MALADAPTIVE PERSONALITY TRAITS AND INTERNET ADDICTION SYMPTOMS AMONG YOUNG ADULTS: A STUDY BASED ON THE ALTERNATIVE DSM-5 MODEL FOR PERSONALITY DISORDERS

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Abstract

Objective: This study aims to examine the relationship between maladaptive personality traits and Internet addiction symptoms among young adults. Even though the linkage between personality traits and problematic Internet use has already been investigated in several studies, the need exists to explore how dysfunctional variants of personality traits, as conceived in the alternative DSM-5 model for personality disorders, are linked to the misuse of the Internet in young adults.

Method: Three hundred forty-nine university students aged between 18 and 25 years old completed measures on Internet use, Internet addiction symptoms, and maladaptive personality traits.

Results: Internet addiction scores were associated with all of the DSM-5 domains of maladaptive personality traits. A hierarchical multiple regression analysis showed that negative affectivity, disinhibition, and psychoticism predicted Internet addiction symptoms.

Conclusions: The findings of this study suggest that clinical interventions aimed at fostering affect regulation and at integrating disorganized mental states may be helpful for young adults who display problematic Internet use.

Key words: problematic Internet use, personality, PID-5, psychopathology, emerging adulthood

Declaration of interest: none

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Introduction

The Internet is an integral part of modern society, being an essential medium for communication, socialization, and education (Kaess et al. 2014, Lopez–Fernandez 2015). Over the past 15 years, the number of Internet users has increased by 1000% (Internet Live Stats 2015), and at the same time, research on excessive Internet use has proliferated. In fact, as the Internet continues to be an integral part of our daily lives, and as people devote increasing amounts of time to Internet use, the potential for its overuse and misuse exists.

In this context, constructs such as Internet addiction (Young 1996), problematic Internet use (Caplan 2002), and Internet gaming disorder (American Psychiatric Association 2013) were developed, each of them involving different aspects (and conceptions) of the maladaptive use of the Internet. In particular, Internet addiction is characterized by excessive preoccupations, urges, or behaviors regarding Internet use that lead to impairment or distress (Young 1996). According to Griffith (2005), Internet addiction shows similar characteristics to substance addiction because it involves dimensions such as tolerance (the need for more time in front of the screen to attain the initial mood), salience (frequent and obsessive thoughts regarding one's Internet behavior), mood modification (performing the behavior to reduce aversive emotional states), withdrawal (social isolation and psychological discomfort when the behavior is reduced), conflict (the reduction of social, recreational, work, educational, household, and/or other activities, disregarding one's own and others' needs because of the behavior), and relapse (unsuccessfully attempting to cut down or to control the behavior).

The dysfunctional use of the Internet is often observed during emerging adulthood (Huang 2006). In fact, this life stage, going from approximately 18 to 25 years (Arnett 2000), is a critical moment of transition for the psychological development of individuals, as it involves the exploration, redefinition, and stabilization of identity (Schimmenti et al. 2014, 2017). Notably,

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emerging adulthood has been linked to addiction vulnerability (Ciarrochi et al. 2016). Research has shown that, during this life stage, males are more likely to become addicted to online video gaming, cyber-pornography, and online gambling, whereas females tend to develop the addictive use of social media, texting, email, and online shopping, a pattern of behaviors that often continues in later life (Andreassen et al. 2013, Chiu et al. 2013, Davenport et al. 2012, Durkee et al. 2012, Kuss et al. 2014, Laconi et al. 2016, Maraz et al. 2015, van Deursen et al. 2015).

However, despite some gender differences, international consensus has been reached that, during adolescence and emerging adulthood, the misuse of the Internet can have a negative impact on identity formation and may negatively affect the individual's functioning, leading to poor academic performance and relational and behavioral problems (Rohit et al. 2016). A comprehensive systematic review of epidemiological research on Internet addiction symptoms (Kuss et al. 2014) indicated that the problematic use of the Internet is associated with various risk factors in late adolescence and young adulthood, including sociodemographic variables (e.g., male gender, younger age, and higher family income), Internet use variables (e.g., time spent online or using gaming applications), psychosocial variables (e.g., social isolation, poor interpersonal relations, and low academic performance), psychological factors (e.g., impulsivity and neuroticism), and comorbid symptoms (e.g., depression, anxiety, and general psychopathology). Therefore, a number of factors may contribute to an increased vulnerability for developing Internet-use–related problems (Kuss and Lopez-Fernandez 2016).

Notably, problematic Internet use has been related to many psychiatric symptoms. For example, a recent and large cohort study by Andreassen and colleagues (2016) showed that the excessive use of the Internet was linked to symptoms of attention-deficit/hyperactivity disorder, obsessive-compulsive disorder, anxiety, and depression, mirroring findings from previous research (e.g., Carli et al. 2013, Ceyhan 2008, Ceyhan and Ceyhan 2008, Cho et al. 2013, Ginsberg et al. 2014, Koo and Kwon 2014, Ko et al. 2009, Lee et al. (2012), Shinde and Patel 2014, Young and Rogers 1998).

Thus, research suggests that two higher-order dimensions of psychiatric symptoms can be involved in an individual's misuse of the Internet, namely internalizing (e.g., depression, anxiety) and externalizing (e.g., ADHD) symptoms (Krueger and Eaton 2015). This could be explained partly by maladaptive personality traits that may predispose people to these symptoms or may exacerbate them. In fact, it is likely that those people who have prevalent traits concerning negative affectivity may be more prone to developing internalizing symptoms, whereas those who display more impulsive and disinhibited traits may be more prone to showing externalizing symptoms. Similarly, it is possible that the personality domains of negative affectivity and disinhibition play relevant roles in the development and maintenance of Internet addiction symptoms.

However, at least another important cluster of symptoms has been linked to the misuse of the Internet, which concerns symptoms such as disorganized thought and dissociation (e.g., Dong et al. 2013, Laconi et al. 2016, Lee et al. 2016, Schimmenti et al. 2012, Schimmenti and Caretti 2010, Stip et al. 2016, Xiuqin et al. 2010). This cluster of symptoms is often linked to traits of psychoticism, and it is often observed in severe psychopathology. Therefore, it is likely that the personality domain of psychoticism is linked to Internet addiction symptoms as well.

These considerations are consistent with previous research showing that personality traits stand out as one of the most important factors for understanding problematic Internet use (Billieux et al. 2015, Laconi et al. 2015, Öztürk et al. 2015, Wu and Lane 2016). In particular, several studies on Internet addiction have found a strong association between Internet addiction symptoms and high levels of neuroticism (Kuss et al. 2014, Wu et al. 2015), emotional instability (Dong et al. 2012, Kuss et al. 2014), psychoticism (Cao and Su 2007; Dong et al. 2011, 2013; Mittal et al. 2007), and the traits of impulsivity and sensation seeking (Billieux et al. 2011, Billieux and Van der Linden 2012, Gentile 2011, Kim et al. 2008). In fact, it is difficult to provide a comprehensive frame for personality traits that are linked to Internet addiction symptoms. As we have mentioned, traits such as neuroticism, sensation seeking, impulsivity, and hostility have been positively associated with excessive Internet use, whereas other traits, such as extraversion, agreeableness, and conscientiousness, seem to be negatively associated with it (Barnett et al. 2015, Cole and Holey 2013, Floros et al. 2014, Landers and Lounsbury 2006, Mehroof et al. 2010; Samarein et al. 2013, Servidio et al. 2014, Wolfradt and Doll 2016). However, many findings in the literature also suggest different or even opposite patterns of associations between personality traits and Internet addiction symptoms (e.g., Caci et al. 2014, Engelberg and Sjöberg 2004, Floros and Siomos 2013, Floros and Simos 2014, Öztürk et al. 2015, Papastylianou 2013, Samarein et al. 2013, Servidio 2014). Of course, it is possible that these different findings are the byproduct of different sampling criteria in different populations. In addition, it should be acknowledged that such conflicting findings are mirrored in studies on disordered personalities, in which the excessive use of the Internet has been associated with many personality disorders, such as avoidant, borderline, narcissistic, and schizoid personality disorders (e.g., Laconi et al. 2016, Wu et al. 2016). Therefore, a clear need exists to use measures that allow researchers to better compare and discuss findings within a shared diagnostic framework, thus going beyond the differences among the myriad measures for assessing personality traits.

Therefore, to the best of our knowledge, no study to date has used any form (brief/full, adult/children) of the Personality Inventory for DSM-5 (PID-5; Krueger et al. 2012) to explore the relationship between Internet addiction symptoms and personality traits. The PID-5 measure assesses five domains of personality (negative affectivity, detachment, antagonism, disinhibition, and psychoticism), according to the alternative DSM-5 model for personality disorders (APA 2013). These domains represent the maladaptive extremes of the five-factor model of personality, which has framed extensive research in the field of personality and psychopathology effectively (Widiger and Costa 2012). Therefore, the aim of this study was to examine the relationship between PID-5 maladaptive personality traits and Internet addiction symptoms.

Consistently with previous research on the topic, we hypothesized that the PID-5 domains of negative affectivity (which includes items concerning maladaptive traits, such as anxiousness and hostility), detachment (which includes items concerning maladaptive traits, such as impulsivity and distractibility), and psychoticism (which includes items concerning maladaptive traits, such as cognitive and perceptual dysregulation and eccentricity) would predict the Internet addiction symptoms.

Method

Participants

The study involved 349 volunteer students from the Kore University of Enna, Italy (UKE), including 148 males (42.4%) and 201 females (57.6%) aged 18–25 (M = 21.05, SD = 1.87) and attending different courses (e.g., psychology, physical education, engineering, and architecture). Details about the sample are provided in **table 1**.

Procedures

After ethical clearance by the Internal Review Board for psychological research of the UKE - Kore University of Enna, participants were randomly selected from the UKE courses. Inclusion criteria were being a student of these courses and being in the emerging-adulthood life stage (i.e., between 18 and 25 years old). Students were informed about the nature of the study in their classrooms, and those who agreed to participate in the study and signed the informed consent form consecutively completed the measures used in this study. Overall, the entire protocol took about 15 minutes. Of the 402 students contacted for the study, 53 students (13.18% of the initial sample) were excluded: Four (7.55%) rejected participating in the study and did not sign the informed consent release, three (5.66%) did not complete the measures used in the present study entirely and correctly, and 46 (86.79%) were not in the study's age range.

Measures

The Internet Addiction Test (IAT; Young 1998) is a 20-item self-report measure for assessing Internet addiction. It assesses Internet addiction in terms of the degree of inability to control the use of and the preoccupation with the Internet, the extent of hiding or lying about online use, and continued online use despite Internet use's negative consequences. The measure includes questions such as "How often does your job performance or productivity suffer because of the Internet," and the answers are marked on a five-point Likert scale. IAT total scores range from 20 to 100. Higher scores indicate higher levels of Internet addiction. The IAT has been validated in many countries, including Italy (Ferraro et al. 2007), and it is currently the most frequently used scale for measuring Internet-related disorders (Kuss et al. 2014). It has demonstrated good internal consistency and adequate validity in many studies (Faraci et al. 2013, Ha et al. 2006, Widyanto and McMurran 2004). In the present study, Cronbach's alpha was .87.

The Personality Inventory for DSM-5-Brief Form-Adult (PID-5-BF; Krueger et al. 2012) is a 25-item self-rated personality trait assessment scale for adults aged 18 and older. The 25 items tap into five different personality domains according to the alternative DSM-

Table 1. *Socio-demographics characteristics of the full sample and differentiated by gender*

	Full sample (n= 349) N (%)	Males (n= 148) N (%)	Females (n= 201) N (%)	Statistics	p
Education				$\chi^2_{(1)}$= 0.17	.68.
High school diploma	328 (94)	140 (94.6)	188 (93.5)		
Bachelor's degree	21(6)	8 (5.4)	13 (6.5)		
Favorite online activity				$\chi^2_{(4)}$= 23.54	<.001
Social network	152 (43.55)	54 (15.47)	98 (28.08)		
Video games	29 (8.31)	23 (6.59)	6 (1.72)		
Cybersex	6 (1.72)	5 (1.43)	1 (0.29)		
Online shopping	24 (6.88)	9 (2.58)	15 (6.88)		
General Internet activity (download, browsing, email)	138 (39.54)	57 (16.33)	81 (23.21)		
Favorite tool					
Desktop PC	10 (2.86)	6 (1.72)	4 (1.15)	$\chi^2_{(5)}$= 34.22	<.001
Laptop PC	73 (20.92)	46 (13.18)	27 (7.74)		
Tablet	22 (6.30)	13 (3.72)	9 (2.58)		
Smartphone	230 (65.90)	74 (21.20)	156 (44.70)		
Game console	6 (1.72)	6 (1.72)	0 (0)		
Television	8 (2.29)	3 (0.86)	5 (1.43)		
	M (SD)	M (SD)	M (SD)	Statistics	p
Age (years)	21.05 (1.87)	21.49 (1.75)	20.73 (1.89)	$t_{(347)}$ = 3.83	<.001
Time spent online (minutes/ week)	1155.10 (983.57)	1240.36 (824.39)	1089.16 (1088.58)	$t_{(347)}$ = 1.41	.157

5 model for personality disorders (APA 2013). Five maladaptive variants of personality-trait domains are assessed: negative affectivity, detachment, antagonism, disinhibition, and psychoticism; each trait domain consists of five items. Each item on the measure is rated on a four-point scale (from 0 = *very false* or *often false* to 3 = *very true* or *often true*). An example item is "I often 'zone out' and then suddenly come to and realize that a lot of time has passed" (related to the domain of psychoticism). The overall measure has a range of scores from 0 to 75, with higher scores indicating greater overall personality dysfunction. Each trait domain ranges in score from 0 to 15, with higher scores indicating greater dysfunction in the specific personality trait domain. The PID-5-BF has been validated in many countries, including Italy (Fossati et al. 2013). In the present study, Cronbach's alpha for the PID-5 total score was .83, whereas Cronbach's alpha for the PID-5-BF domains ranged from .51 (negative affectivity) to .71 (disinhibition).

Furthermore, sociodemographic data and the details of participants' Internet use were collected by means of ad hoc questionnaires.

Statistical analyses

Descriptive statistics were computed for all study variables. Group differences were examined through *t*-test and chi-square tests. Pearson's *r* correlation coefficients were calculated to examine the associations between IAT scores and PID-5-BF scores. A hierarchical multiple regression analysis was conducted to analyze the effects of sociodemographic variables, time spent online, and personality domain scores on Internet addiction symptoms. For each set of regressions, IAT scores were entered as the dependent variable. In the first step, the sociodemographic variables (gender, age, and education) were entered as predictors. In the second step, time spent online (minutes/week) was added as a predictor in the regression model. In the last step, PID-5-BF domain scores were added as predictors into the model.

Results

Descriptive statistics and group differences

In our sample, the Internet addiction mean score was in the normal (i.e., nonclinical) range. The same applies for PID-5-BF scores. Descriptive statistics on the measures used in this study are reported in **table 2** for the full sample and are differentiated by gender, along with the level of significance for gender differences. Males and females did not show significant differences in any study variable.

Significant differences were found between males and females concerning favorite online activities. Both genders indicated general online activities (i.e., download, browsing, email) and social networks as their preferred activities on the Internet. However, more males than females preferred to play video games, and more females preferred to use social networks. Preferences for other activities were rare in the sample. The average time spent online in this sample was about two hours and 45 minutes each day, and no gender differences were found with respect to this variable. Significant differences were found between males and females with respect to their favorite tools for online activities. In fact, smartphones were the most preferred tool in the entire sample, but females preferred this tool more than males did (see **table 1**).

Associations between personality domain scores and Internet addiction symptoms

The intercorrelations among IAT scores, PID-5-BF scores, and time spent online were examined (see **table 3**). IAT scores were associated significantly and positively with PID-5-BF total scores, all domain scores, and minutes per week of online access.

Prediction of IAT scores

To test our hypothesis, we performed a hierarchical multiple regression analysis. **Table 4** shows the results of the analysis: The sociodemographic variables (gender, age, and education) were not significant predictors of Internet addiction scores in Step 1; time spent online was a significant predictor of IAT scores, increasing the explained variance of the model by 6.3% in Step 2; and including PID-5-BF domain scores in the model significantly increased the explained variance by 30.5% in Step 3, with negative affectivity, disinhibition, and psychoticism positively adding to the prediction of IAT scores.

Discussion

The present study was aimed at exploring the relationship between maladaptive personality traits and Internet addiction symptoms in a sample of university

Table 2. *Descriptive statistics*

	Full sample (N= 349)		Males (n= 148)	Females (n= 201)		
	M (SD)	Range	M (SD)	M (SD)	$t_{(347)}$	*p*
Internet Addiction Test	38.05 (10.17)	20-72	38.44 (10.24)	37.76 (10.13)	.62	.54
PID-5 Total score	22.39 (10.03)	0-59	21.74 (11.70)	22.87 (8,60)	-1.04	.30
PID-5 Negative affectivity	5.05 (2.59)	0-13	5.63 (2.62)	6.17 (2.55)	-1.91	.06
PID-5 Detachment	4.07 (2.56)	0-14	4.22 (2.67)	3.96 (2.47)	.92	.36
PID-5 Antagonism	3.34 (2.32)	0-12	3.56 (2.58)	3.18 (2.10)	1.46	.15
PID-5 Disinhibition	5.05 (2.72)	0-15	5.28 (2.87)	4.88 (2.59)	1.37	.17
PID-5 Psychoticism	4.76 (2.59)	0-13	4.88 (2.73)	4.67 (2.48)	.76	.45

Note. PID-5: Personality Inventory for DSM-5-Brief Form-Adult.

Table 3. *Pearson's r correlations between the variables*

	2	3	4	5	6	7	8
1. Internet Addiction Test	.50**	.39**	.38**	.34**	.39**	.53**	.27**
2. PID-5 Total score	-	.64**	70**	.63**	.62**	.75**	.05
3. PID-5 Negative affectivity		-	.45**	.30**	.30**	.50**	-.01
4. PID-5 Detachment			-	.43**	.39**	.54**	.05
5. PID-5 Antagonism				-	.31**	.47**	.03
6. PID-5 Disinhibition					-	.47**	.12*
7. PID-5 Psychoticism						-	.07
8. Minutes/week online							-

Note. PID-5: Personality Inventory for DSM-5-Brief Form-Adult. * p < .05, ** p < .01.

Table 4. *Hierarchical multiple regression analyses predicting Internet addiction symptoms*

	Step 1					Step 2					Step 3				
	β	t	p	r	sr	β	t	P	r	sr	β	t	p	r	sr
Gender	-.01	-.23	.815	-.03	-.01	.006	.104	.917	-.03	0.01	.01	.29	.775	-.03	.01
Age	.09	1.56	.119	.06	.08	.09	1.63	.103	.06	.08	.06	1.40	.164	.06	.06
Education	-.09	-1.60	.111	-.06	-.09	-.07	-1.25	.212	-.06	-.07	-.02	-.52	.601	-.06	-.02
Minutes/ week						.25	4.86	.000	.27	.25	.22	5.09	.000	.26	.22
PID-5 Negative affectivity											.15	2.80	.005	.39	.12
PID-5 Detachment											.04	.82	.416	.38	.04
PID-5 Antagonism											.08	1.63	.105	.34	.07
PID-5 Disinhibition											.12	2.40	.017	.39	.10
PID-5 Psychoticism											.32	5.50	.000	.53	.23
Model R^2=	.003					.075					.381				
R^2 Change=	.012					.063					.305				
F	(3,345)= 1.38, n.s.					(4,344)= 7.01, p<.01					(9,339)= 23.16, p<.01				

Note. PID-5: Personality Inventory for DSM-5-Brief Form-Adult.

students. Most of the participants in this study reported IAT scores in the normal range (Young 1996), as was expected for a nonclinical sample of young adults. Moreover, our findings concerning the IAT scores of participants are consistent with other Italian studies on adolescents and young adults (e.g., Scimeca et al. 2014; Schimmenti et al. 2014, 2017). However, in contrast with the majority of research (e.g., Tsitsiki et al. 2011, Dukee et al. 2012, Greenberg et al. 1999, Kormas et al. 2011), we did not find gender differences with respect to Internet addiction scores or time spent online. It is possible that our results reflect a contemporary global trend in the use of the Internet among adolescents and young adults. In fact, the number of young people who use Internet services has increased dramatically over the years (e.g., ACMA 2008, Audiweb Trend 2015, Huang 2006, Nielsen Online 2007). Therefore, it is possible that previously observed gender differences in the use and misuse of the Internet has become less evident nowadays, especially in nonclinical populations.

Males and females in our sample displayed different uses of the Internet. In fact, more males played video games, whereas more women were involved in online messaging and social networking sites. These results were consistent with the existing literature (e.g., Heo et al. 2014, Schou et al. 2016) showing that being male is more linked with the addictive use of video games, whereas being female is linked with the addictive use of social media. Therefore, a possible interpretation of the current findings could be that gender differences concern the main motivations that steer male and female behaviors on the Internet during emerging adulthood (Billieux et al. 2013, Schimmenti et al. 2017). In fact, it is possible that the Internet fulfills different needs among male and female youth in this life stage. For example, according to the basic psychological need theory (BPNT; Deci and Ryan 2000, Ryan and Deci 2000) – which suggests that the satisfaction of three basic needs, namely autonomy, relatedness, and competence, represent essential nutrients for optimal functioning – it is possible that male and female young adults use the Internet in different ways to satisfy different needs that are more relevant for them in this life stage. Thus, male young adults may play more online games to satisfy the

need for competence and autonomy, for example, by completing quests and achieving higher skill levels for their game characters (Hsu et al. 2009, Kandell 1998, Yee 2006). In contrast, females may be more engaged in online social networks, as social networks might fulfill the needs of young adult females concerning relatedness and security (Gullo et al. 2015) by enabling them to connect with other people in a controlled manner (Nadkarni and Hofmann 2012, Schimmenti et al. 2017, Scimeca et al 2014, Seidman 2012, Sheldon Kashdan Steger 2011, Wan and Chiou 2006).

The smartphone was the most preferred tool for Internet activities for both males and females, though females preferred this tool more than males did. This is consistent with a recent population-based Italian report (Audiweb Trends 2015) that showed that the number of people who access the Internet from smartphones and tablets (22.4 million) has become almost equal to those who access the Internet from computers (23.1 million). Moreover, the report showed that Italians spend more time on the Internet on mobile phones (more than 70% of the time), with females also spending more time on mobile phones (78.3% of total time spent online). A higher prevalence of time spent online using mobile phones among young adults was also found (86.3% of online time between 18 and 24 years old).

As expected for a nonclinical sample, the average scores of the PID-5-BF and its domain scores were in the normal range, generally indicating a good overall personality functioning for the majority of the sample (Krueger et al. 2012). We did not find any significant gender difference with respect to the maladaptive personality domains that the PID-5-BF measures. This finding is in contrast with recent research using other personality measures (e.g., Laconi et al. 2015, 2016; Wu and Lane 2016). Future research should help to elucidate our result. It is, in fact, possible that this inconsistency in the findings is related to different samples and sample selection criteria, but it is also possible that when maladaptive variants of personality domains, rather than general personality traits, are investigated, gender differences become less important to the understanding of excessive Internet use.

Moreover, in contrast with the body of literature that for years has shown significant gender differences concerning Internet addiction symptoms (e.g., Durkee et al. 2012, Greenberg et al. 1999, Kormas et al. 2011, Tsitsika et al. 2011), gender did not contribute to the prediction of Internet addiction scores in our sample. Instead, Internet addiction scores were positively associated with time spent online, consistent with several studies (e.g., Van den Eijnden et al. 2008, Young 1998). Finally, data analysis supported our hypothesis that the maladaptive personality domains of negative affectivity, disinhibition, and psychoticism would predict the Internet addiction scores. In fact, the three maladaptive personality domains were significant and positive predictors of Internet addiction symptoms. The PID-5-BF scores for these domains significantly added to the prediction in our model, increasing the explained variance in the regression model by more than 30%.

For what concerns negative affectivity, our findings are consistent with epidemiological studies showing high levels of comorbidity between problematic Internet use and mood/anxiety disorders (Caplan 2002, Ceyhan and Ceyan 2008, Ebeling-Witte et al. 2007, Shaw and Black 2006, Young and Rogers 1998). For people with high scores in this personality domain, excessive Internet use can be conceptualized as a maladaptive coping strategy serving to escape from negative feelings (Kardefelt-Winther 2014, van den Eijnden et al. 2008) and/or to overcome negative life events (e.g., a traumatic event; Schimmenti et al. 2012, 2017; Schimmenti and Caretti 2010).

In our sample, disinhibition was another personality domain related to increased Internet addiction symptom scores. This is consistent with a large body of evidence that has linked problematic Internet use to poor self-control and traits such as impulsivity and sensation seeking (Billieux and Van der Linden 2013, Billieux et al. 2015, Cao et al. 2007, Gentile 2011, Kim et al. 2008, Shapira et al. 2000, Yellowlees and Marks 2007). It is possible that, for people with high scores on this domain, the Internet may represent more than an appropriate tool for satisfying their often elevated urgency components of impulsivity (Billieux, et al. 2010, Cyders and Smith 2008, Selby et al. 2008) by allowing relief from negative feelings through quick actions (e.g., by quickly engaging in new virtual relationships concurrently).

Finally, the psychoticism domain also proved to be a significant predictor of Internet addiction symptoms. This finding was consistent with previous studies in which psychoticism was identified as a possible risk factor for the development of problematic Internet use (e.g., Dong et al. 2011, Kais 2016, Xiuqin et al. 2010). It is interesting that, within a psychoanalytic tradition, Rosegrant (2012) formulated the hypothesis that the Internet may represent an opportunity to integrate the internal and external worlds for young adults who are characterized by traits of psychoticism. Moreover, as Schimmenti and Caretti (2010) pointed out, virtual realities permit individuals to explore and express different self-states that often are not expressed in the real world, for example, due to feelings of shame or fear of social disapproval. For those young people who are less integrated on the emotional and cognitive levels, the Internet may appear as a place where reality and an illusionary world can merge (Rosegrant 2012), a place where the nonintegrated states of consciousness or fantasies that cannot be expressed in reality can find a "bonding agent". This helps these young people not to fall to pieces, thus preventing fragmentation in their personalities.

As with all research, the present study comes with a number of limitations. First, the study involved only volunteer university students, and therefore, the results are not generalizable to other young adults, such as those who seek treatment for problematic Internet use or those who already work. Second, the information was collected by means of self-report measures. Thus, even though the measures used in this study have shown good psychometric properties, they are susceptible to information bias. Third, longitudinal research is needed to establish causal links between maladaptive personality traits and Internet addiction symptoms among young adults definitely.

Conclusions

Even considering its limitations, this study shed new light on how different maladaptive variants of personality traits may lead to the excessive use of the Internet and may exacerbate symptoms of Internet addiction. Moreover, the study showed that the PID-5-BF measure can be integrated in future research on the personality factors that exert an influence on the development and maintenance of problematic Internet use among emerging adults.

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