

## REJECTION SENSITIVITY AND INTERNET ADDICTION IN ADOLESCENCE: EXPLORING THE MEDIATING ROLE OF EMERGING PERSONALITY DISORDERS

Andrea Fontana, Antonino Callea, Erica Casini, Valeria Curti

### Abstract

*Objective:* Internet Addiction is a form of dependence widespread diffused in adolescence. Although Internet Addiction appear to be related to personality disorders in adults, more research is needed to understand the relationship between Internet Addiction and emerging personality disorders in adolescence. Furthermore, Internet Addiction seems to be associated to Rejection Sensitivity (RS), described as the tendency to expect, perceive, and overreact to overt or covert interpersonal rejection.

*Method:* We aim at investigating the role of emerging personality disorders in mediating between RS and Internet Addiction. 269 adolescents completed self-reports on RS, emerging personality patterns and internet addiction.

*Results:* We tested two mediational models. In the first model, we hypothesized that Depressive Personality Pattern mediates between Anxious responses about rejection and Internet Addiction. In the second model, we hypothesized that Borderline Tendency mediates between Anger responses about rejection and Internet Addiction. We found evidence supporting this two models.

*Conclusions:* In conclusion, specific emerging personality disorders mediate between RS and Internet addiction.

**Key words:** personality disorders, Internet addiction, rejection sensitivity

**Declaration of interest:** none

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### Introduction

Internet Addiction Disorder (IAD) is a form of behavioural addiction, consisting of a problematic use of the internet and of its components (Young 1998, Young et al. 2000, Guglielmucci et al. 2017) and it is associated with compulsion and lack of impulse control (Xiuqin 2010). IAD is widespread across the globe, regardless of culture, gender, and age (Kuss 2013, Kiraly et al. 2014). According to DSM-5 (American Psychiatric Association 2013), IAD is a disorder requiring further studies, whereas scientific literature sees it as an alarming phenomenon, due to the growing pervasiveness of internet use in the daily lives of adolescents (Schimmenti 2017). IAD shares some characteristics with substance use disorder (Hollander and Stein 2006) and co-occurs with other psychological problems such as low self-esteem, depressed mood, suicidal ideation and social anxiety (Young 1998, Kim et al. 2006). In this line, higher levels of internet use were associated with somatic and depressive symptoms as well as emotional and behavioural problems (Cerutti et al. 2017). Furthermore, alexithymia, dissociative experiences, emotion dysregulation, and ADHD also appear to be associated with IAD (Douse and McManus 1993, Cho et al. 2008, De Bernardis et al. 2009).

An important study, carried out by Xiuqin and colleagues (2010), has revealed that IAD is closely related to a number of psychopathological difficulties such as mood disorders, substance use disorders, and

psychotic spectrum disorders. It also appears to be related to certain traits such as introversion, aggressiveness, antisocial behaviour, egocentrism and psychoticism (Xiuqin et al. 2010). In this regard, Black and colleagues (1999) were the first to highlight the importance of personality assessment in individuals suffering from internet dependency, given that 52% of those assessed with the Personality Diagnostic Questionnaire, met the criteria for at least one personality disorder (24% showed borderline personality disorder, while 19% showed both narcissistic and antisocial personality disorders).

Internet dependency also seems to be related to low levels of parental control, a lack of discipline and uninvolved and neglectful parenting (Yen et al. 2007, Kim et al. 2008, Park et al. 2008). The parents of adolescents affected by IAD are authoritarian and rejecting; on the contrary, assertive and supportive parents, more involved and attentive to their children's lives and needs, are a protective factor in the development of compulsive and dysregulated behaviours (Xiuqin et al. 2010). Furthermore, adolescents with IAD appear to be characterized by low conscientiousness (van der Aa et al. 2009, Kuss 2013, Kuss et al. 2014), low resourcefulness (Kuss et al. 2014), high emotional instability and introversion (van der Aa et al. 2009, Xiuqin et al. 2010, Kuss et al. 2013, Kuss et al. 2014). In this sense, Internet Addiction would operate as a dysfunctional coping strategy associated with other psychological problems such as emotional vulnerability and a reduced ability to

regulate disturbing feelings (Gentile et al. 2011, Tang et al. 2014, Billieux et al. 2015, Burnay et al. 2015).

There is a possible connection between internet dependency and Rejection Sensitivity (RS), where RS can be seen as a risk factor for developing IAD. RS is defined as the tendency to anxiously or angrily expect, readily perceive, and overreact to overt or covert interpersonal rejection (Feldman and Downey 1994, Downey and Feldman 1996). According to Bowlby's attachment theory (1980), when a parent reacts to the child's needs through refusal, the child will inevitably become sensitive to rejection. People who are afraid, who doubt the acceptance of others and expect an interpersonal rejection, will act in a more hostile and aggressive way compared to more secure individuals (Dutton et al. 1994, Gaines et al. 1997, Mikulincer 1998, Downey et al. 1998, Downey et al. 2000).

The extensive literature on RS during adolescence shows that a high level of RS leads to the rejection of the individual by his/her peers and to poor psychosocial functioning abilities, which strongly enhance anxiety, loneliness and depression (Sandstrom and Zakrski 2004, Prinstein and Aikins 2004, Prinstein et al. 2005, Lev-Wiesel et al. 2006, Thomas and Bowker 2015). In this scenario, internet and videogame abuse appear to be associated with high levels of RS (Weinstein 2016), since individuals with RS make an excessive use of the internet. High-RS adolescents could feel more comfortable with online interactions rather than real ones, due to their strong sensitivity towards interpersonal rejection (Davis et al. 2002).

Nevertheless, there are other variables to be explored in the correlation between high RS and Internet Addiction during adolescence. Among these, emerging personality disorders can play an important role in understanding the relationship between RS and Internet Addiction.

The assessment of personality disorders (PDs) during adolescence is currently a controversial topic, and has recently been the subject of a heated debate both in clinical and in research terms (Tackett and Sharp 2014, Ensink 2015, Sharp 2016). The presence of PD during adolescence is associated with a high degree of comorbidity with other personality disorders and with other clinical conditions during the same age period (Cohen et al. 2005, Feenstra et al. 2011). This also increases the risk of psychopathology (Crawford et al. 2008, Sharp and Wall 2018) and may threaten physical health in adulthood (Chen et al. 2009). Personality pathology shows a moderate stability in adolescence (Sharp and Wall 2018) and is also associated with an impairment of interpersonal functioning and with problems linked to the development of one's identity (DeFife et al. 2015). This leads to a high level of conflict in romantic relationships, problematic relationships with peers, difficulties in achieving educational and vocational goals, and an intensification of family conflicts (Bernstein et al. 1993, Chen et al. 2004, Johnson et al. 2004). Personality also plays a key role in dependent behaviour: Cluster B personality disorders, for example, increase the risk of addiction and substance abuse during adolescence and adulthood (Cohen et al. 2007).

Although the relationship between RS and Internet Addiction and between RS and emerging PDs has been highlighted, the relationship between RS, specific patterns of emerging personality disorders and Internet Addiction during adolescence has not been explored yet.

## Aims

The present study has different aims. Firstly, it explores the relationship between RS and Internet Addiction in a sample of nonreferred adolescents, supporting the relationship between RS and a pathological use of the internet. Adolescents with high RS would rather avoid real life peer interactions, preferring virtual relationships due to their anxiety or rage responses linked to the expectancies of being rejected by peers (Weinstein et al. 2016).

Secondly, our study seeks to point out whether certain personality pattern, emerging during adolescence, may play a mediating role between RS and Internet Addiction. In particular, we expect that depressive personality disorder may play a mediating role between Anxiety responses to rejection and Internet Addiction. Depressive personality disorder, in fact, is characterized by interpersonal withdrawal, low self-esteem, high levels of guilt and shame (Westen et al. 2014) that could be connected to the relationship between Rejection Anxiety responses and Internet Addiction. Furthermore, we expect that the borderline personality disorder acts as a mediator between Anger about rejection responses and Internet Addiction. Since borderline personality disorder is generally characterized by emotion dysregulation, associated both to rejection anger responses and to addiction, we explore the possible mediating role played by the emerging borderline personality disorder in the relationship occurring between Anger about rejection responses and Internet Addiction.

## Method

### *Participants and Procedure*

The total sample consisted of 269 adolescents (122 males, 147 females; age range from 11 to 18 years with  $M$  age = 14.10,  $SD$  = 1.18) recruited from 5 Italian junior high schools in Rome District<sup>1</sup>. Their participation was voluntary and anonymous. All students completed in this order the Italian version of the Children's Rejection Sensitivity Questionnaire (CRSQ, Downey et al. 1998), the Millon Adolescent Clinical Inventory (MACI, Millon et al. 2006), and the Internet Addiction Test (Young 1998). Students completed the questionnaires in their classrooms during school hours and their participation was conditional to the signed consent from both parents. Participation lasted between 40 and 50 min. Data were collected by trained M. A. students attending their degree in clinical psychology, supervised by a senior researcher during data collection. The procedure of the present research complied with APA ethical standards in the treatment of participants and the study was conducted in accordance with the Ethical Principles for Medical Research Involving Human Subjects (Declaration of Helsinki).

### *Measures*

*Children's Rejection Sensitivity Questionnaire* (CRSQ, Downey et al. 1998, London et al. 2007, Preti et al. 2018). The questionnaire assesses children's

<sup>1</sup> A statistical power analysis was performed for sample size estimation. Aiming at an effect size of  $f^2 = .10$  (small to medium), ( $\alpha$  value = .05, required power = .80), the power analysis, using a fixed model with multiple regression, indicated a total sample of 107 adolescents.

rejection sensitivity in terms of Anxious and Angry Expectations of Rejection. The scale consists of 12 hypothetical interpersonal situations (six situations involve peers and six situations involve teachers) with potential for positive or negative outcomes. For example, a sample peer situation is *“Imagine you are the last to leave the classroom for lunch one day. As you’re running down the stairs to get to the cafeteria, you hear some kids whispering on the stairs below you. You wonder if they are talking about you”*. A sample teacher situation is *“Pretend you have moved and you are going to a different school. In this school, the teacher lets the kids in the class take home a video game to play with on the weekend. Every week so far, you have watched someone else take it home. You decide to ask the teacher if you can take home the video game this time. You wonder if she will let you have it”*. For each situation, participants are asked whether they would be nervous about the response to their request on a 6-point Likert scale, ranging from 1 (*“not nervous”*) to 6 (*“very, very nervous”*) and whether they would expect the other person to honor the request on a 6-point Likert scale ranging from 1 (*“yes!”*) to 6 (*“no!”*). Different from the adult version of the questionnaire that only includes anxious expectations, Downey et al. (1998) added a question for each situation about whether the child would be angry (*“mad”*) about the response to her/his request on a 6-point Likert scale ranging from 1 (*“not mad”*) to 6 (*“very, very mad”*). A score for anxious and angry expectations of rejection for each situation is generated by multiplying the expected likelihood of rejection by the degree of anxiety and anger over its occurrence, respectively (reversing responses when needed). Then, an average score for anxious and angry expectations of rejection is computed. Recent studies (see Zimmer-Gembeck et al. 2016, Preti et al. 2018) advocates for a three-factor structure of the CRSQ, with each scale calculated by averaging the relevant items: Expectation of rejection, Anxiety about rejection, and Anger about rejection. This scoring procedure was adopted in the present study.

*The Millon Adolescent Clinical Inventory* (MACI, Millon et al. 1993, Fontana 2007). MACI is a personality questionnaire referring to DSM-III-R and DSM-IV’s Axis II criteria. The self-report was designed to assess emerging personality disorders and major clinical symptoms in adolescents (Millon et al. 1993). MACI is composed of 160 true/false items, validated on a sample of teenagers between 13 and 19 years old. The 31 MACI scales are divided into three clinical domains: Personality Patterns Scales, Expressed Concerns Scales, and Clinical Syndrome Scales. A fourth domain was added consisting in three Modifying Indices, assessing particular response styles, and a Validity Scale. The MACI was validated on a normative sample of 1017 clinical adolescents who were in residential and outpatient treatment and its peculiarity is to describe the personality of adolescents in the light of developmental changes, family interactions and social challenges (McCann 1997). Theodore Millon’s theory, necessarily, poses the basis of the MACI, according to which the personality styles are the product of the combination and interaction of three polarities: pleasure/pain, self/other, passive/aggressive. The result of these polarities can give rise to personality patterns along a continuum ranging from health to psychopathology (Millon 1969, 1981). Referring to the interaction of these polarities, Theodore Millon developed prototypes of personality pattern that correspond to DSM personality disorders: Introversive (Schizoid Personality Pattern), Inhibited (Avoidant Personality Pattern), Doleful (Depressive Personality

Pattern), Submissive (Dependent Personality Pattern), Dramatizing (Histrionic Personality Pattern), Egotistic (Narcissistic Personality Pattern), Unruly (Antisocial Personality Pattern), Forceful (Sadistic Personality Pattern), Conforming (Compulsive Personality Pattern), Oppositional (Passive-Aggressive Personality Pattern), Self-Demeaning (Masochistic Personality Pattern), and Borderline Tendency. According to a study carried out by Adkisson, Burdsal, Dorr & Morgan (2012), MACI has a latent structure composed by three factors: Demoralization, Acting Out, and Detachment explaining 82% of the total variance in a sample of 331 inpatients adolescents. An important study by Pinto and Grilo (2004), that involved a sample of 241 clinical adolescents, partially replicated the results obtained during the validation study (Millon et al. 1993). According to Pinto and Grilo (2004), MACI has a good diagnostic efficacy much more for diagnostic classes than for specific diagnoses. Likewise, the criterion of validity of MACI is greater for affective disorders, substance abuse disorders, and predisposition to delinquency, while the criterion of validity is less for impulsivity and anxiety. For the purpose of the present study we used only the Personality Patterns Scales.

*The Internet Addiction Test* (IAT, Young 1998, Fioravanti and Casale 2015). The questionnaire assesses the presence of Internet Addiction and the severity of symptomatology and compulsiveness among adults and adolescents. The IAT is a self-report questionnaire structured in 20 items with 5-point Likert scale. Internet Addiction is operatively defined as disorder of impulses control, with the term ‘Internet’ referring to any type of online activity. The IAT was built to measure the symptoms that Internet Addiction shares with other forms of compulsion, but also to assess what are the typical symptoms of this disorder. The 20 items of the questionnaire measure the aspects and behaviors associated with compulsive internet use that include: compulsiveness, escape and addiction, and IAT items also investigate the impact of internet pathological use on social, personal, and employment interpersonal contexts. IAT’s completion time varies between 5 and 10 minutes. The scoring is calculated by summing together the scores of each response. IAT total score indicates the pathological and compulsive internet usage of the subject, and, hence, its dependence levels. Scores ranging between 0 and 30 indicate subjects that do not have problems using Internet, scores between 31 and 49 indicate the presence of a moderate form of Internet Addiction, as these people may occasionally surf the Internet, but still have adequate control of their use, scores between 50 and 79 point out problems related to the impact that network use has on the subject’s life. Finally, scores ranging between 80 and 100 are indicating that the pathological Internet use causes major addiction problems and impacts negatively on subject life.

## Data analysis

To test whether RS was associated with Internet Addiction, Pearson’s correlations were computed between CRSQ subscales and the IAT total score. Next, we examined whether CRSQ subscales were also correlated with emerging Personality Patterns assessed by the MACI. To accomplish this task, Pearson’s correlations were computed between Expectation of Rejection, Anxiety about rejection and Anger about rejection and MACI Personality Patterns subscales. Pearson correlations were conducted on the total sample

**Table 1.** Mean, DS and Pearson Correlations between Rejection Sensitivity scales (CRSQ), Personality Patterns (MACI) and Internet Addiction (IAT)

Measure	M	DS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Anxiety about rejection	3,10	0,93	.84															
2. Anger about rejection	2,29	0,76	.55***	.74														
3. Expectation of Rejection	2,97	0,48	.33***	.24***	.65													
4. Introversive (Schizoid)	56,16	17,00	.18**	.14*	.11	.82												
5. Inhibited (Avoidant)	56,77	25,22	.29***	.18**	.22***	.57***	.84											
6. Doleful (Depressive)	43,14	27,02	.23***	.22***	.17**	.36***	.72***	.83										
7. Submissive (Dependent)	59,33	13,68	.21***	-.04	.10	.31***	.35***	.05	.80									
8. Dramatizing (Histrionic)	59,21	17,03	-.21***	-.17**	-.24***	-.37***	-.73***	-.70***	-.03	.83								
9. Egotistic (Narcissistic)	48,59	17,81	-.27***	-.19**	-.17**	-.45***	-.79***	-.65***	-.21***	.75***	.81							
10. Unruly (Antisocial)	55,43	20,08	-.26***	-.02	-.21***	-.32***	-.48***	-.14*	-.75***	-.28***	-.35***	.82						
11. Forceful (Sadistic)	42,18	22,49	-.13*	.09	-.14*	-.16**	-.26***	.01	-.70***	.09	.17**	.73***	.79					
12. Conforming (Compulsive)	55,04	12,21	-.05	-.20**	.03	-.04	-.17**	-.45***	.63***	.45***	.34***	-.50***	-.55***	.80				
13. Oppositional (Passive-Aggressive)	56,50	17,78	.12*	.19**	.05	.09	.18**	.50***	-.48***	-.33***	-.27***	.44***	.50***	-.69***	.79			
14. Self-Demeaning (Masochistic)	51,43	26,83	.25***	.18**	.08	.36***	.66***	.69***	-.01	-.55***	-.63***	-.07	-.10	-.46***	.49***	.85		
15. Borderline Tendency (Borderline)	43,13	20,90	.24***	.22***	.09	.36***	.60***	.74***	-.07	-.56***	-.59***	.05	.21***	-.55***	.51***	.66***	.81	
16. Internet Addiction Test Total	41,86	11,32	.25***	.17**	.01	.05	.19**	.30***	-.09	-.14*	-.16*	.14*	.10	-.27***	.28***	.31***	.30***	.85

Note. \*p < .05. \*\*p<.01. \*\*\*p<.001 N = 246. Cronbach's alpha are reported in diagonal

using SPSS 23.

Finally, to examine whether the depressive and borderline personality pattern would mediate the relationship between RS emotional responses and Internet Addiction, we performed two mediation analyses following Hayes' (2013) recommendations (Process for SPSS, Model 4) entering the two CRSQ subscales (Anger about rejection and Anxiety about rejection) as the independent variables, the IAT total score as the dependent variable, and MACI Depressive Personality subscale and the MACI Borderline Tendency as the mediating variable, controlling for Gender and Age as covariates. To further evaluate the mediation results, bootstrapping (Preacher & Hayes, 2008) with 5,000 samples with replacement from the full sample to construct bias-corrected 95 per cent confidence intervals (CI) was used. The effects are significant when the CI excludes 0 (Shrout and Bolger, 2002) and are not significant when the CI includes 0. Finally, Coehn  $\eta^2$  for regression was calculated in order to evaluate the effect size. According to Cohen's (1988) guidelines, effect size can be considered as "small" (20 percent of explained variance) if  $\eta^2$  is between 0.02 and 0.04, "medium" (50 percent of explained variance) if it is 0.05 and 0.08 and "large" (80 percent of explained variance) if it is more than 0.08.

In line with literature suggestions (Barbaranelli, 2007), we removed some outliers from the total sample, eliminating subjects whose CRSQ, MACI and IAT scores lied the 1.5 IQR beyond the upper and the lower quartile and subjects who did not complete all the questionnaires creating missing data (N=23).

## Results

*Correlations between model variables.* Pearson correlation of Anxiety about rejection, Anger about rejection and Expectation of Rejection with MACI Personality Patterns and IAT scores are reported in **table 1**. Cronbach's alpha were satisfying ranging from .65 (Expectations of Rejection) to .85 (IAT total score). Referring to Internet Addiction, Anxiety about rejection and Anger about rejection were positively and significantly correlated with IAT total score, whereas Expectation of Rejection was not correlated with IAT total score. Increases in the two emotional components of RS (Anxiety and Anger) correspond to an increase in internet pathological use. No significant correlation was found between Internet Addiction and the cognitive component of RS (Expectation of Rejection).

Furthermore, when focusing on the correlation between RS and MACI Personality Patterns, Anxiety

about rejection was significantly and positively associated with Schizoid, Avoidant, Depressive, Dependent, Passive-Aggressive, Masochistic Personality Patterns and Borderline Tendency and it was significantly and negatively associated with Histrionic, Narcissistic, Sadistic and Antisocial Personality Patterns. Anger about rejection was significantly and positively associated with Schizoid, Avoidant, Depressive, Passive-Aggressive, Masochistic Personality Patterns and Borderline Tendency and it was significantly and negatively associated with Histrionic, Narcissistic, and Obsessive-Compulsive Personality Patterns. Finally, considering Expectation of rejection, it was instead significantly and positively associated with Avoidant and Depressive Personality Patterns whereas it was significantly and negatively associated with Histrionic, Narcissistic, Sadistic and Antisocial Personality Patterns. In other words, emotional components and cognitive component of RS seems to be associated with different emerging dysfunctional personality patterns.

**Mediation analyses.** A mediation analysis was performed to test our hypothesis. First, regression analysis was used to investigate the hypothesis that Depressive Personality Pattern mediates the effect of Anxiety about rejection on Internet Addiction. Approximately 13% of the variance in Internet Addiction was accounted for by the predictors. The model remained unchanged when participants' gender and age were entered as covariates. Results indicated that total effect of Anxiety about rejection on Internet Addiction was significant ( $B = 2.96, p < .001; 95\% \text{ CI } [1.44, 4.49]; \eta^2 = .06$ ). Then, the effect of Anxiety about rejection on Depressive Personality Pattern ( $B = 6.71, p < .001; 95\% \text{ CI } [3.05, 10.36]; \eta^2 = .06$ ) was positive and significant, as soon as the effect of Depressive Personality Pattern on Internet Addiction ( $B = .11, p < .001; 95\% \text{ CI } [.06, .16]; \eta^2 = .07$ ). Finally, both the direct effect ( $B = 2.24, p < .005, 95\% \text{ CI } [.72, 3.76]; \eta^2 = .03$ ) and indirect effect ( $B = .73, p < .001; 95\% \text{ CI } [.30, 1.35]; \eta^2 = .01$ ) was positive and significant, suggesting a partial mediation and supporting our first hypothesis. Depressive Personality Pattern could account for roughly a quarter of the total effect,  $P_M = .24$ .

A second regression analysis was used to investigate the hypothesis that Borderline Tendency mediates the effect of Anger about rejection on Internet Addiction. Approximately 11% of the variance in Internet Addiction was accounted for by the predictors. Also in this situation, the model remained unchanged when participants' gender and age were entered as covariates. Results indicated that total effect of Anger about rejection on Internet Addiction was significant ( $B = 2.41, p < .01; 95\% \text{ CI } [.54, 4.29]; \eta^2 = .03$ ). Then, the effect of Anger about rejection on Borderline Tendency ( $B = 6.03, p < .001; 95\% \text{ CI } [2.62, 9.44]; \eta^2 = .05$ ) was positive and significant, as soon as the effect of Borderline Tendency on Internet Addiction ( $B = .14, p < .001; 95\% \text{ CI } [.08, .21]; \eta^2 = .08$ ). Finally, the direct effect ( $B = 1.5, p < .11; 95\% \text{ CI } [-.33, 3.37]; \eta^2 = .01$ ) was not significant, while indirect effect ( $B = .89; p < .001; 95\% \text{ CI } [.35, 1.80]; \eta^2 = .01$ ) was positive and significant, suggesting a total mediation and supporting our second hypothesis. Borderline Tendency could account for roughly one third of the total effect,  $P_M = .37$ .

## Discussion

The present study contributes to highlight the connection between emotional components of RS

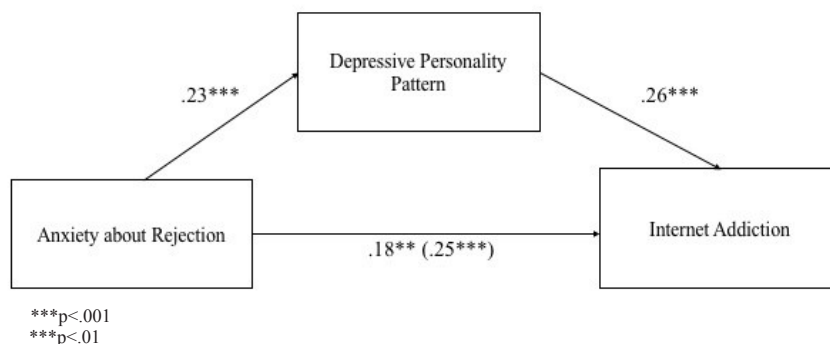
(Rejection Anxiety and Anger) and Internet Addiction, consolidating the relationship between RS and pathological internet use evidenced by previous studies (Davis et al. 2002, Weinstein et al. 2016). RS is defined as the tendency to expect, perceive, and overreact to overt or covert interpersonal rejection (Downey and Feldman, 1996), enhancing the probability of being rejected by peers (London et al. 2007). Since high RS is associated with personal distress in adolescence, Internet Addiction could play a role of maladaptive coping strategies to modulate stressful emotions. Unfortunately, Internet Addiction distances adolescents from real-world social interactions and reduces the possibility of receiving support, contributing to create a self-perpetuating vicious interpersonal cycle in which the expectation of being rejected increases the chances of being rejected by peers (Downey et al. 1998). In the present study, both Anxiety and Anger responses about rejection were related to Internet Addiction, whereas Expectation of Rejection was not. This result advocates the usefulness of separating the emotional components of RS (Anxiety and Anger) from the cognitive component of RS (Expectation of rejection), while in the original scoring method those two components were overlapped. This result is in line with recent studies which revealed the different roles played by emotional and cognitive components of RS to predict maladaptive adjustment in adolescence (Zimmer-Gembeck et al. 2016, Preti et al. 2018).

The results presented also highlight the connection between RS and emerging personality disorders (PDs) in adolescence. As expected, emotional components of RS are associated to introversive personality patterns, while they are negatively correlated to extroversive personality styles (Histrionic, Narcissistic, Antisocial, Sadistic). As a basic disposition of personality, rooted in attachment experiences, RS could be related to a constellation of personality features that could amplify or modulate RS experience. As far as we know, while the connection between RS and PDs is well-established in adult samples (Berenson et al. 2011, Bungert et al. 2015), this pattern is less explored in adolescence, maybe due to reluctances by researchers to consider personality disorders during this age. PDs are considered to be long-lasting, severe and difficult to treat disorders, with the result that clinicians and researchers understandably could be afraid to stigmatize teenagers with a diagnosis of personality disorder, running the risk of adversely affecting their development (Shiner and Tackett 2014). On the other side, emerging data on personality development in adolescence highlight that PDs can be diagnosed in adolescence by adapting DSM diagnostic criteria (Cohen et al. 2005) or by building an alternative taxonomy with a clinical and an empirical basis (Westen et al. 2014). Despite the debate on the feasibility of PD diagnosis in adolescence, our results highlight that Anxiety about rejection – with its flight responses – evidences small but significant correlations with DSM Cluster A and Cluster C emerging personality disorders, while Anger about rejection – with its fight responses – has small but significant correlations with the same PDs, highlighting a specific negative correlation with Obsessive-Compulsive PD which is characterized by the inhibition of rage affects.

In line with what expected, mediation analysis shows that specific emerging personality patterns mediate the relationship between RS and Internet Addiction. Firstly, the Depressive Personality Pattern partially mediates the relationship between Anxiety about rejection responses and Internet Addiction.

Our findings suggest that in adolescence Anxiety

**Figure 1.** Depressive Personality Pattern as mediator between Anxiety about Rejection and Internet Addiction  
 Note: standardized coefficient are displayed in the figure



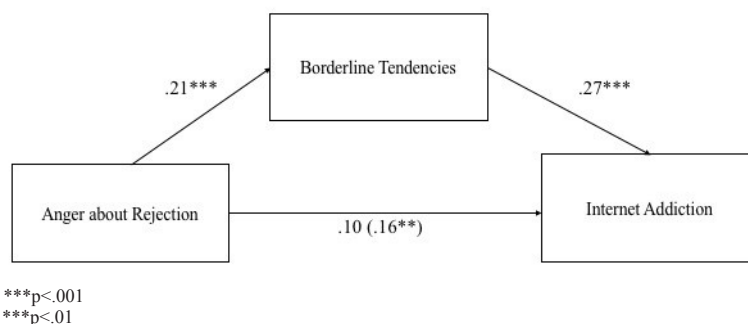
about rejection is linked to Depressive Personality Pattern and in turn, Depressive Personality Pattern is significantly related to Internet Addiction. This means that Rejection Anxiety predicts Internet Addiction partially via Depressive Personality Pattern, that is, through a constellation of personality features characterized by a sense of inadequacy, lack of self-esteem, feelings of guilt and shame (Westen et al. 2014). According to the RS model, rejection sensitivity is associated with experiencing the self as being more rejected (Berenson et al. 2011); this could lead to pathological internet use as an attempt to avoid potentially painful – but expected – relational experiences. This happens partially through depressive personality disorder, characterized by coping strategies centred on interpersonal withdrawal. In this model, Internet Addiction results as a way to flee from an interpersonal scenario, in which adolescents anxiously expect to be rejected by significant figures and see themselves as wrong, worthless and useless. As noted, Depressive Personality Pattern partially mediates between Anxiety about rejection and Internet Addiction. This result suggests that other dimensions should act as mediators in this relationship. For example, we can hypothesize for future studies to take into account the role played by the Avoidant Personality Pattern to explain the indirect effect along with Depressive Personality Pattern.

Secondly, Borderline Tendency fully mediates the relationship between Anger about rejection responses and Internet Addiction. The data presented suggests that Anger about rejection is related to Borderline Tendency

and in turn, Borderline Tendency is significantly related to Internet Addiction. While the connection between Rejection-Rage Contingency and Borderline Personality Disorder (BPD) is evidenced in a number of studies (Berenson et al. 2011, Bungert et al. 2015), as far as we know our research is the first study suggesting the role of these dimensions on Internet Addiction. In the present study, Anger about rejection predicts Internet Addiction only via Borderline Tendency, highlighting the key role played by borderline personality disorder. Borderline personality disorder is characterized by mood fluctuations, identity disturbance and emotion dysregulation often triggered by social interactions in which adolescents feel rejected. In this context, Internet Addiction results as being one of the possible ways to disconnect from intense rage feelings triggered by rejection and amplified by polarized self-representations and emotion dysregulation typical of BPD in which adolescents feel abandoned, weak, meaningless, at the mercy of others who are seen as utterly despicable and abusive. Thus, in this full mediation model, Internet Addiction may represent a strategy to distance from others in order to downplay extreme rage feelings activated by interpersonal rejection but also difficult to modulate due to emotion dysregulation and identity disturbance. Our results suggest the key role played in adolescence by borderline personality disorder to explain the relationship between addictive behaviours and interpersonal rejection.

Clinical implications of these results reveal the importance of assessing emerging personality disorders

**Figure 2.** Borderline Tendencies as mediator between Anger about Rejection and Internet Addiction. Note: standardized coefficient are displayed in the figure



in the consultation with adolescents evidencing internet addiction, with the consequence of focusing the treatment of internet addicted adolescents on personality development and not only on behavioural difficulties and impulse control. Moreover, specific emerging personality disorders such as Borderline and Depressive, could be considered as significant mediators in the relationship between emotional reactions to expected interpersonal rejection and internet abuse. They also appear to be factors of risk for the development of Internet Addiction. Furthermore, our data suggests that RS in adolescence could be considered in its connection to personality pathology which could influence self-regulatory strategies used to face adverse interpersonal situations (Ayduk et al. 2000).

Our findings should be considered in the light of several limitations. First of all, our results need to be replicated in clinical samples of internet addicted adolescents as well as in larger samples of adolescents to confirm and extend the generalizability of our findings. Furthermore, the cross-sectional design of the study does not allow any causal interpretation of the relationship between the variables considered. Finally, the assessment of PDs in adolescents solely rely on a self-reporting measurement. In future researches semi-structured interviews could be used to better differentiate between troubled and healthy adolescents.

In summary, our study highlights the importance of considering emerging personality disorders in adolescence to fully appreciate the relationship between rejection sensitivity and internet addiction, thus extending our knowledge regarding the role played by personality in the compulsive use of the internet.

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