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65	Keywords separated by ' - '	Problematic Internet use - Personality - Attachment styles - Dissociation - Young adults
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The Unfabulous Four: Maladaptive Personality Functioning, Insecure Attachment, Dissociative Experiences, and Problematic Internet Use Among Young Adults

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Abstract

Even though positive associations among problematic Internet use (PIU), maladaptive personality traits, insecure attachment styles, and dissociation have been frequently observed in research, a need exists to examine the interrelationships among these factors in young adults. Two hundred fifty-three young adults (52% females) aged between 18 and 25 years old completed a sociodemographic form and measures on PIU, maladaptive personality traits, dissociative experiences, and adult attachment styles. They also reported how much time they usually spent online. A hierarchical multiple regression analysis showed that male gender, increased time spent online, negative affectivity, an avoidant attachment style, and dissociative symptoms of depersonalization/derealization were strongly associated with PIU scores in the sample. Our findings suggest that an excessive time spent online may combine with maladaptive personality features, insecure attachment dispositions, and difficulties in processing bodily experiences in generating PIU among young adults.

Keywords Problematic Internet use · Personality · Attachment styles · Dissociation · Young adults

In the last two decades, interest in the use and misuse of the Internet has dramatically increased along with the development of the technology (Musetti et al. 2016a). Researchers and

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clinicians have paid attention to factors that may contribute to problematic Internet use (PIU). PIU can be defined as a difficulty with controlling one's Internet use, which leads to negative consequences in daily life (Spada 2014). In particular, excessive Internet use has been frequently reported among adolescents and young adults (Huang 2006; Schimmenti et al. 2014; Shaw and Black 2008).

Different theoretical models exist to explain PIU. Among them, the conceptualization of PIU as a behavioral addiction (Widyanto and Griffiths 2006; Young 1998) is one of the most recognized in the literature. According to this model, PIU is conceived in terms of an excessive preoccupation with the Internet and its applications, which may also involve severe addictive symptoms such as craving, tolerance, and withdrawal that may generate impairments and distress in the personal, social, and professional lives of individuals. The conceptualization of PIU as an addictive disorder is currently under debate because it is basically symptom-based and does not provide information concerning the origins and processes that may foster PIU (Kardefelt-Winther et al. 2017; Musetti and Corsano 2018). However, significant evidence about problematic Internet behaviors has been collected based on the addiction model of PIU (Anand et al. 2018; Brand et al. 2014; Kuss et al. 2013).

According to the conceptualization of PIU as a behavioral addiction, it is possible to hypothesize that excessive use of the Internet (i.e., an excessive amount of time spent on the Internet) might represent a risk factor for the development of PIU. In fact, despite there being no consensus on how much time should be spent on the Internet to display a PIU (Kuss et al. 2014), time spent online has been considered a principal predictor for the development of an "Internet addiction disorder" (Young 1998) in many studies (e.g., Laconi et al. 2016; Muñoz-Rivas et al. 2010; Nalwa and Anand 2003). Specifically, it has been suggested that the more time one spends online, the higher the arousal when that person is connected. Subsequently, the interest and arousal toward social stimuli are lowered, leading to altered health habits and interference in the social, family, academic, or work domains (Muñoz-Rivas et al. 2010).

However, while time spent online may represent an important behavioral indicator of PIU, for both clinical purposes and the development of preventative actions within the public health system, it is critical to identify psychological factors that might lead to the onset and maintenance of PIU. In this respect, understanding the role played by personality features, mental functions, and relational factors may foster the identification of effective strategies with which to reduce the impact of PIU on youths' lives. Consistent with the I-PACE (interaction of person, affect, cognition and execution) model (Brand et al. 2016) of PIU, which postulates close links between individual features and excessive online behaviors, PIU can represent a maladaptive coping strategy (Kardefelt-Winther 2014) for young individuals who display maladaptive personality traits, difficulties in integrating their internal experiences, and problems in close relationships.

In this respect, maladaptive personality traits have been extensively linked to PIU (for reviews, see Gervasi et al. 2017a; Mitchell and Potenza 2014). There is evidence that personality traits such as negative affectivity, impulsivity, and a tendency toward psychoticism are strongly associated with maladaptive use of the Internet, especially among adolescents and young adults (Billieux et al. 2011; Guglielmucci et al. 2017; Munno et al. 2017). In a recent study, Gervasi et al. (2017b) purposed that the tendency to develop PIU symptoms among young adults could be subtended by a core of internalizing symptoms or externalizing symptoms. They studied the associations between PIU and the personality domains of negative affectivity, detachment, antagonism, disinhibition, and psychoticism—that is, the domains included in the alternative DSM-5 model for personality disorder (American Psychiatric

Association 2013). These personality domains constitute maladaptive variants of the five-factor model of personality, which has been widely supported in personality research and clinical literature (Widiger and Costa Jr 2012). Gervasi et al. (2017b) found that negative affectivity, disinhibition, and psychoticism positively predicted PIU among young adults. They discussed their findings by considering PIU as a strategy with which to escape from negative emotions, satisfy urgency and impulsivity, and avoid disorganized states of mind emerging into consciousness (Rosegrant 2012; Schimmenti and Caretti 2010).

The presence of maladaptive personality domains has been frequently linked to insecure attachment styles (for reviews, see Debbané et al. 2016; Nazzaro et al. 2017). This is the case of infant attachment, intended as the child's style of relationships with parents (Jia and Jia 2016; Monacis et al. 2017), but this is also the case of adolescent and adult attachment in relationships with peers and romantic partners (Schimmenti et al. 2014). Attachment is the motivational system that promotes the search for safety in close and intimate relationships in all life stages (Bifulco and Thomas 2012), and late adolescence and young adulthood are times when relationships with peers are extremely important for the development of one's identity (Arnett, 2000; Corsano et al. 2017). An anxious attachment style in relationships with peers, which makes individuals preoccupied about their ability to achieve safety and explore reality, or an avoidant attachment style, which disengages individuals from searching for close relationships, may affect one's identity development and predispose a person to problematic behaviors such as PIU during late adolescence and young adulthood (Schimmenti et al. 2014). In fact, insecure attachment styles have been associated with symptoms of Internet addiction (Eichenberg et al. 2017; Monacis et al. 2017; Schimmenti et al. 2012, 2014; Şenormancı et al. 2014) and with addictive behaviors more generally (Musetti et al. 2016b; Schindler and Bröning 2015). For example, Schimmenti et al. (2014) found that late adolescents with insecure attachment attitudes were more likely to become problematic Internet users.

Beside the anxious and avoidant attachment styles, disorganized attachment (a condition in which the individual displays highly inconsistent and conflictual mental states with respect to attachment behavior, as he or she did not develop coherent strategies, whether secure or insecure, to relate with significant others) has been established as one of the strongest predictors for the onset of psychiatric symptoms and addictive behaviors in later life (Schindler and Bröning 2015). This consideration fits well with the positive associations found in the literature between psychoticism and PIU (Gervasi et al. 2017b) and, more generally, with empirical data and clinical observations supporting the association between disorganized mental states and PIU (Schimmenti et al. 2012, 2017b). Also, the positive relationship between PIU and a lack of integration in mental states is consistent with the widely demonstrated relationship between PIU and dissociative symptoms, such as amnesia, depersonalization/derealization, and extreme absorption (Bernardi and Pallanti 2009; Dalbudak et al. 2014; Musetti et al. 2018; Schimmenti and Caretti 2017; Schimmenti et al. 2012). Dissociation represents a mechanism by which individuals temporarily protect the mind from experiences that overwhelm their capacity for cognitive processing, through a passive disengagement from reality and a compartmentalization of behaviors, thoughts, memories, and feelings. However, when dissociation is overly activated and relied upon as an individual's primary response to distressful experiences, it may hinder one's capacity for mental integration of experiences and may foster psychopathology (Schimmenti 2018). Accordingly, Bernardi and Pallanti (2009) found a positive and strong association between PIU and dissociative symptoms in a group of psychiatric outpatients. Furthermore, Schimmenti et al. (2012) showed that dissociation mediated the relationship between disorganized attachment and PIU in a

sample of online gamers with high levels of Internet addiction symptoms. Moreover, Schimmenti and Caretti (2017) proposed that an extreme syndrome defined as video-terminal dissociative trance (VDT) may result from overtly excessive Internet use. The VDT contemplates an alteration of the states of consciousness, identity, memory, self-awareness, and self-integrity, in which the personal sense of identity flows into a virtual identity to escape from traumatic memories. The authors also provided anecdotal evidence for this extreme condition of PIU among young adults, thus suggesting that dissociative symptoms may be relevant for understanding PIU.

Therefore, both theoretical considerations and empirical findings support the view that maladaptive personality features, insecure attachment styles, and dissociative features may add to the time spent online and foster PIU. Accordingly, in the current study, we sought to investigate the role of these psychological factors in influencing PIU scores among young adults. To the best of our knowledge, this is the first time that all these factors have been studied together in relation to PIU. This is surprising, as this kind of study may help to disentangle the specific contributions of each of these variables in the development of PIU. In detail, we studied whether hours per day spent online, maladaptive personality traits, attachment styles, and dissociative symptoms influenced PIU scores in young adults. On the basis of previous findings, we hypothesized that the maladaptive personality domains of negative affectivity, disinhibition and psychoticism, the insecure attachment styles, and the dissociative symptoms would have influenced PIU scores in our sample.

Method

Participants

The study involved 253 Italian young adults (121 males, 47.7%; 132 females, 52.3%) aged from 18 to 25 years ($M=21.38$ years, $SD=2.56$) recruited through public and electronic advertisements (flyers in public places and posts in social network pages) directed to young adults living in the city of Enna, Italy.

Procedures

Ethical clearance was obtained by the Internal Review Board for Psychological Research of the UKE-Kore University of Enna. The inclusion criteria were being in the emerging-adulthood life stage (i.e., between 18 and 25 years old) and not reporting the use of psychotropic medications. Participants who contacted the research office were asked for their availability to complete (online or in person) a series of measures on Internet use and personality. All of the participants gave their informed consent and completed an anonymous module with sociodemographic information (age, gender, and years of education), the amount of hours per day they were connected to the Internet, and self-reported questionnaires on PIU, maladaptive personality domains, attachment styles, and dissociative symptoms. Of the 270 persons who contacted the research office, 10 (3.70%) did not meet the inclusion criteria, and seven (2.59%) did not entirely and correctly complete the measures used in the present study. The study was carried out according to the Ethical Code of the Italian Association of Psychology (AIP) and the American Psychological Association (APA).

Measures

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Problematic Internet Use The Italian version of the Internet Addiction Test (IAT; Young 1998; Italian adaptation by Ferraro et al. 2006) is a 20-item self-reported questionnaire that quantifies excessive Internet use. Items are rated on a 5-point Likert scale ranging from 1 (*never*) to 5 (*always*). Total scores can range from 20 to 100. A cutoff value of 50 or above is often used to identify people with PIU in international and Italian research (Young 1998; Schimmenti et al. 2014, 2018). The IAT includes questions such as “How often do you fear that life without the Internet would be boring, empty, and joyless?” Cronbach’s alpha of the IAT was .93 in this study.

Personality Domains The Italian version of the Personality Inventory for DSM-5—Brief Form—Adult (PID-5-BF; Krueger et al. 2012; Italian adaptation by Fossati et al. 2013) was administered to the participants to assess their personality. The PID-5-BF is a 25-item self-reported questionnaire assessing five maladaptive personality domains (negative affectivity, detachment, antagonism, disinhibition, and psychoticism) according to the alternative DSM-5 model for personality disorders (American Psychiatric Association 2013). An example item is “I worry about almost everything” (related to the domain of negative affectivity). Items are rated on a 4-point Likert scale ranging from 0 (*very false or often false*) to 3 (*very true or often true*). The maximum score for each domain is 15, while the maximum overall reachable score is 75 points, and the higher the score, the more dysfunctional the individual’s personality is. The Cronbach’s alpha for the PID-5-BF total score in this study was .89, while the Cronbach’s alpha for the singular traits ranged from .67 (negative affectivity) to .77 (psychoticism).

Attachment Styles The Italian translation of the Relationship Questionnaire (RQ; Bartholomew & Horowitz, 1993; Italian adaptation by Carli 1995) was used to assess attachment styles. The RQ is a four-sentence self-report measure that describes four prototypical attachment attitudes: secure (which entails a positive view of self and a positive view of others), dismissing (which entails a positive view of self but a negative view of others), preoccupied (which entails a positive view of others but a negative view of self), and fearful (which entails a negative view of both self and others). An example of the RQ statements is the following: “I am comfortable without close emotional relationships. It is very important to me to feel independent and self-sufficient, and I prefer not to depend on others or have others depend on me” (which refers to dismissive attitudes in close relationships). The participants were required to indicate how much they agreed or disagreed with each of the sentences using a 7-point Likert scale. Following the predetermined criteria for calculating scores on the two principal domains (anxiety and avoidance) of insecure attachment styles (Bartholomew and Horowitz 1991), we used the scores on the four attitudes to calculate the final scores for attachment anxiety ((fearful + preoccupied) – (secure + dismissing)) and attachment avoidance ((fearful + dismissing) – (secure + preoccupied)).

Dissociation The Italian translation of the Dissociative Experiences Scale-II (DES-II; Carlson and Putnam 1986; Italian adaptation by Schimmenti 2016) was used to assess dissociation. The DES-II is a 28-item self-reported questionnaire that measures dissociative experiences. Each item rates the percentages of time that individuals experience symptoms. An example item is “Some people have the experience of feeling that their body does not seem to belong to them. Circle the number to show what percentage of the time this happens to you.” The total

score is obtained by summing the percentages of the 28 item scores and dividing that total by 28. The Cronbach's alpha of the scale was .95.

Considering the original three-factor model of dissociative symptoms identified by Carlson and colleagues (Carlson et al. 1991), we calculated and considered the three symptoms subscales: amnesia (alpha = .83), depersonalization/derealization (alpha = .87), and absorption (alpha = .86).

Statistical Analyses

Descriptive statistics were calculated for all of the variables examined in the current study. Partial correlations were examined to look at the associations between the investigated variables, controlling for sociodemographic factors (gender, age, and years of education). Finally, a hierarchical regression analysis with IAT scores as the dependent variable was performed, including sociodemographic variables (step 1), time spent online (step 2), PID-5-BF domain scores (step 3), attachment anxiety and avoidance scores (step 4), and dissociative symptom scores (step 5) as predictors. $p < .05$ was set as the level for statistical significance.

Results

Descriptive statistics are reported in Table 1 for all the observed variables in the current study. As expected for a youth sample from the normal population, the mean scores of the investigated measures were in the normal range, and most of the participants did not report prominent symptoms of PIU.

Partial correlations between the investigated constructs were examined, controlling for sociodemographic variables (see Table 2). As it is seen in Table 2, PIU scores were positively and significantly associated with time spent online and with all of the investigated psychological variables.

Table 1 Descriptive statistics

	<i>M</i>	<i>SD</i>	Observed range	Skewness	Kurtosis
t1.3	21.43	2.55	18–25	–0.02	–1.46
t1.4	12.36	2.77	5–18	–0.51	–0.59
t1.5	39.68	13.71	20–81	1.01	0.32
t1.6	2.41	1.80	0–13	2.08	6.62
t1.7					
t1.8	6.30	2.99	0–13	0.45	–0.73
t1.9	3.91	2.85	0–13	2.85	0.50
t1.10	3.63	3.04	0–14	0.90	0.39
t1.11	5.46	3.25	0–14	0.37	–0.42
t1.12	4.39	3.44	0–15	0.69	–0.37
t1.13					
t1.14	–3.40	4.20	–12–9	0.65	–0.33
t1.15	–0.33	3.91	–9–10	0.15	–0.72
t1.16					
t1.17	11.42	12.28	0–57.14	1.51	1.82
t1.18	11.30	15.29	0–63.33	1.72	2.27
t1.19	29.74	19.94	0–100	1.13	1.25

Table 2 Partial correlations between the study variables (controlling for gender, age, and years of education)

	Hours per day spent online	Negative affectivity	Detachment	Antagonism	Disinhibition	Psychoticism	Anxious attachment	Avoidant attachment	Amnesia	Depersonalization	Absorption
t2.3	.414***	.411***	.367***	.302***	.351***	.428***	.320***	.212**	.369***	.398***	.261***
t2.4	–	.257***	.288***	.317***	.294***	.297***	.257***	–.013	.235***	.181**	.066
t2.5	–	–	.423***	.431***	.403***	.463***	.293***	.105	.334***	.346***	.295***
t2.6	–	–	–	.430***	.473***	.558***	.298***	.337***	.337***	.304***	.206**
t2.7	–	–	–	–	.496***	.492***	.117	–.016	.361***	.345***	.242***
t2.8	–	–	–	–	–	.484***	.169**	.084	.407***	.374***	.302***
t2.9	–	–	–	–	–	–	.275***	.255***	.509***	.533***	.432***
t2.10	–	–	–	–	–	–	–	.119	.289***	.251***	.247***
t2.11	–	–	–	–	–	–	–	–	.125*	.117	.095
t2.12	–	–	–	–	–	–	–	–	–	.797***	.716***
t2.13	–	–	–	–	–	–	–	–	–	–	.685***
t2.14	–	–	–	–	–	–	–	–	–	–	–

A hierarchical linear regression analysis was performed to examine the predictive associations of hours per day spent online, maladaptive personality domains, attachment styles, and dissociative symptoms on the dependent variable PIU (IAT score). Five steps were entered in the following order. Step 1 was entered with sociodemographic variables (gender, age, and years of education). Step 2 was entered with number of hours spent on the Internet by participants. Step 3 was entered with PID-5-BF scores on personality domains (negative affectivity, detachment, antagonism, disinhibition, and psychoticism). Step 4 was entered with RQ anxious style and avoidant style scores. Finally, step 5 was entered with the scores from the three subscales of the DES-II (amnesia, depersonalization/derealization, and absorption). The results of the hierarchical regression analysis are reported in Table 3.

The hierarchical regression analysis revealed that male gender (male coded as 1; female coded as 2) was a strong predictor for PIU in all steps, while age and years of education did not predict PIU. However, the model including only the sociodemographic factors as statistical predictors explained only 5% of variance in the PIU scores. As expected, the hours per day a person remained connected to the Internet was also a strong predictor for PIU scores, and the inclusion of time spent online among the predictors in step 2 increased the explained variance of PIU scores from 5 to 21%. Regarding the psychological factors, the only maladaptive domains that predicted PIU in step 3 were negative affectivity and psychoticism. However, negative affectivity continued to predict PIU in each step; psychoticism predicted PIU until step 4 but did not predict PIU in step 5, when dissociative experiences were entered as predictors. This might suggest an overlapping of psychoticism and dissociative symptoms, a hypothesis already suggested in the literature on PIU predictors. Interestingly, both attachment anxiety and attachment avoidance predicted PIU when entered in step 4, but only the avoidant style continued to predict PIU when dissociative symptoms were entered in step 5. In fact, in step 5, which included all of the investigated variables, the depersonalization/derealization symptoms of dissociation positively and significantly predicted PIU, together with male gender, hours per day spent online, negative affectivity, and avoidant attachment. This final model explained 41% of variance in the PIU scores.

Discussion

We investigated the relationship among PIU scores, hours per day spent on the Internet, maladaptive personality traits, insecure attachment, and dissociation in young adults, controlling for gender, age, and education. As we expected, partial correlation analyses showed that PIU scores were significantly and positively associated with the other investigated variables.

Furthermore, the results of the study showed a significant association between male gender and PIU scores. The fact that being male seemed to predispose individuals to PIU in our sample is consistent with the existing literature (Bakken et al. 2009; Ho et al. 2014; Kormas et al. 2011). Notably, it has been previously reported that males may use the Internet more than females, especially for leisure activities (e.g., gaming but also pornography and gambling; see Beutel et al. 2011; Weiser 2000). In turn, Internet use for leisure activities has been more consistently associated with PIU than its use for other activities, such as work (Yee 2006).

Another variable that positively influenced PIU scores in our sample was increased time spent online. This finding seems to be in line with the model conceptualizing PIU as a behavioral addiction (Young 1998). In our study, the more time spent online, the more problematic the relationship with the Internet was for our participants, similarly to what

Table 3 Hierarchical regression model for problematic Internet use (IAT) scores

	R^2	R^2	B	Lower bound	Upper bound	β
t3.1	Table 3 Hierarchical regression model for problematic Internet use (IAT) scores					
t3.2						
t3.3	.05**	.05				
t3.4			-5.26	-8.63	-1.90	-0.19**
t3.5			-0.41	-1.24	0.42	-0.08
t3.6			-0.14	-0.90	0.62	-0.03
t3.7	.16***	.21				
t3.8			-4.80	-7.87	-1.73	-0.17**
t3.9			-0.14	-0.90	0.62	-0.03
t3.10			-0.09	-0.78	0.60	-0.02
t3.11			3.12	2.26	3.97	0.41***
t3.12	.14***	.36				
t3.13			-6.05	-9.01	-3.09	-0.22***
t3.14			-0.28	-0.98	0.41	-0.05
t3.15			0.15	-0.49	0.79	0.03
t3.16			2.05	1.20	2.89	0.27***
t3.17			0.93	0.36	1.50	0.20**
t3.18			0.35	-0.28	0.98	0.07
t3.19			-0.17	-0.75	0.41	-0.04
t3.20			0.33	-0.21	0.88	0.08
t3.21			0.75	0.21	1.29	0.19**
t3.22	.03**	.38				
t3.23			-5.67	-8.59	-2.75	-0.21***
t3.24			-0.39	-1.07	0.30	-0.07
t3.25			0.19	-0.44	0.82	0.04
t3.26			1.98	1.13	2.83	0.26***
t3.27			0.83	0.26	1.40	0.18**
t3.28			0.01	-0.64	0.67	0.00
t3.29			0.04	-0.55	0.62	0.01
t3.30			0.38	-0.16	0.92	0.09
t3.31			0.58	0.03	1.12	0.14*
t3.32			0.40	0.04	0.75	0.12*
t3.33			0.46	0.08	0.85	0.13*
t3.34	.02*	.41				
t3.35			-5.55	-8.47	-2.64	-0.20***
t3.36			-0.41	-1.09	0.27	-0.08
t3.37			0.27	-0.36	0.90	0.05
t3.38			1.99	1.14	2.85	0.26***
t3.39			0.77	0.21	1.34	0.17**
t3.40			0.07	-0.58	0.72	0.01
t3.41			-0.02	-0.60	0.56	-0.00
t3.42			0.29	-0.25	0.83	0.07
t3.43			0.29	-0.28	0.87	0.07
t3.44			0.35	-0.01	0.70	0.11
t3.45			0.46	0.08	0.84	0.13*
t3.46			-0.01	-0.22	0.19	-0.01
t3.47			0.19	0.03	0.35	0.21*
t3.48			-0.03	-0.13	0.08	-0.04

Lower bound and upper bound identify the 95% confidence interval for B coefficients

* $p < .05$; ** $p < .01$; *** $p < .001$

happens with higher amounts of substances in substance abusers. Indeed, in the current study, 278
 the variable of hours per day spent online was positively and significantly associated with PIU 279
 scores, independently from other variables. This may suggest that an excessive Internet use 280
 may predispose an individual to PIU beyond the personality profile, attachment styles, and 281

dissociative symptoms. However, it is also possible that increased time spent online is a consequence, rather than a cause, of the development of PIU or that excessive time spent online is actually just an epiphenomenon of the psychological problems related to maladaptive personality domains, insecure attachment, and dissociation. Future research is needed to examine the direction of this relationship.

Regarding personality features, negative affectivity was positively associated with PIU, as expected. Internalizing personality patterns have been frequently associated with maladaptive Internet use (see Carli et al. 2013, for a review). Moreover, the interpretation that negative affectivity could lead young adults to search for a way to escape from negative emotions through salient Internet stimulation has received some support in the relevant literature (Kim et al. 2017), with experimental studies supporting positive associations between exposure to negative stimuli and PIU (Schimmenti et al. 2018). As for time spent online, negative affectivity influenced PIU scores independently from attachment styles and dissociative symptoms, suggesting that internalizing tendencies may predispose one to PIU beyond insecure attachment, even in the absence of dissociation. One possible interpretation of our results is that low self-esteem and negative emotions, indicators of negative affectivity, could increase the amount of time spent online. Moreover, despite the specific mechanisms behind the strong relationship between negative affectivity and PIU being clear (Boonvisudhi and Kuladee 2017), some studies underline that a dysfunction of the serotonergic system may subtend both conditions (Lee et al. 2008; Wrase et al. 2006). Indeed, our results suggest that internalizing tendencies and PIU could be interrelated independently of other variables, supporting the hypothesis of a common neurobiological basis for PIU. We did not find evidence that detachment, disinhibition, or antagonism influenced PIU scores, suggesting that these maladaptive personality domains may be linked to some profiles of problematic Internet users, but they may be not globally involved in PIU (Gervasi et al. 2017a; Guglielmucci et al. 2017). In this context, a result that particularly contrasted our expectations was that the disinhibition domain of personality did not influence PIU scores. This result is in contrast with literature showing positive links among PIU, low self-control, and high impulsivity (Billieux et al. 2015; Gentile 2011; Gervasi et al. 2017b). A possible explanation of this finding is that excessive Internet use in our sample of normal youth could be linked to problems concerning tolerance of negative affect, typical of the adolescent and young adult life stages, rather than to excessively inhibited or disinhibited arousal (Armstrong et al. 2000).

Regarding psychoticism, we found that it was positively associated with PIU in step 3 of the regression analysis. However, when the dissociative symptoms were included in the final model, the dissociative domain of depersonalization/derealization influenced PIU scores, and psychoticism was excluded from the significant predictors of the model. This is in agreement with literature suggesting similarities between psychotic symptoms and dissociative symptoms in PIU (Schimmenti et al. 2012, 2017a) as well as a strong relationship between dissociation and PIU (Bernardi and Pallanti 2009; Dalbudak et al. 2014; Schimmenti and Caretti 2017). This finding is also in line with psychodynamic models, suggesting that the Internet may be used as a psychic retreat to prevent overwhelming affect from emerging into consciousness (Schimmenti and Caretti 2010; Schimmenti et al. 2017b). However, our results add that psychoticism alone, without dissociative manifestations, might not be sufficient for the development of PIU. Indeed, the literature has identified psychoticism as a possible risk factor for PIU (Dong et al. 2011; Schimmenti et al. 2017a; Xiuqin et al. 2010) but not as a key factor as dissociation (Bernardi and Pallanti 2009).

Among the dissociative domains, only depersonalization/derealization was found to be strongly and positively associated with PIU (Beutel et al. 2011; Recupero 2010) and not amnesia or absorption. This may suggest that PIU is linked with a specific difficulty in processing and integrating bodily experiences, as previously proposed in clinical literature (Schimmenti and Caretti 2017) and recently supported by neurobiological evidence from patients seeking psychological treatment for PIU. In this respect, Lai et al. (2017) reported in a recent study that a group of people undergoing psychological treatment for Internet addiction showed higher activation of primary somatosensory cortex and lower activation of paralimbic system, temporal, and orbito-frontal in response to Internet images compared to a control group, which suggests that people with PIU may process bodily experiences differently when they perceive Internet-related stimuli.

The association between depersonalization/derealization and PIU also fits well with the influence of avoidant attachment style on PIU scores that was evidenced in step 4 of the hierarchical regression analysis. An avoidant attachment style is characterized by a negative view of other people and predisposes one to sensation-seeking behaviors and to the tendency to formulate choices independently from other people (Monacis et al. 2017). Moreover, it could be underpinned by a fragmented and loosely integrated identity structure. In support, in a recent study, Schimmenti et al. (2017a) found that schizotypal personality traits decreased when participants thought about themselves in the virtual world, suggesting that a tendency to detach from attachment relationships may be compensated for in the Internet.

As with all research, this study comes with many limitations. First, our sample was not overly large and included only young adult volunteers from the normal population, so the results of this study are not immediately generalizable to other people in this life stage. Studies with clinical samples are greatly needed to extend our findings and provide more definitive significance for public health. Second, the data were entirely collected by self-reported measures, so the accuracy of individual reports cannot be guaranteed, although the measures used in the present study are widely applied in research and have consistently demonstrated adequate psychometric properties. However, a multimethod assessment is warranted for future research. Third, the cross-sectional nature of the study makes it difficult to definitively establish causal links and does not allow us to exclude the possibility that our findings were affected by other variables not explored here (e.g., problems with affect regulation, psychiatric symptoms, or current social support). Thus, longitudinal studies with clinical and nonclinical samples of young adults are greatly needed to clarify our findings on the relationships among personality domains, adult attachment styles, dissociative symptoms, and PIU during young adulthood.

Conclusions

In conclusion, we found that male gender, time spent online, negative affectivity, an avoidant attachment style, and dissociative symptoms of depersonalization/derealization were associated with increased PIU scores in young adults. This suggests that problematic Internet use cannot be defined exclusively in terms of addictive behavior and that, at least in young adult males, addictive tendencies (excessive time spent online) may combine with personality features (negative affectivity), relational factors (avoidance in close relationships), and difficulties in processing bodily feelings (depersonalization/derealization symptoms) in generating dysfunctional Internet use. This might have relevant implications for informing the prevention of PIU and treatment of young adults who are overinvolved with the Internet. Prevention and tailored intervention actions should help these

individuals to face preexisting maladjustment or psychopathology, rather than limiting treatments to the problematic use of the Internet per se. In fact, the present findings suggest that it could be useful to assess the influences of negative affectivity, depersonalization features, and avoidance in close relationships in young adults who display significant symptoms of PIU and to eventually treat these problems. This could help these individuals to better understand the origin of their symptoms and to learn how to cope with their psychological difficulties, which might reduce their risk of compulsively using the Internet as a dysfunctional strategy with which to escape from their internal and relational problems.

Compliance with Ethical Standards

Ethical clearance was obtained by the Internal Review Board for Psychological Research of the UKE-Kore University of Enna. The study was carried out according to the Ethical Code of the Italian Association of Psychology (AIP) and the American Psychological Association (APA).

Conflict of Interest The authors declare that they have no conflict of interest.

Informed Consent All procedures followed in this study were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000. Informed consent was obtained from all participants for being included in the study.

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