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## Internet Addiction in Kurdistan University Students: Prevalence and Association with Self-Control

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**Abstract:** This study aims to reveal the prevalence of internet addiction among Kurdish university students and its association with self-control. 623 students from 19 universities in various colleges and schools, 335 boys (54 %) and 288 (46%) girls took part in this study in which they were asked to complete an internet addiction and self-control self-report. The findings indicated that the prevalence of internet addiction among Kurdish university population is very high, concluding that 36.5% of the participants met the internet addiction criteria. In addition, it was found that males and females are equally susceptible to becoming addicted to the internet. The results also showed that internet addiction correlates negatively to the self-control and positively with impulsive behaviour. Based on the regression analysis, 15.7% of the variance of internet addiction can be explained by self-control. Further study should investigate the effect of internet addiction on discomfort intolerance.

**Keywords:** *Internet addiction, self-control, impulsive behaviour, distress intolerance.*

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### Introduction

Using the internet has been dramatically increased as a significant tool for communication, entertainment, and gathering information among university students (Chen, Chen, & Yen, 2005; Kandell, 1998; Ko, Yen, Cao & Su, 2007). Internet addiction refers to the failure to stop internet connection, tendency to increase aggressive acts and the feeling of considerable irritation during off-line periods (Young, 1998, 2004).

Recent empirical findings have concluded that internet addiction is a serious risk factor that impairs individual's internal (both emotional and mental) and external (social, occupational, and educational) status (Beard & Wolf, 2001; Craparo et al., 2014; Davis, 2001; Fioravanti, Dettore, & Casale, 2012; ). Findings show that internet addiction is a predictor of insomnia and depression (Cheung & Wong, 2011), aggression (Ko, Yen, Liu, Huang, & Yen, 2009), suicidal thought (Fu et al., 2010; Kim et al., 2006), loneliness (Kraut et al., 1998), low self-esteem (Niemz, Griffiths, & Banyard, 2005; Shapira, Goldsmith, Keck, Khosla, & McElroy, 2000), bipolar disorder (Shapira et al., 2000), social phobia (Wei, Chen, Huang, & Bai, 2012), attention-deficit/hyperactivity disorder (Bozkurt, Coskun, Ayaydin, Adak, & Zoroglu, 2013), anxiety and stress (Akin & Iskender, 2011).

The prevalence of internet addiction among college students has been reported higher than other groups of society (Fu et al., 2010; Huang et al., 2009; Kandell, 1998 ). Kandell (1998) and Yuen & Lavin (2004) indicated that college students are particularly susceptible to become addicted to the internet due to some important contributing factors such as psychological characteristics of young college adults, free connection to the internet, and the strong requirement to use the internet in some materials. These are the main factors that contribute to increased problematic internet use among college students, compared with other groups. In addition, factors such as missing home families, minimizing social involvement, experiencing new environments, developing loneliness and depression are other reasons why university students stay online longer than others (Kraut et al., 1998).

Internet addiction popularity among university students in Italy is reported to be 0.8 % (Poli & Agrimi, 2012), 25.53 % in china (Huang et al., 2009) , 5.9 % in Taiwan (Chou & Hsiao, 2000), 6.7 % in Hong Kong (Fu et al., 2010), 10.8 % medical students in Iran (Mohammadbeigi, Hashiani, Ghamari, & Mohammadsalehi, 2011), between 8 to 25% in the

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USA (Jelenchick, Becker, & Moreno, 2012), 8.2% in Greece (Siomos, Angelopoulos, Mouzas, Dafouli, & Braimiotis, 2008) and 18.3% in the UK (Niemz et al., 2005). Although the prevalence of internet addiction varied among societies (Huang et al., 2009), it has not been demonstrated empirically among university students in Kurdistan.

Self-control defined as “the capacity for altering one’s own responses, especially to bring them into line with standards such as ideals, values, morals, and social expectations, and to support the pursuit of long-term goals” (Baumeister, Vohs, & Tice, 2007, p. 351) . The ability to self-control has been considered an important aspect of human adaptation and achieving success in life (Baumeister et al., 2007; Tangney, Baumeister, & Boone, 2004). The adaptation between self and the external world enable people to have a healthier and happier life (Rothbaum, Weisz, & Snyder, 1982). Thus, Baumeister (2003) pointed out that an inability to self-control might develop addictive behaviour as a serious psychological risk factor. Also, the association between self-control and addiction behaviour, such as online game addiction, has been found in some studies (e.g. Kim, Namkoong, Ku, & Kim, 2008; Lee & Shin, 2004). However, online game addiction has been classified as a specific type of dependency (Davis, 2001). The present study attempted to identify; (1) the prevalence of internet addiction behaviour among college students in Kurdistan regional of Iraq; (2) the relationship between self-control and internet addiction; and (3) revealing internet addiction based on demographic variables.

## Methods

### *Sampling and procedure:*

An advertisement for participation of the current study was posted on the official Soran University web page for 18 days from 7/1/2019 to 24/1/2019. There was not any reward for participation, all students participated as volunteers. The data collected via online form consisted of 632 students from 19 universities in various schools and colleges from various locations throughout the Kurdistan region of Iraq. All of them completed the internet addiction and self-control questionnaire in English language. Male participants was 335 (54 %) and female 288 (46 %). Their age range was from 17 to 46 years ( $M = 21.3$ ;  $SD = 3.3$ ).

### *Demographic information:*

Participants were asked their gender, age, marital status, preferable device to access the internet, and their most frequently used internet application. However, only 373 students answered the most frequently used internet application question (See Table 1).

Table 1. Demographic information

	N	%
<b>Gender</b>		
Male	335	54%
Female	288	46%
<b>Marital Status</b>		
Married	44	7%
Single	509	82%
Falling in Love	59	9%
Divorced	11	2%
<b>Device</b>		
Smart Phone	599	96%
IPad or Tablet	4	1%
Computer	20	3%
<b>Application tools</b>		
Facebook	182	49%
Instagram	82	22 %
Snap Chat	67	18%
YouTube	42	11%

### *Psychometric Measures:*

In the present study, there were two online self-reports used to collect the data from the Kurdish university students. These were based on internet addiction and self-control scale.

### *The internet addiction scale:*

Diagnostic Questionnaire (DQ) is an eight item scale which was developed by Young (1998) to determine internet addiction users. Young (1998) indicated that individuals who got five score or more from eight items can be classified as a dependent internet user. Example of items (“Have you lied to family members, a therapist, or others to conceal the extent of involvement with the Internet?”).

*Brief Self-control Scale:*

The (BSCS) (Tangney et al., 2004) is used to measure self-control which consists of measures 13 items. 5-point Likert scale used which ranged from 1 (Not at all like me) to 5 (Very much like me). According to Ferrari et al (2009) The BSCS contains two factors, 4 items measure impulsive behaviour (e.g. "I am able to work effectively toward long-term goals") and 9 items measures self-discipline (e.g. "I wish I had more discipline"). The BSCS had a good internal reliability ( $\alpha = 0.83$  to  $0.85$ ).

*Analysing of Data:*

The participants completed Diagnostic Questionnaire (DQ) to measure internet addiction and Brief Self-control Scale (BSCS). The association between gender and internet addiction scores was evaluated by *t*-test. Then ANOVA was used to understand the association between internet addictions with marital status, device and apps. Meanwhile, the association between internet addiction score and subscales of self-control was evaluated by person coefficient correlation and liner multiple regression. All statistical analyses were achieved by using SPSS computer program.

**Results**

According to Young's (1998) criteria, from 623 participants 228 (36.5%) got a score of five and above which indicates that they have become addicted to the internet (See Table 2). Boys have experienced internet addiction ( $M = 3.79$ ,  $SE = 0.105$ ) more than girls ( $M = 3.78$ ,  $SE = 0.127$ ), however, this differences was not significant  $t = 0.023$ ,  $p > 0.05$ . Also, there was a significant effect of portable devices which participants frequently use to access to the internet  $F = 5.053$ ,  $p < 0.01$ ,  $\eta^2 = 0.12$  (See Table 3). Post-hoc test indicated the significant differences between smart phones as a devise to access the internet ( $M = 3.83$ ,  $SE = 0.083$ ) with computer ( $M = 2.45$ ,  $SE = 0.25$ ) and not significant differences confirmed between Tablet, iPads ( $M = 2.75$ ,  $SE = 1.2$ ) and smart phones ( $M = 3.83$ ,  $SE = 0.083$ ). While this difference was not found between, Tablets, iPads ( $M = 2.75$ ,  $SE = 1.2$ ) and computers ( $M = 2.45$ ,  $SE = 0.25$ ).

Table 2. Participant's scores for 8 items of Diagnostic Questionnaire (DQ)

Scoring	N	%	Mean (SD)
Answered "Yes" to five items	88	14%	5 (0)
Answered "Yes" to Six items	74	12%	6 (0)
Answered "Yes" to Seven items	45	7%	7 (0)
Answered "Yes" to Eight items	21	3%	8 (0)

Regarding marital status, it is found a significant effect of marital status  $F = 5.14$ ,  $p < 0.01$ ,  $\eta^2 = 0.14$  With respect of sub-group differences, Post-hoc test confirmed the significant differences between participants who fall in love ( $M = 4.56$ ,  $SE = 0.24$ ) which was more vulnerable to become addicted to the internet compared to those who are not married ( $M = 3.76$ ,  $SE = 0.089$ ), and married ( $M = 3$ ,  $SE = 0.33$ ). However, no significant mean differences found between falling in love ( $M = 4.56$ ,  $SE = 0.24$ ) and divorced ( $M = 3.82$ ,  $SE = 0.58$ ). As well as, the significant mean difference not found between divorced ( $M = 3.82$ ,  $SE = 0.58$ ), not married ( $M = 3.76$ ,  $SE = 0.089$ ), and married ( $M = 3$ ,  $SE = 0.33$ ).

Table 3. Differences in Internet Addiction according to various demographic variables

	Mean (SD)	t / F	p- Value
<b>Gender</b>		$t = 0.023$	0.981
Male	3.79 (1.92)		
Female	3.78 (2.16)		
<b>Marital Status</b>		$F = 5.14$	$< 0.01$
Married	3 (2.24)		
Single	3.76 (2.01)		
Falling in Love	4.56 (1.84)		
Divorced	3.82 (1.94)		
<b>Device</b>		$F = 5.05$	$< 0.01$
Smart Phone	3.83 (2.04)		
iPad or Tablet	2.75 (2.5)		
Computer	2.45 (1.14)		
<b>Apps</b>		$F = 2.71$	$< 0.05$
Facebook	3.57 (2.06)		
Instagram	3.86 (2.01)		
Snap Chat	4.29 (2.3)		
YouTube	3.35 (1.7)		

From 623 participant, only 373 of them answered the question about the most frequent application, the result showed the significant effect of types application  $F = 2.71, p < 0.05, \eta^2 = 0.14$ . Post-hoc test showed a significant differences between the mean of Snapchat ( $M = 4.3, SE = 0.24$ ) with Facebook ( $M = 3.57, SE = 0.15$ ), Instagram ( $M = 3.86, SE = 0.22$ ), and YouTube ( $M = 3.35, SE = 0.27$ ). However, not significant differences found Facebook, Instagram and You Tube as an internet application tool.

As demonstrated in Table 4, the person correlation coefficient was conducted to understand the relationship between internet addiction, self-control, impulsivity and self-discipline. The results show self-control ( $r = -0.4, p < 0.001$ ), impulsivity ( $r = 0.25, p < 0.001$ ) and self-discipline ( $r = -0.38, p < 0.001$ ) negatively correlate with internet addiction.

Table 4. The relational ship between Internet Addiction scores and different characteristics of participants

	Internet Addiction	Self-Control	Impulsivity	Self-discipline
Internet Addiction	1			
Self-Control	-0.40***	1		
Impulsivity	0.25***	0.72***	1	
Self-discipline	-0.38***	0.94***	0.48***	1

\*\*\* $p < 0.001$

Regression method was conducted (see Table 5) to examine the nature of the association between internet addiction and self-control. The result showed that self-control was a good predictor of internet addiction  $F = 116.02, p < 0.001$ . The result also showed  $R^2 = 0.157$  for the self-control which means 15.7% of the variance of internet addiction can be explained by self-control. With respect to the self-control sub scales, both self-discipline  $F = 105, p < 0.001$ , with  $R^2 = 14.5\%$  and impulsivity  $F = 43, p < 0.001$  were significant predictors. However, self-discipline  $\beta = -0.380, t = -16.8, p < 0.001$  was a better predictor than impulsivity  $\beta = 0.25, t = 14.9, p < 0.001$ .

Table 5. Regression analysis for the association between internet addiction, self-control, self-discipline and impulsivity

	$\beta$	SE	$\beta$	T	p-Value
Self-Control	10.17	0.59	-0.40	-10.7	0.001
Impulsive	6.6	0.44	0.25	14.9	0.001
Self-discipline	9.5	0.56	-0.38	-16.8	0.001

## Discussion

The present study examined the prevalence of internet addiction among Kurdish college students within the Kurdistan region of Iraq and its association with self-control.

Our findings indicated that the prevalence of internet dependency among undergraduate students in Kurdistan is very high. This study found that out of 623 undergraduate students, 228 of them which equates to 36.5% might have become addicted to the internet or under the risk to become addicted to the internet. The rate of internet addiction among societies varies and ranges from 0.8 % in Italy (Poli & Agrimi, 2012) to 59.3 % in Algeria (Luka'cs, Boussof, Deneche, Albane, Varga & Tavolacci, 2015). Difference in prevalence rates are most likely due to the instruments used (Niemz, Griffiths, Banyard, 2005); which these instruments are very likely to overestimate the prevalence of internet addiction. (Griffiths, 1999) and they have methodological issue (Griffiths, 2000). Griffiths (1999, 2000) argued that many heavy internet users have not experienced addiction to the internet, but rather they use the internet merely to fuel other addictions.

Most studies have reported that addiction to the internet is more prevalent among males than females (e.g. Sherer, 1997; Morahan-Martin & Schumacher, 2000; Anderson, 2001; (Siomos, Angelopoulos, Mouzas, Dafouli, & Braimiotis, 2008). However, there is a limited evidence demonstrating that internet addiction among males is more common than females (Young, 1998, Kim et al., 2006). Nevertheless, in the current study there was not a significant difference between males and females in relation to become addiction to the internet. Similarly, the same result has reported in some studies (e.g. Chou & Hsiao, 2000; Lam, Peng, Mai, & Jing; 2009 Orsal, Orsal, Unsal, & Ozalp, 2013). Chou et al (2000) claims the anyone, regardless of their gender, who experiences gratification and pleasure during using the internet is more likely to be heavy internet users which can then lead to internet addiction (Chou et al, 2000).

In this study, it was also found that Kurdish university students who use Snapchat excessively were more under risk to become addicted to the internet compared to Facebook, Instagram and YouTube applications. Chou et al, (2000) argued that enjoyment during online communication is a risk factor to increase the chance of becoming addicted to the internet. It is well known that Snapchat has provided some special exciting and enjoyable features for users which are might not available in other applications. These features have led to Snapchat application to be the most recent pleasurable application tool compared to others and Snapchat users are more likely to post frequently and then become addicted to the internet (Bayer, Ellison, Schoenebeck, & Falk, 2016).

For the first time it is found that using internet for the purpose of contacting between couples who are falling in love is an important factor for problematic internet use in the university student population. Previous studies suggests that using online instant messages excessively increase the chance of becoming addicted to the internet (Kuss, Griffiths, & Binder, 2013; Leung, 2004). Due to the cultural barriers in Kurdish society, couples are not allowed to spend time freely outside. Thus, they very likely to use communication tools constantly as an alternative strategy to share their feeling, which finally is more likely to develop into addiction to the internet.

Another result in this indicated a negative relationship between internet addiction and self-control (Kim et al., 2008; Oh, 2003). In previous studies, the negative relationship between internet addiction and self-control is well reported. Oh (2003) found the lack of emotional control among students who become addicted to the internet which is supportive the current result. This result means that ability to self-control enables people to use internet regularly. Also Kim et al., 2008 reported that online gaming addiction correlates negatively with self-control. Also, low self-control contributes to people drinking alcohol heavily and drug addiction (Baumeister, 2003). All of these results indicate that self-control is an important aspect in human life and negatively correlates with addictions behaviour including online game addiction, internet addiction, drug and alcohol addiction.

*4.1 Limitations and implication:* Although this study found several important findings, it was not without limitation. Firstly, the main limitation is related to the instrument and its criteria to determine internet addiction behaviour among the population. Although Young developed the DQ which was adapted with the DSM IV criteria to determine internet addiction, Griffiths argued that the DQ has serious methodological issue. According to Griffiths, the best way to evaluate internet addiction behaviour is to employ the case study method which provides much more detailed information. Secondly, in this current study, only 623 students participated which is may not enough sample to generalize on all university student populations. Future studies should consider the specific types of internet addiction in Kurdish university students and correlate with psychological factors such as distress intolerance.

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