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ORIGINAL ARTICLE/*ÖZGÜN MAKALE*

Ruminative Response Styles and Metacognitions in Internet Addicts

Ömer ŞENORMANCI[1], Ramazan KONKAN[2], Oya GÜÇLÜ[2], Güliz ŞENORMANCI[3]

[1]Yard. Doç. Dr., Psikiyatrist, Bülent Ecevit Üniversitesi Tıp Fakültesi Psikiyatri Anabilim Dalı
[2]Uzm. Dr., Psikiyatrist, Bakırköy Ruh Sağlığı ve Sinir Hastalıkları Eğitim ve Araştırma Hastanesi
[3]Uzm. Dr., Psikiyatrist, Zonguldak Atatürk Devlet Hastanesi

Özet

Objective: Although cognitive behavioral model of Internet addiction has been well described, studies on metacognitions and ruminative response styles related with Internet addiction are very limited. The aim of the present study was to compare metacognitions and ruminative response style in Internet addicts with a healthy control group.

Method: The study included 30 males who presented to our Internet Addiction Outpatient clinic, and diagnosed with Internet addiction, and a control group of 30 healthy males with similar sociodemographic characteristics. A sociodemographic data form, Internet Addiction Test (IAT), Metacognitions Questionnaire (MCQ-30), Ruminative Response Scale-short version (RRS-SV), and Beck Depression Inventory (BDI) were used for data collection.

Results: The MCQ-30 total, MCQ-30 uncontrollability and danger score, MCQ-30 need to control thoughts score and RRS-SV scores statistically significantly higher in study group compared the control group. After correcting for BDI by ANCOVA, the difference between MCQ-30 total score and RRS-SV disappeared.

Conclusion: Internet addicts show ruminative responses instead of having an effective problem-solving attitude and defining problems; and this self-focused rumination leads an individual to recall more reinforced memories about the Internet so that the problem of Internet addiction becomes deeper. As a result of this study, although Internet addiction is accompanied by depression primarily or secondarily, manifestation of Internet addiction is exacerbated by depression through ruminative responses and metacognitions. **(Journal of Cognitive Behavioral Psychotherapy and Research 2013; 2: 167-172)**

Key words: İnternet, addiction, cognition, metacognition, ruminative response styles

Abstract

İnternet Bağımlılarında Üstbilişler ve Ruminatif Yanıt Biçimleri

Amaç: İnternet bağımlılığının bilişsel davranışçı modeli iyi bir şekilde tanımlanmış olmasına rağmen, internet bağımlılığıyla ilişkili üstbilişler ve ruminatif yanıt biçimleri üzerine bilgiler oldukça kısıtlıdır. Çalışmamızın amacı internet bağımlılığı olan kişiler ile sağlıklı kontrol grubu arasında üstbilişlerin ve ruminatif yanıt biçimlerinin karşılaştırılmasıdır.

Yöntem: İnternet Bağımlılığı Polikliniği'ne başvuran ve internet bağımlılığı tanısı konulan 30 erkek hasta ile benzer sosyodemografik özelliklere sahip 30 sağlıklı erkek çalışmaya dahil edildi. Çalışmada sosyodemografik veri formu, İnternet Bağımlılığı Testi (İBT), Üstbiliş Ölçeği-30 (ÜÖ-30), Ruminasyon Ölçeği-Kısa Form (RÖ-KF) ve Beck Depresyon Envanteri (BDE) uygulandı.

Bulgular: Çalışma grubunun ÜÖ-30 toplam, ÜÖ-30 kontrol edilemezlik ve tehlike, ÜÖ-30 düşünceleri kontrol ihtiyacı ve RÖ-KF puanları kontrol grubuna göre istatistiksel olarak anlamlı derecede yüksekti. Depresyonun karıştırıcı etkisi ANCOVA analizi ile kontrol edildiğinde gruplar arası ÜÖ-30 toplam puanı ve RÖ-KF puanları istatiksel anlamlılığını kaybetti.

Sonuç: İnternet bağımlıları problemi tanımlama ve etkili problem çözme yerine ruminatif yanıt biçimleri gösterirler. Bu kendine odaklı ruminasyon, kişinin interneti daha çok hatırlayarak belleğinde tutmasını pekiştirir ve internet bağımlılığı problemini ağırlaştırır. Sonuç olarak, internet bağımlılığı birincil ya da ikincil olarak depresyona eşlik etmesine rağmen, internet bağımlılığının klinik tabloları ruminatif yanıt biçimleri ve üstbilişler yoluyla şiddetlenir. **(Bilişsel Davranışçı Psikoterapi ve Araştırmalar Dergisi 2013; 2: 167-172)**

Anahtar kelimeler: İnternet, bağımlılık, biliş, üstbiliş, ruminatif yanıt biçimleri

INTRODUCTION

There is growing evidence that genetic, personality and individual differences in automatic and controlled aspects of self-regulation may promote the development of internet addiction (Spada 2013). It has also been found that self-directedness is a significant predictor for internet addiction (Montaga et al. 2010). Recently, internet overuse problem took part in section 3 as internet use gaming disorder that is more research need to be done in order to be a formal disorder (American Psychiatric Association 2013).

According to the cognitive behavioral model, maladaptive cognitions about the self and the world may lead to Internet addiction (Davis 2001). It was known that maladaptive cognitions have a key role in Internet addiction regardless of the culture (Mai et al. 2012). Caplan modified the cognitive behavioral model of Internet addiction, suggesting 4 main components, which include Preference for Online Social Interaction, Mood Regulation by Internet, Deficient Self-regulation and Negative Outcomes (Caplan 2010).

Spada et al. investigated metacognitions as a mediator of the relationship between PIU and negative feelings (distress, depression, anxiety) in university students using the Internet. As a result, they found that there was a positive relationship between problematic Internet use and five dimensions of the Metacognitions Questionnaire-MCQ, including 'positive beliefs', 'cognitive confidence', 'uncontrollability and danger', 'cognitive awareness' and 'need of control' and negative feelings. These results support the assumption that the relationship between Internet addiction and negative feelings are totally mediated by metacognitions (Spada et al. 2008).

Response styles theory focuses on style or processing rather than content of thoughts in response to stressors (Nolen-Hoeksema and Morrow 1991). Davis proposed that Internet addicts have repetitive thoughts about the causes and consequences of their Internet usage rather than focusing other events in their life, which, in turn, maintain or exacerbate their Internet addiction (Davis 2001).

Although cognitive behavioral model of Internet addiction has been well described, studies on metacognitions and ruminative response styles related with Internet addiction are very limited. The aim of the present study was to compare metacognitions and ruminative response style in Internet addicts with a healthy control group.

MATERIALS AND METHOD

The study included 30 males who admitted to Bakirkoy Mental and Neurological Diseases Hospital, Internet Addiction Outpatient clinic and a control group of 30 healthy males with similar sociodemographic characteristics providing the inclusion criteria of our study, were consecutively included. Control group was constituted with the people who had applied to our study announcement. We gave them the information of the study. They used internet for academic purposes and for work. They didn't have problematic Internet use for such internet facilities (e.g. gaming, sex). Patients were diagnosed with the experienced clinicians as internet addict according to Young's criterias (Young 1998). Patients, who were at least 18 years of age, literate, and capable for completing the self-reported scales and who had provided a written informed consent were included in the study. Patients, who were under the age of 18, or who had severe mental or physical illness, comorbid schizophrenia, schizophrenia-like psychotic disorder and bipolar affective disorder that could prevent the interview were excluded from the study. For control group; they were required not to have a psychiatric history. Ethics committee approval was provided prior to the initiation of the study.

Measures

Sociodemographic data form

Considering the objectives of the study, a form was prepared by investigators and used in order to obtain the sociodemographic information of the patients and controls.

Internet Addiction Test (IAT)

It is a 20-item Likert-type scale scored from 1-5 which (Young 1998). One of the 20 items in the test was removed from the scale as it was determined to reduce the reliability for Turkish validation study. The internal consistency reliability of Chronbach's alpha is 0.89 (Balta and Horzum 2008).

Beck Depression Inventory (BDI)

It is a 21-item scale for measuring the emotional, cognitive, somatic and motivational symptoms of depression. Each item is scored between 1 and 3 and total score is calculated by the sum of all items (Beck 1961). Cut-off score was considered as 17 in Turkish validity and reliability study. The internal consistency reliability of Chronbach's alpha is 0.80 (Hisli 1988).

Metacognitions Questionnaire (MCQ-30)

The original scale was developed by CartwrightHatton and Wells. The MCQ-30 is comprised of five factors: (1) positive beliefs about worry, (2) negative beliefs about thoughts concerning uncontrollability and danger, (3) cognitive confidence (assessing confidence in attention and memory), (4) negative beliefs about thoughts including superstition, punishment and responsibility, and (5) cognitive self-consciousness (Cartwright-Hatton and Wells 1997). Tosun and Irak adapted the MCQ-30 in Turkish on a sample of college students. In this study, the inter-item correlations for the MCQ-30 ranged from 0.09 to 0.764, which were consistent with the original form. The MCQ-30 indicated good test–retest reliability for items (0.40–0.94) and subscales (0.70–0.85). The Alpha Cronbach coefficient was 0.86 for the full-scale and supported good internal consistency (Tosun and Irak 2008).

The Ruminative Response Scale short version (RRS-SV)

The scale was developed by Treynor et al. The RRS is a self-report measure consists of 10 items on a Likert-type with values ranging from 1 (almost never) to 4 (almost always). After constructing a measure of rumination unconfounded with depression content, two factor model of rumination was found. The first component was called as reflection and the second component as brooding. Both factor has five items (Treynor et al. 2003). Turkish validity and reliability was conducted by Erdur-Baker and Bugay. In that study the RRS achieved a Cronbach's alpha of 0.85 (Erdur-Baker and Bugay 2012).

Analysis

The data of this study was analyzed using SPSS 16 for Windows. Qualitative data was compared using chi-square test. Independent samples t-test was used for comparison between numeric variables in the tables as mean ± standard deviation (mean ± SD), categorical variables and the percent of the total number of observations (n-%) are shown using a notation. As depression might affect the ruminative response styles and metacognitions in order to determine and externalize its influence multi factorial covariance analysis (ANCOVA) were used. Significance at $p < 0.05$ and $p < 0.001$ were evaluated.

RESULTS

The mean age for the study group was 26.5±9 years vs. 24.3±6 years for the control group. The daily duration of Internet use was 9.6±2.3 hours in the study group while it was 2.9±1.3 hours in the control group. The BDI score for the study group was 18.9±13 vs. 6.7±5.6 in the control group. The IAT score was 49.2±13.8 in the study group, and 24.5±4.7 in the control group. Demographic variables, duration of Internet use, IAT, BDI scores between groups and correlatıon of IAT, MCQ-30, RRS-SV, and BDI scores were shown in Table 1 and Table 2.

The MCQ-30 and RRS-SV total scores were higher in the study group. An intergroup comparison using Student's t-test showed a statistically significant difference between the MCQ-30 total ($p=0.01$), MCQ-30 uncontrollability and danger score ($p=0.03$), MCQ-30 need to control thoughts score ($p=0.00$) and RRS-SV scores ($p<0.001$). After correcting for BDI by ANCOVA based on the significant difference in BDI between groups, MCQ-30 total score and RRS-SV score were $p=0.80$ and $p=0.83$, respectively (Table 3).

DISCUSSION

A well defined cognitive behavioral model of Internet addiction and cognitive behavioral therapy based on this model have been also applied in clinical practice and shown to be effective (Young 2007). Metacognition and ruminative responses are related with one's own cognition of the self-processes. Metacognition and ruminative responses have an impact on thought processes, belief-evaluations and mood regulations (Flavell 1976, Spada et al. 2008). Therefore, many psychiatric disorders are associated with metacognitions and ruminative responses.

Internet addicts with rumination have ruminative responses such as "Why am I like this?", "Can I get rid of this addiction?" and "I can't do anything else" in responding to automatic thoughts. Davis indicates that Internet addicts show ruminative responses instead of having an effective problem-solving attitude and defining problems; and this self-focused rumination leads an individual to recall more reinforced memories about the Internet so that the problem of Internet addiction becomes deeper (Davis 2001).

Compared to the control group, the Internet addicts had significantly higher scores for MCQ-30 total, MCQ-30 uncontrollability and danger, and MCQ-30 need of control. These subscales are related with beliefs about the need to monitor one's thoughts and worries and have them under control. People with such beliefs may use the Internet as a maladaptive strategy to suppress their thoughts and worries.

Table 1. Comparison of demographic variables, duration of internet use, IAT, BDI scores between groups (n=60).

	Study group	**Control group**		
	Mean±SD	Mean±SD	t/χ^2	*p*
[+]Age	26.5±9	24.3±6	1.080	0.28
[+]Duration of Internet use (hours)	9.6±2.3	2.9±1.3	13.295	<0.001
[+]IAT	49.2±13.8	24.5±4.7	9.225	<0.001
[+]BDI	18.9±13	6.7±5.6	4.690	<0.001
[++]Level of education				
primary	2 (6.7%)	-	2.654	0.26
secondary	14 (46.7%)	18 (60%)		
university	14 (46.7%)	12 (40%)		
[++] Marital status				
Single	25 (83.3%)	26 (86.7%)	1.020	0.60
Married	4 (13.3%)	4 (13.3%)		
Divorced	1 (3.3%)			

[+]Student t test, [++]Chi-square test, p<0.05, p<0.001 level of significance. IAT=Internet Addiction Test, BDI=Beck Depression Inventory

Table 2. Correlation of IAT, MCQ-30, RRS-SV, and BDI scores (n=60).

	BDI	
	r	*p*
IAT (Study group)	0.350	0.05
IAT (control group)	-0.338	0.06
MCQ-30 (Study group)	0.598	<0.001
MCQ-30 (control group)	0.328	0.07
RRS-SV (Study group)	0.708	<0.001
RRS-SV (control group)	0.237	0.20

Pearson correlation test, p<0.05, p<0.001 level of significance. BDI=Beck Depression Inventory, IAT=Internet Addiction Test, RRS-SV= Ruminative Response Scale-short version, MCQ-30= Metacognitions Questionnaire

Table 3. Comparison of MCQ-30 and RRS-SV scores in study and control groups (n=60).

	Study group	Control group		
	Mean±SD	Mean±SD	p^{+}	p^{++}
RRS-SV	23.2±6.9	16.4±4.4	<0.001	0.83
MCQ-30				
Total	66.9±12.3	59.1±11.0	0.01	0.80
Positive beliefs about worry	12.9±3.1	13.1±4.7	0.84	0.94
Thoughts concerning uncontrollability and danger	14.0±3.2	12.1±3.3	0.03	0.84
Cognitive confidence	11.6±4.9	10.2±2.9	0.17	0.59
Thoughts including superstition, punishment and responsibility	13.1±4.1	9.9±2.5	0.00	0.34
Cognitive self-consciousness	15.1±3.0	13.6±3.8	0.09	0.42

p^{+} = Student's-t test, p^{++} = after analysis with ANCOVA, $p<0.05$, $p<0.001$ level of significance. RRS-SV= Ruminative Response Scale-short version, MCQ-30= Metacognitions Questionnaire

Internet addiction is considered to have comorbiddity with many psychiatric disorders (Ko et al. 2012). Cognitive behavioral model of Internet addiction suggests that these accompanying comorbid disorders are underlying distal factors of the Internet addiction (Davis 2001). In the present study, depression levels were significantly higher in the clinical group compared to the control group. After elimination of depression factor by statistical intervention, no difference was found in metacognitions and ruminative response style between the groups.

A majority of patients who present to hospital for excessive Internet use have comorbid depression. Although maladaptive metacognitions and ruminative response styles are associated with comorbid depression, target is to have a concurrent therapy for Internet addiction and depression. In patients with both disorders, therapy should target ruminative responses and metacognitions secondary to Internet addiction. Furthermore, as a result of this study, although Internet addiction is accompanied by depression primarily or secondarily, manifestation of Internet addiction is exacerbated by depression through ruminative responses and metacognitions.

Our study included patients who admitted for treatment. It can be a limitation for our study. Studies having increased number of patients and involving patients of both genders can be useful.

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Yazışma adresi/Address for correspondence:
e-mail: senorman_7@hotmail.com

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