standard deviation according to categories related with patterns of internet usage

| | | <i>N</i> | Mean | Std. deviation | Significant difference |
|--------------------------------|-----------------|----------|----------|----------------|------------------------|
| Problem solving skills (Total) | Occasional (1) | 61 | 93,3279 | 18,47225 | 1–3 |
| | Regular (2) | 233 | 96,9142 | 15,93444 | 1–4 |
| | At-risk (3) | 60 | 106,4833 | 12,87948 | 2–3 |
| | Problematic (4) | 17 | 107,7647 | 12,61214 | |
| | Total | 371 | 98,3693 | 16,37454 | |
| Avoidant style | Occasional (1) | 61 | 9,4754 | 3,77980 | 1–2 |
| | Regular (2) | 233 | 11,4163 | 3,32870 | 1–3 |
| | At-risk (3) | 60 | 14,2167 | 4,28277 | 1–4 |
| | Problematic (4) | 17 | 16,5294 | 4,03295 | 2–3 |
| | Total | 371 | 11,7844 | 3,98129 | 2–4 |
| Reflective style | Occasional | 61 | 15,6393 | 5,41305 | |
| | Regular | 233 | 14,7468 | 3,90405 | |
| | At-risk | 60 | 15,7667 | 3,82395 | |
| | Problematic | 17 | 13,9412 | 4,32248 | |
| | Total | 371 | 15,0216 | 4,20740 | |
| Impulsive style | Occasional (1) | 61 | 27,7541 | 5,18863 | 1–2 |
| | Regular (2) | 233 | 29,9356 | 5,36754 | 1–3 |
| | At-risk (3) | 60 | 33,6667 | 4,99039 | 1–4 |
| | Problematic (4) | 17 | 36,1765 | 5,85486 | 2–3 |
| | Total | 371 | 30,4663 | 5,69503 | 2–4 |
| Monitoring | Occasional | 61 | 9,1311 | 3,51414 | |
| | Regular | 233 | 8,9227 | 2,94827 | |
| | At-risk | 60 | 9,5167 | 3,03366 | |
| | Problematic | 17 | 8,5882 | 2,91674 | |
| | Total | 371 | 9,0377 | 3,05688 | |
| Problem-solving confidence | Occasional | 61 | 17,2131 | 5,50792 | |
| | Regular | 233 | 17,7339 | 4,74501 | |
| | At-risk | 60 | 18,1667 | 3,83634 | |
| | Problematic | 17 | 18,4706 | 5,60265 | |
| | Total | 371 | 17,7520 | 4,77923 | |
| Planfulness | Occasional | 61 | 12,0328 | 4,55327 | |
| | Regular | 233 | 11,4077 | 3,40022 | |
| | At-risk | 60 | 12,1333 | 3,14328 | |
| | Problematic | 17 | 11,0000 | 3,37268 | |
| | Total | 371 | 11,6092 | 3,57708 | |

Finally, the results showed the regular Internet usage group got lower impulsive problem-solving style scores than at-risk and problematic Internet usage groups (See Table 4).

In order to examine the relationships between problematic Internet entertainment usage scores and problem solving skills pearson-correlation coefficient values were calculated. The results showed close correspondences between problem-solving skills,

Table 5 The correlation values between PIEUSA and PSS and PST

| PSS | PST | (1) | (2) | (3) | (4) | (5) | (6) |
|---------|----------|----------|----------|----------|----------|----------|-------|
| AVO (1) | ,541(**) | | | | | | |
| REF (2) | ,653(**) | ,038 | | | | | |
| IMP (3) | ,450(**) | ,482(**) | −,038 | | | | |
| MON (4) | ,609(**) | ,071 | ,521(**) | −,039 | | | |
| PSC (5) | ,764(**) | ,173(**) | ,573(**) | −,001 | ,531(**) | | |
| PLF | ,677(**) | ,086 | ,658(**) | −,105(*) | ,521(**) | ,649(**) | |
| PIEUSA | ,260(**) | ,443(**) | −,047 | ,402(**) | −,007 | ,036 | −,025 |

AVO Avoidant Style, *REF* Reflective Style, *IMP* Impulsive Style, *MON* Monitoring, *PSC* Problem-Solving Confidence, *PLF* Planfulness, *PIEUSA* Problematic Internet Entertainment Usage Scale for Adolescent, *PST* Problem Solving Skills Total, *PSS* Problem Solving Sub-Scale Types

** $p < 0.01$

* $p < 0.05$

total scores and problematic internet usage scale scores ($r = .26$; $p < .01$). In addition, there is a close relationship between PIEUSA total scores and Avoidant ($r = .443$; $p < .01$) and Impulsive problem solving styles ($r = .402$; $p < .01$) (See Table 5).

Discussion

This study showed that the Turkish version of PIEUSA was a reliable and valid instrument for measurement of maladaptive patterns in the use of online entertainments such as OVG and SNS. The rates of occasional Internet use and regular use were 14.8 % and 66.1 %. In addition, the rates of at-risk use and problematic Internet entertainment use 14.5 % and 6 % respectively in Turkish university students. These findings are within the prevalence range reported in studies with adolescent (Canan et al. 2010, 2012; Günnüç and Kayri 2010). This study showed close correspondences between daily internet/computer using or social networking and video games duration and internet addiction. The students using Internet or playing video games or using social network longer hours get scores at-risk for Internet addiction. In this study boys got higher PIEUSA scores than girls. This result is similar to other studies from Turkey, which proved that males are more prone to the effects of harmful Internet use (Canan et al. 2010, 2012). Similar to the results of other studies (Chow et al. 2009; Ghassemzadeh et al. 2008). This study showed that the students having computer/internet, playing video games and using social network in early ages received higher risk factors for being Internet addicted. Similarly daily Internet using duration is the other important variable for Internet addiction. The students using computer/internet, playing video games and using social network more than 3 h can be accepted at risk level for internet addiction.

One of the impressive results of this study is that the results revealed a strong relationship between problematic Internet usage and university students' daily life problem-solving skills and styles. Teenagers experiencing higher problematic Internet entertainment usage scores have lower levels of problem-solving skills. Problem-solving skills levels change according to the patterns of Internet entertainment usage. The lowest level was seen in the problematic Internet user group and the maximum level of problem-solving skills was seen in the occasional Internet usage group. These close correspondences between problematic Internet

usage and problem-solving skills can be questioned with different sample groups within clinical populations.

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