

Chapter 31

GENDER, OPTIMISM, PERCEIVED STRESS ON PROBLEMATIC INTERNET USE AMONG SLOVAK UNIVERSITY STUDENTS

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ABSTRACT

A review of current literature shows that so far only few sociodemographic, psychological, and social correlates of problematic Internet use have been identified. However, even these limited findings seem to be inconclusive and inconsistent. The aim of this study was to investigate the effect of gender, optimism, and perceived stress on Generalized Problematic Internet Use among university students. In total, 817 first year university students from Slovakia (25.5% male, 74.5% female, 19.6 mean age) completed the Perceived Stress Scale, Revised Life Orientation Test and The Generalized Problematic Internet Use Scale 2. Two-way between groups ANOVA was used for the data analysis. This study showed that students with a lower level of optimism and a higher level of perceived stress seemed to have higher levels of generalized problematic Internet use. The main effect of gender on generalized problematic Internet use was not statistically significant. The findings of this study provide support for the conclusion that the development of life orientation, optimism, coping with stress, and reflection/deconstruction of perception of stress among first year university students could contribute to the prevention of generalized problematic Internet use.

Keywords: life orientation, perception of stress, problematic Internet use, university students.

1. INTRODUCTION

Problematic Internet use (PIU) is a heterogeneous construct which has been defined and operationalized by researchers in many different ways. Nonetheless, the main features which can be considered as fundamental for the existing definitions are: a) inability to control one's use of the Internet and b) various negative consequences related to spending too much time on the Internet (neglecting social activities, social contacts and relationships, mental and physical health, school or work duties, etc.) (Spada, 2014). PIU has recently been addressed by numerous research studies investigating the prevalence and its associations with various psychosocial factors as well as in case reports focusing on individual qualitative aspects of PIU development (Odaci & Cikrikci, 2014).

Various social and psychological variables have been identified that predispose certain individuals and groups to be more prone to developing PIU. The research has pointed out that university students could represent a high risk group for developing PIU. In particular, the first year spent at university has been recognized as a critical period for developing risk behaviors due to the intensive psycho-social development of young adults (e.g. the development of one's sense of social and personal identity, gaining independence, fitting in with peers, the development of intimate relationships) (Li, Wang, & Wang, 2009). Accessibility in general is an essential aspect for developing any kind of risk behaviour (Hawkins, Catalano, & Miller, 1992). Regarding PIU, easy and widespread access to high speed Internet is very common in the university environment. Moreover, using the Internet for academic progress, as an important source of information and learning is absolutely essential and thus creates a higher probability that the Internet can interfere with other life activities. This is one of the main reasons why the PIU phenomenon among university students has recently attracted the attention of Prevention Science (Celik & Odaci, 2013; Odaci, 2011; Li et al., 2009; Niemz, Griffiths, & Banyard, 2005). Prevention Science is a relatively new discipline which tries to integrate the empirical

and theoretical knowledge in order to attempt to reduce the impact of risk factors and promote the influence of protective factors on individuals' behaviour and their health (Shek, Sun, & Yu, 2013).

2. BACKGROUND

2.1. Problematic Internet use

The different conceptualizations of PIU in the literature have been addressed by the application of different terminologies, such as Internet addiction, Internet abuse and problematic Internet use. However, there is a general agreement that PIU can be defined in terms of the generally negative effect of the Internet with possible negative consequences on an individual's everyday life (Chittaro & Vianello, 2013).

PIU is defined as a multidimensional syndrome (Caplan, 2005, 2010). Problematic Internet use has been defined in the literature by cognitive, emotional, and behavioral symptoms (obsessive thoughts about the Internet, reduced impulse control, preoccupation with the use of the Internet, guilt about the use of the Internet, failure to control the use of the Internet, using the Internet to escape one's problems, intensive use of the Internet, difficulty in engaging in social and familial relationships and academic responsibilities) (Chittaro & Vianello, 2013; Senol-Durak & Durak, 2011). This study has employed Caplan's cognitive-behavioral model of general problematic Internet use (Caplan, 2010).

2.2. Gender

The current research has shown that there are gender differences in PIU although the findings are inconsistent (Odaci & Cikrikci, 2014; Ceyhan, 2010).

A higher level of PIU was found among males in comparison to female university students (Odaci & Cikrikci, 2014; Celik & Odaci, 2013; Odaci, 2013; Öztürk & Özmen, 2011; Frangos, Frangos, & Sotiropoulos, 2011; Odaci & Kalkan, 2010; Ceyhan, 2008). Öztürk and Özmen (2011) reviewed the research findings exploring the association between gender and PIU and found that women were more prone to engage in PIU while men were more inclined to show a pattern of addictive behaviour regarding their Internet use. Kim and Davis (2009) similarly found that the chance of becoming addicted to Internet use was much higher for male than for female students. On the other hand, it was found that gender was not a significant predictor of PIU (Kuss, Griffiths, & Binder, 2013; Yeh, Lin, Tseng, & Hwang, 2012; Ceyhan, 2010).

The mentioned studies show that further research is needed to justify the assumption that there are gender differences in PIU and that different psychological reasons for excessive Internet use can be attributed to males and females (Hetzl-Riggin & Pritchard, 2011). Thus, one of the aims of this study is to investigate gender differences in PIU in a sample of Slovak university students.

2.3. Stress

It has been well established that the level of perceived stress is often associated with a variety of maladaptive behaviours and current research suggests that PIU could be one of them. For example, stressful life events have been found to contribute to PIU and higher scores of perceived stress have been shown to be associated with a more frequent Internet use. Yet, it is important to note that this topic is relatively new and further research is necessary (Derbyshire et al., 2013; Hetzel-Riggin & Pritchard, 2011; Wang et al., 2011; Li et al., 2009).

2.4. Optimism

In addition to the role of stress, it has been found that stable personality characteristics such as optimism could be associated with PIU (Kim & Davis, 2009). In particular, individuals with a pessimistic perception of life events had higher levels of PIU in comparison to those with an optimistic perception of the world (Celik & Odaci, 2013). Moreover, it was also shown that greater optimism was related to a smaller increase in stress over time among university students throughout their first semester (Brissette, Scheier, & Carver, 2002). Optimism served as

a valuable mechanism for coping with stress and was also found to be generally associated with good adjustment to the university environment (Dawson & Pooley, 2013). According to the findings of Besser and Zeigler-Hill (2012) the protective role of positive personality traits such as optimism (in their study also hope and happiness) on psychological distress (e.g. depressive symptoms, anxiety or perceived stress) appears to be especially important during the initial transition period of beginning at a university.

The research findings regarding the risk factors connected to PIU are very much needed (Aboujaoude, 2010) in order to provide data-based interventions for preventing PIU. The exploration of perceived stress and optimism and their relation to PIU among first year university students aims to contribute to the knowledge of the relatively newly established phenomenon of PIU.

3. OBJECTIVES

The main aim of this study was to investigate the effect of gender, optimism, and perception of stress on general problematic Internet use as well as on the respective factors of general problematic Internet use among the first year university students.

4. METHODS

4.1. Design

A cross-sectional design was used.

4.2. Sample

The sample consisted of 817 first year university students from Slovakia (74.5% females, 19.61 mean age, $SD = 1.42$) who participated in the SLiCE study (Student Life Cohort in Europe). SLiCE is a 5 year follow-up cohort study conducted among first year university students. The first year university students from universities in Košice in the Eastern part of Slovakia were contacted by university e-mail as well as personally during their courses with an offer to participate in this study. Those students who signed the consent form were then asked to complete on-line questionnaires concerning perceived stress, optimism and PIU anonymously.

4.3. Measures

The Generalized Problematic Internet Use Scale 2 (Caplan, 2010) consists of 15 items. Each item is rated on a scale ranging from 1 (definitely disagree) to 8 (definitely agree). A higher score indicates more problematic use of the Internet. Cronbach's α in this study reached 0.91 for the whole scale. The Generalized Problematic Internet Use Scale 2 consists of the following individual subscales: preference for online social interaction ($\alpha = 0.75$), mood alteration ($\alpha = 0.87$), cognitive preoccupation ($\alpha = 0.88$), compulsive use ($\alpha = 0.88$) and negative outcomes ($\alpha = 0.88$).

The Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983) is a four-item self-report instrument with each item measured on a five-point scale (1 = never, 2 = almost never, 3 = sometimes, 4 = fairly often, 5 = very often). Cronbach's α in this study reached 0.73.

The Life Orientation Test-Revised (LOT-R; Scheier, Carver, & Bridges, 1994) is a ten-item measure of generalized dispositional optimism (versus pessimism). In this instrument, respondents answer each item using a scale that ranges from 0 (I disagree a lot) to 4 (I agree a lot) with a higher score indicating a higher level of optimism. LOT-R was found to have satisfactory reliability in the present sample (Cronbach's alpha in this study was 0.79).

4.4. Statistical analyses

Visual binning was used to identify suitable cut-off points to categorize the continuous variables of perceived stress and optimism into three approximately equal groups. Two-way between groups ANOVA was used for the data analysis. Post hoc comparisons were carried out using the Turkey HSD test. The data were analysed using SPSS 20.

5. RESULTS

5.1. The effect of gender, optimism and perception of stress on generalized problematic Internet use (GPIU)

Statistically significant main effects of optimism, as well as the perception of stress on GPIU were found although the effect sizes were small (Table 2). Post hoc comparisons indicated that the mean score of GPIU for the group with a lower level of optimism was significantly higher when compared to the groups with a medium and a higher level of optimism (Table 1, 2). Furthermore, the mean score of GPIU in the group with a higher level of self-perceived stress was significantly higher when compared to the group with a medium and a lower level of perceived stress (Table 1, 2). The main effect of gender was not statistically significant. In the next step, two-way between-groups analyses of variance were conducted to explore the effects of gender, optimism and perception of stress on the GPIUS subscales: preference for online social interaction, mood alteration, cognitive preoccupation, compulsive use, and negative outcomes.

5.2. The effect of gender, optimism and perception of stress on preference for online social interaction (POSI)

There was a statistically significant main effect of gender and optimism on POSI although the effect size was small (Table 3). The statistically significant main effect of perception of stress on POSI was not found (Table 3). Post hoc comparisons indicated that the mean score of POSI for the group with a lower level of optimism was significantly different from the groups with a medium and a higher level of optimism (Table 1, 3). Simple main effects analysis further showed a significantly higher level of POSI among males and university students with a lower level of optimism.

Table 1. Mean scores and standard deviation of general problematic Internet use (GPIU), and GPIU subscales according to optimism, and perception of stress.

		GPIU ¹	GPIU2 subscales ²				
			POSI ⁵	MA ⁶	CP ⁷	CU ⁸	NO ⁹
Gender	Males	40.77 (19.70)	7.50 (4.54)	10.94 (6.13)	8.03 (5.48)	8.29 (5.64)	6.45 (4.73)
	Females	40.16 (19.26)	6.85 (4.26)	12.87 (6.02)	7.43 (5.30)	7.45 (5.38)	5.94 (4.67)
Optimism ³ n(%)	Lower 255(38.2)	45.49 (19.98)	7.95 (4.70)	13.77 (5.76)	8.53 (5.73)	8.68 (5.76)	7.01 (5.08)
	Medium 237(35.5)	37.57 (18.62)	6.68 (4.04)	11.38 (5.94)	7.03 (5.05)	7.09 (5.35)	5.63 (4.48)
	Higher 176(26.3)	37.70 (19.24)	6.04 (3.96)	12.16 (6.68)	7.27 (5.37)	7.30 (5.20)	5.13 (4.03)
Perception of stress ⁴ n(%)	Lower 299(37.6)	36.56 (17.93)	6.42 (4.17)	11.84 (6.33)	6.80 (5.06)	6.72 (4.80)	4.98 (3.74)
	Medium 300(37.7)	39.14 (18.51)	6.94 (4.18)	11.85 (5.80)	7.41 (5.16)	7.72 (5.52)	5.96 (4.35)
	Higher 196(24.7)	47.58 (20.71)	7.98 (4.69)	14.05 (5.93)	8.87 (5.76)	8.93 (6.02)	7.89 (5.88)

Note:

¹minimum score of GPIUS2 = 15, maximum score of GPIUS2 = 120

²minimum score of GPIUS2 subscale = 3, maximum score of GPIUS2 subscale = 24

³optimism: lower level = <= 19.00, medium level = 20.00 – 23.00, higher level = 24.00+

⁴perception of stress: lower level = <= 9.00, medium level = 10.00 – 12.00, higher level = 13.00+

⁵preference for online social interaction; ⁶mood alteration; ⁷cognitive preoccupation; ⁸compulsive use;

⁹negative outcomes

Table 2. Summary of two-way ANOVA for preference for GPIU.

GPIU subscales	Source	SOS	df	MS	F	P	Partial Eta Squared	Post hoc test
GPIU	Gender	236.92	1	236.92	0.644	0.423	0.001	
	LO	3610.41	2	1805.21	4.905	0.008	0.016	^a 1-2***, 1-3***
	PoS	5017.18	2	2508.59	6.816	0.001	0.022	^b 3-1***, 3-2***
	Error	228189.36	620	368.05				
	Total	1271171.00	631					

Note: GPIU = General Problematic Internet Use; LO = Optimism; PoS = Perception of Stress; SOS = Sum of Square; df = degree of freedom, MS = Mean Square, F= computed F value; P = level of significance.

^a optimism: (1) lower level = <= 19.00, (2) middle level = 20.00 – 23.00, (3) higher level = 24.00+

^b perception of stress: (1) lower level = <= 9.00, (2) middle level = 10.00 – 12.00, (3) higher level = 13.00+

***p<0,001

5.3. The effect of gender, optimism and perception of stress on mood alteration (MA)

There was a statistically significant main effect of gender, optimism and perceived stress on MA although the effect sizes were small (Table 3). The mean score of MA for females was significantly higher when compared to males. Post hoc comparisons indicated that the mean score of MA for the group with a lower level of optimism was significantly higher when compared with the groups with a medium and a higher level of optimism (Table 1, 3). The mean score of MA for the group with a higher level of perception of stress was significantly higher when compared with the groups with a medium and a lower level of perception of stress (Table 1, 3).

5.4. The effect of gender, optimism and perception of stress on cognitive preoccupation (CP)

There was a statistically significant main effect of perceived stress on CP (Table 3). The main effect of gender and optimism on CP was not significant (Table 3). Post hoc comparisons indicated that the mean score of CP for the group with a lower level of perception of stress was significantly lower when compared to the groups with a higher level of perception of stress (Table 1, 3).

5.5. The effect of gender, optimism and perception of stress on compulsive use (CU)

There was a statistically significant main effect of gender and perception of stress on CU although the effect sizes were small (Table 3). The statistically significant main effect of optimism on CU was not found (Table 3). The mean score of CU for males was significantly higher in comparison to females. Post hoc comparisons indicated that the mean score of CU for the group with a lower level of perception of stress was significantly lower when compared to the group with a higher level of perception of stress (Table 1, 3).

5.6. The effect of gender, optimism and perception of stress on negative outcomes (NO)

There was a statistically significant main effect of perception of stress on NO although the effect size was small (Table 3). The statistically significant main effect of gender and optimism on NO was not found (Table 3). Post hoc comparisons indicated that the mean score of NO for the group with a lower and a medium level in perception of stress was significantly lower compared to the group with a higher level of perception of stress (Table 1, 3).

Table 3. Summary of two-way ANOVA for preference for GPIU subscales (preference for online social interaction, mood alteration, cognitive preoccupation, compulsive use, and negative outcomes).

GPIU subscales	Source	SOS	df	MS	F	P	Partial Eta Squared	Post hoc test
POSI	Gender	78.00	1	78.00	4.24	0.040	0.006	
	LO	244.24	2	122.12	6.63	0.001	0.020	^a 1-2**, 1-3***
	PoS	33.04	2	16.52	0.90	0.408	0.003	
	Error	11966.47	650	18.41				
	Total	44628.00	656					
MA	Gender	384.20	1	384.20	10.59	0.001	0.016	
	LO	394.85	2	197.43	5.44	0.005	0.017	^a 1-2***, 1-3*
	PoS	318.27	2	159.13	4.39	0.013	0.013	^b 3-1***, 3-2**
	Error	23396.61	645	36.27				
	Total	126063.00	651					
CP	Gender	88.90	1	88.90	3.086	0.079	0.005	
	LO	113.47	2	56.74	1.97	0.140	0.006	
	PoS	181.08	2	90.54	3.144	0.044	0.010	^b 1-3**
	Error	18519.69	643	28.80				
	Total	56993.00	649					
CU	Gender	147.11	1	147.11	5.001	0.026	0.008	
	LO	124.79	2	62.40	2.121	0.121	0.007	
	PoS	231.36	2	115.68	3.933	0.020	0.012	^b 1-3***
	Error	19001.48	646	29.41				
	Total	58556.00	652					
NO	Gender	54.18	1	54.18	2.663	0.103	0.004	
	LO	110.33	2	55.17	2.712	0.067	0.008	
	PoS	400.85	2	200.43	9.851	0.001	0.030	^a 3-1***, 3-2***
	Error	13020.62	640	20.35				
	Total	37251.00	646					

Note: POSI = Preference for Online Social Interaction; MO = Mood alteration; CP = Cognitive Preoccupation; CU = Compulsive Use; NO = Negative Outcomes; LO = Optimism; PoS = Perception of Stress; SOS = Sum Of Square; df = degree of freedom; MS = Mean Square; F= computed F value; P = level of significance.

^a optimism: (1) lower level = <= 19.00, (2) medium level = 20.00 – 23.00, (3) higher level = 24.00+

^b perception of stress: (1) lower level = <= 9.00, (2) medium level = 10.00 – 12.00, (3) higher level = 13.00+

*p<0,05 **p<0,01 ***p<0,001

6. CONCLUSION/DISCUSSION

The main aim of this study was to investigate the effect of gender, optimism and perception of stress on GPIU as well as its individual subscales. Firstly, this study showed that the main effect of gender on GPIU was not statistically significant. This finding is similar to previous research findings and provides further empirical support showing that there are no gender differences in problematic Internet use (Yeh et al., 2012; Ceyhan, 2010; Li et al., 2009). However, this finding is not consistent with the findings of other studies which report higher levels of problematic Internet use among males (Odaci & Cikrikci, 2014; Celik & Odaci, 2013; Odaci, 2013; Öztürk & Özmen, 2011; Frangos, Frangos, & Sotiropoulos, 2011; Odaci & Kalkan, 2010; Ceyhan, 2008). This apparent inconsistency has been addressed by Odaci (2013)

who suggests that while there has been an increase in computer use and Internet use among male and female university students, there may be differences in the actual reasons for using it. Internet access and Internet use are necessary means for academic success for both genders although the type of use might be different according to the results of this study. Gender differences were indeed found in some of the GPIU subscales. A statistically significant effect of gender was found in the following GPIU subscales: higher level of preference for online social interaction and compulsive use among males and higher level of mood alteration among females. These findings are consistent with the results of previous studies that have supported the existence of gender differences in emotional responding (McRae, Ochsner, Mauss, Gabrieli, & Gross, 2008). They are also consistent with the idea that females are more likely than males to engage in emotion regulation strategies (Nolen-Hoeksema & Aldao, 2011). The possible interpretation of the fact that males reported a higher level of preference for online social interaction and compulsive use than females could be attributed to a higher mastery in communication skills by females, and a better ability at expressing their own feelings and thoughts in the context of a virtual environment without face-to-face contact. For males, greater difficulties in establishing intimate relationships as well as more interest in computer and video games has generally been reported (Celik & Odaci, 2013; Bulut Serin, 2011; Ceyhan, 2008).

The current research findings have shown that a significantly higher level of GPIU was found among university students with a lower level of optimism, as well as those with a higher level of stress. These findings are consistent with other published studies which have found support for the association between problematic Internet use and stress and between problematic Internet use and stressful life events (De Leo & Wulfert, 2012; Echeburúa & De Corral, 2010). The results of this study have generally confirmed the effect of life orientation (generalized dispositional optimism) on problematic Internet use and are in line with the research showing that optimism has been found to be related to problematic Internet use (Kim & Davis, 2009).

The present research findings further suggest that a lower level of optimism is especially important for the following subscales of GPIU; preference for online social interaction, and mood alteration. A significantly higher level of GPIU in the subscales of preference for online social interaction, and mood alteration was found among the students with a lower level of optimism. These findings also show that a higher level of perceived stress is associated with GPIU and all the subscales of GPIU with the exception of the subscale preference for online social interaction. These findings generally support the relevance of the model of compensatory Internet use (Kardefelt-Winther, 2014), which states that negative life situations or stress can be facilitated by Internet.

The results of this study have revealed that problematic Internet use of Slovak university students is below average of The Generalized Problematic Internet Use Scale 2 but that students with a lower level of life orientation (optimism), as well as a higher level of perceived stress seem to have higher levels of problematic Internet use. The development of life orientation, coping with stress, and reflection / deconstruction of perception of stress among first year university students could contribute to the prevention of GPIU.

Several limitations of this study should also be noted in order to provide a direction for future research. Firstly, the research sample was not representative and consisted only of university students that accepted the invitation to participate in the on-line research. Secondly, the online data collection consisted of abbreviated versions of the questionnaires. Therefore, the research conclusions are limited to the weakness of the online data collection, which may be especially relevant for the GPIU context.

7. FUTURE RESEARCH DIRECTIONS

Further exploration and implementation of the model of Compensatory Internet use (Kardefelt-Winther, 2014) could be useful for further investigations of the interactions between life perspective, stress and GPIU. The elaboration of this model could bring more insight into the nature of GPIU and its development in time within the context of psychosocial risk factors of GPIU among university students.

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KEY TERMS & DEFINITIONS

Problematic Internet Use: the generally negative effect of the Internet with possible negative consequences on an individual's everyday life.

ACKNOWLEDGEMENTS

This work was supported by the Slovak Research and Development Agency under the contract no. APVV-0253-11 and by the scientific grant agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic and of Slovak Academy of Sciences under contract no. VEGA 1/1092/12.

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