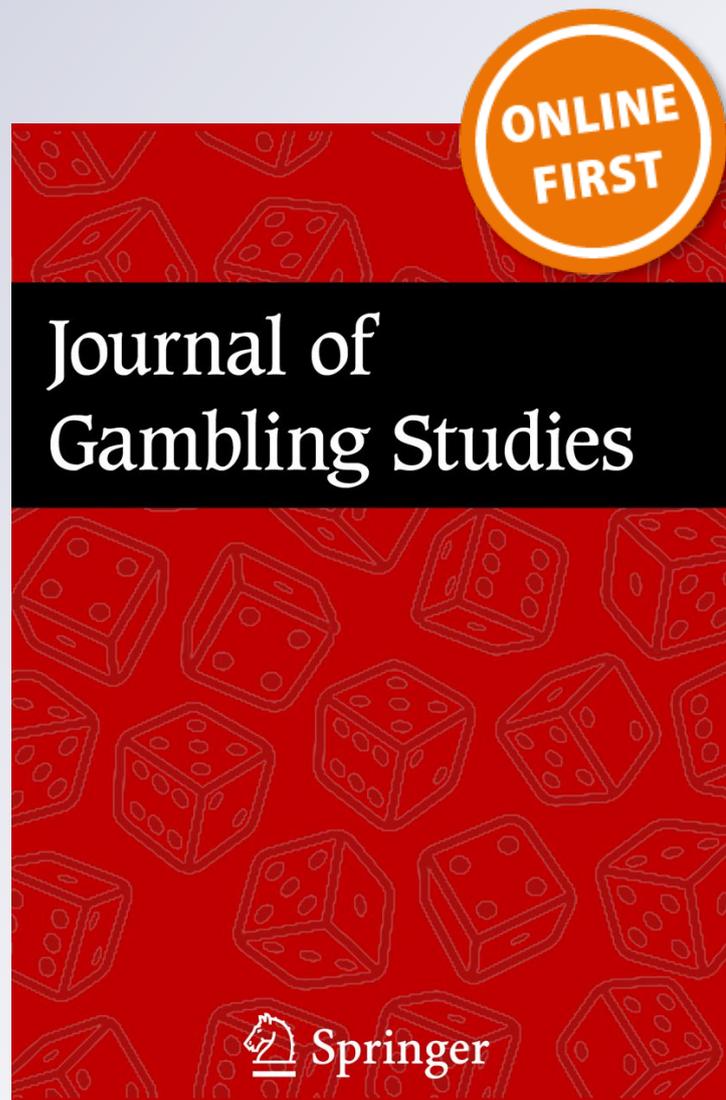# Narcissistic Implications in Gambling Disorder: The Mediating Role of Emotion Dysregulation

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Narcissistic Implications in Gambling Disorder: The Mediating Role of Emotion Dysregulation

Guyonne Rogier[1] · Patrizia Velotti[2]

Abstract Gambling Disorder (GD) is a complex psychopathology involving a numbers of cognitive, behavioral, emotional and neurobiological determinants. Previous research suggests that GD may frequently co-occur with Narcissistic Personality Disorder. However, there is still a lack of study investigating Pathological Narcissism (PN) in both its vulnerable and grandiose facets among clinical population. Moreover, emotional dysregulation is commonly thought to underlie GD albeit research on this topic remains poor. The present study aims to investigate the role of both vulnerable and grandiose narcissism in relation to GD as well as the mediator role played by emotion dysregulation in such link. We administered to a sample of addicted gamblers (n = 74) and a sample of heathy controls (n = 105), the South Oaks Gambling Screen (SOGS), the Pathological Narcissism Inventory (PNI) and the Difficulties in Emotion Regulation Scale (DERS). Differences across groups emerged on the scores obtained on the PNI and DERS. Moreover, we found positive associations between SOGS scores and both PNI and DERS. Also, strategic addicted gamblers showed higher levels of vulnerable narcissism compared to others. Finally, emotion dysregulation difficulties appeared to fully mediate the relationship between grandiose narcissism and GD severity. Grandiose and vulnerable narcissism appear important variables involved in GD. Also, emotion regulation deficits seem to account for GD and to explain the pathways by which grandiose narcissism leads to GD. Clinical implications and future directions are discussed.

Keywords Gambling Disorder · Grandiose narcissism · Vulnerable narcissism · Emotion dysregulation

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Introduction

Gambling, which is commonly thought to be a harmless and pleasant activity, may potentially become a source of severe and negative consequences for the individual and the society. Indeed, an relevant part of the population suffers from Gambling Disorder (GD) (Calado and Griffiths 2016), a behavioral addiction, which consists in a maladaptive and persistent gambling behavior, manifesting through specific symptoms as tolerance, withdrawal, craving and chasing behavior (American Psychiatric Association 2013).

Given the important social costs of the disorder and the severity of distress experienced by addicted gamblers [sometimes leading to suicide (Ledgerwood and Petry 2004)], a number of studies investigated the nature of psychopathological mechanisms involved in GD in order to tailor clinical treatments for such population (for example Sharpe 2002). From this perspective, several central psychological variables have been examined in relation to GD as, for instance, impulsivity (Grant et al. 2016), personality (Tackett et al. 2015) and cognitive distortions (Johansson et al. 2009). In addition, a number of theoretical models were developed, aiming to explain the etiopathology and psychopathological functioning of GD with one of the most widely used in empirical research being the pathways model of Blaszczynski and Nower (2002).

Despite the great amount of research in this field, some issues related to GD remain unclear as for example the nature of mechanisms underlying its comorbidity with a wide range of psychiatric disorders (Brown et al. 2015; Rogier et al. 2017). Specifically, GD is thought to frequently co-occur with Narcissistic Personality Disorder (NPD) (APA 2013). Yet, more than two decades ago, Lesieur and Rosenthal (1991) asserted that addicted gamblers often have a narcissistic personality organization. Actually, some studies found positive associations between Narcissistic Personality Disorder (NPD) and GD (Livingston 1974; Rosenthal 1986; Taber and Chaplin 1988) and several empirical contributions underlined the high prevalence rate of NPD in addicted gamblers (Blaszczynski and Steel 1998). Moreover, the hypothesis of a link between narcissism and GD has been further supported by researchers who found typical narcissistic traits among addicted gamblers as, for instance, impulsivity (Raskin and Terry 1988; Kim and Grant 2001) and punishment insensitivity (Jiménez-Murcia et al. 2017; Spencer et al. 2017).

However, it has been pointed out that most of the studies analyzed this relationship only considering narcissism in the light of DSM criteria (Lakey et al. 2008). Indeed, to our knowledge, only four studies examined such relationship using a measure accounting for the continuous nature of narcissism's construct. First of all, Lakey et al. (2008), asked to a sample of college students to fulfill the Narcissistic Personality Inventory (NPI; Raskin and Hall 1981) and found a weak but significant association between severity of GD and total score of narcissism ($r = .26$, $p < .01$). In another study conducted on student population, MacLaren and Best (2013), showed a similar association ($r = .17$, $p < .001$) between the grandiose dimension of narcissism, measured with the NPI, and gambling activity. In contrast, Maples et al. (2014) did not observed significant associations between narcissism, measured with the NPI-16 items, and GD, in a sample of frequent players. Finally, Biolcati et al. (2015), administering the NPI to a sample of non-addicted poker players, found narcissism levels in line with those found in normal population.

Noteworthy, none of these studies examined the relationship between narcissism and GD in a population of clinically diagnosed addicted gamblers, using scores obtained by individuals recruited from the normal population on gambling self-report questionnaire to consider participants as addicted gamblers. Another major concern toward these studies is

related to the exclusive use of the Narcissism Personality Inventory which has been shown to have important limitations. Indeed, Cain et al. (2008), in a review of the literature on narcissism, pointed out that such instrument seems to encompass a confuse mix of adaptive and disadaptive aspects of narcissism and, as such, may not account for pathological aspects of narcissism. Moreover, the NPI might excessively focus on the grandiose dimensions of narcissism and, as such, misrepresent the full spectrum of Pathological Narcissism (PN). For instance, clinical literature shed light on other facets of PN, extending the topic to specific manifestations labelled vulnerable narcissism (Cain et al. 2008), covert narcissism (Akhtar and Thomson 1982) or hypervigilant narcissism (Gabbard 1989). Typically, grandiose narcissism refers to an individual with an exaggerated sense of superiority and uniqueness and a tendency to engage in grandiose fantasy. In addition, grandiose narcissism is associated with frequent feelings of envy and aggression, lack of empathy and exploitativeness (Ronningstam 2005; Cain et al. 2008). In contrast, individuals high in vulnerable narcissism are subjected to intense feelings of shame experienced in relation to ambitions and needs, exhibit hypersensitivity to rejection and criticism and consequently avoid interpersonal relationships (Ronningstam 2005; Cain et al. 2008).

Subtypes of GD and Pathological Narcissism

Noteworthy, some studies investigating the prevalence rate of NPD among addicted gamblers brought inconsistent results, failing to find associations between GD and NPD (Specker et al. 1996), callous-unemotional traits (Ručević 2016) and fearless dominance (Maples et al. 2014). Potentially, such contrasting results may be related to a typical difficulty of this field of research. Indeed, GD appears a heterogeneous category, greatly complicating the investigation of the relationship between the disorder and specific psychopathological variables, as narcissism. Such insight led some authors to differentiate between several subtypes of addicted gamblers (Milosevic and Ledgerwood 2010). Within the range of subtyping models, McCormick (1988), inspired by clinical observations, distinguished between *recurrently depressed gamblers* and *chronically under stimulated gamblers*. This last subtype would be characterized by excessive boredom, low tolerance to frustration and a need for a continuous and various stimulation. Moreover, these gamblers would have a deficit in impulse control and pronounced narcissistic traits. Similarly, in an interesting study, Legderwood and Petry (2005) identified three subtypes of gamblers from which one was characterized by a proneness to gamble for narcissistic motives. In others words, high narcissistic traits may distinguish a specific subtype of addicted gamblers rather than the whole category. Finally, Lesieur (2001) differentiated between *escape seeker* and *action seeker* gamblers. The first ones suffer from high levels of depression or anxiety and gamble in order to escape from negative emotional states whereas the others gamble in order to experience high levels of excitement and exhibit typical narcissistic traits. Such models seem to converge toward the idea that a specific subtype of addicted gamblers with narcissistic traits, would be specifically prone to be involved in games with a high excitatory potential, inducing elevated arousal, as for example sport-betting (Coventry and Norman 1997) or cards games (Anderson and Brown 1984). Furthermore, some games, as cards and sport betting, are erroneously thought to request higher levels of abilities through the elaboration of complex winnings systems. For instance, gamblers involved in such strategic games scored higher on the illusion of control scale compared to gamblers involved in passive games (Myrseth et al. 2010). To this point, in a pionieristic study, Bonnaire et al. (2009), evidenced different profiles, measuring levels of alexithymia, sensation-seeking

and depression, dividing their sample of addicted gamblers on the basis of the preferred type of gambling activity. Specifically, they found that addicted gamblers preferring games involving skills (as racetrack) showed higher levels of alexythimia and sensation seeking compared to addicted gamblers involved in passive games (as slot machines). Similarly, it has been shown that, in a sample of gamblers preferring strategic types of gambling activities (sport-betting and cards), the severity of GD was associated to levels of alexithymia whereas it was not the case among gamblers who were not involved in strategic games (Bonnaire et al. 2017). Finally, preliminary results indicated that, among a non clinical sample, poker players had higher levels of narcissism, measured with the NPI, compared to slot machines gamblers (Levesque et al. 2012). As a whole, psychopathological characteristics, as sensation seeking or narcissism, may not be uniformly distributed across different subtypes of gamblers, potentially distinguishable as a function of preferred type of gambling activity.

Emotion Dysregulation, GD and Pathological Narcissism

Surprisingly, if clinical and empirical contributions may suggest that, at least the grandiose aspects of narcissism are related to GD, only few studies attempt to explain the pathway by which such relationship fosters. An interesting contribution has been brought by Lakey et al. (2008) who found that cognitive biases, specifically overconfidence, may mediate such relationship. However, limitations of the study, related to the sample nature (non clinical) and the instrument used (evaluating a mix of adaptive and disadaptive aspects of only grandiose narcissism), may request a replication of its results in a clinical sample and with a measure of pathological narcissism.

In addition to this cognitive explanation, it may be thought that others pathological mechanisms could underlie the link between pathological narcissism and dysfunctional behavior. Furthermore, literature recently highlighted the specific involvement of negative emotionality and emotion dysregulation in diverse maladaptive behaviors (Garofalo and Velotti 2015, 2017; Garofalo et al. 2017). Noteworthy, preliminary studies pointed out the association between vulnerable narcissism and the use of maladaptive emotion regulation strategies as expressive suppression of emotional states (Altmann 2017) and emotion dysregulation (Zhang et al. 2015; Di Pierro et al. 2017). Whereas some authors underlined the link between grandiose narcissism and emotion dysregulation (Pollock et al. 2016; Ronningstam 2016), several researchers failed to found positive associations between these two variables (Zeigler-hill and Vonk 2015; Zhang et al. 2015; Di Pierro et al. 2017).

Interestingly, most of the theories which attempted to understand the function assumed by gambling activity in the psychological functioning of addicted individuals, have often indirectly suggested the centrality of failures in emotional regulation processing (Jacobs 1986; Lesieur 2001; McCormick 1988; Blaszczynski and Nower 2002; McDougall 2004). Noteworthy, authors who investigated relationships between severity of GD and emotion regulation difficulties brought contrasting results, with some showing positive and significant associations between the two variables (Williams et al. 2012) and others failing to replicate such results (Ciccarelli et al. 2016). However, research in such area remains insufficient and thus need to be further extended.

The Present Study

Given the lack of study examining the relationship between narcissism and severity of GD among samples of clinically diagnosed addicted gamblers and given the exclusive use of NPI in the few number of studies which have been conducted, the present study aims to fill such gaps in order to extend the current knowledge of GD and to ameliorate treatments tailored for addicted gamblers. Also, we intended to investigate such topic in the light of the heterogeneity of GD. Finally, an additional goal of the study was to investigate the role of emotion dysregulation in GD, exploring the way such deficit may account for the relationship between pathological narcissism and GD.

Specifically, We Formulated the Hypotheses That

H1 Compared to controls, addicted gamblers would score higher on the PNI subscales.

H2 Grandiose and Vulnerable Pathological Narcissism would predict GD severity.

H3 Different types of gambling activity would differentiate different narcissistic profiles among addicted gamblers.

H4 Emotion dysregulation would be positively associated with both GD severity and pathological narcissism and would mediate the relationship between pathological narcissism and GD severity.

Method

Participants and Procedure

The study involved a total of 178 Italian adults with a mean age of 47.24 years (SD = 11.64). The control group (n = 105, 76.2% males) was drawn from normal population and all participants were recruited throughout a combined strategy, namely purposive and snowball sampling techniques. First, because we expected a high prevalence of men in the clinical group (as described in the literature), for three men approached, one woman was recruited. After, we screened for eventual presence of GD among the non-clinical group exploring the scores obtained on the GD measure, all resulting below the official threshold except for one individual (with SOGS Total score = 6) who was excluded from the study. Also, other two participants quitted the study before completing the whole procedure invoking personal reasons and were excluded from the study. The clinical group included 74 participants (84.9% males) with a clinician-based current diagnosis of GD, according to DSM-V criteria, recruited in three clinical centers specialized in the treatment of GD all located in Italy and belonging to the same geographic area (Latium). The current status of AGs was ensured screening for the scores obtained on the GD measure (all above the official threshold). The dominant therapeutic approach followed cognitive-behavioral framework. Treatment was offered to out-patients by the National Health Service and included two or three preliminary individual sessions with a psychologist or a psychiatrist and, except in case of counter-indications, a successive inclusion in a therapeutic group. None of these patients were under pharmacological treatment. Noteworthy, some patients

with relevant problems of substance or alcohol abuse were usually redirected to other services and inserted in community-based programs. However, two of the patients recruited referred to the clinician a past life-time comorbidity for alcohol abuse and cocaine abuse respectively. Patients were recruited at the end of the first individual sessions or at the first group sessions, following the decision of the clinician. Exclusion criteria were first explained to the therapist who previously screened for the eligibility of each participant. We excluded participants with no fluency in Italian, with a diagnostic of cognitive deficits or suffering from psychotic disorders. Before the involvement of each participant in the research procedure, research's aims and scopes were briefly exposed and information toward privacy and anonymity were delivered. A total of 85 patients were approached and only 11 declined mostly invoking lack of time or concerns related to privacy. A written consent was then fulfilled by each participant. Finally, participants were asked to fulfill self-report questionnaires under the supervision of a psychologist. All procedures complied with the official directions established by the American Psychological Association and were approved by the Research Ethic Board of the Department of Dynamic and Clinical Psychology of the University of Rome (N.28/2017).

Measures

In order to achieve our research's goals, we administered to all participants a battery of self-report questionnaires providing information toward the following areas:

- *Demographic information* as gender, age and nationality were asked in an initial questionnaire appositely created for the study. Also, habitual alcohol and substance uptakes were investigated asking the participant to answer to two questions ("How frequently do you consume alcohol?" and "How frequently do you consume substances?") on a five points scale ranging from 1 (*Never*) to 5 (*Four times a week or more*).
- *Severity of Gambling Disorder and information related to gambling activity*: we used the South Oaks Gambling Screen (SOGS, Lesieur and Blume 1987; Guerreschi and Gander 2002), a self-report questionnaire which evaluates the severity of GD summing the score obtained on 20 specific items. The instrument also provides complementary information related to the frequency of involvement in different types of gambling activity. In our study, the excellent reliability of such instrument has been confirmed with a Cronbach' alpha reaching .94.
- Levels of *Pathological Narcissism* have been measured throughout the use of the Pathological Narcissism Inventory (PNI, Pincus et al. 2009; Fossati et al. 2015). This self-report questionnaire encompasses 52 items asking the participant to describe how much each assertion describe himself, answering on a Likert-type scale ranging from 1 (*It does not describe me at all*) to 6 (*it describes me perfectly*) The instrument provides two main scores indicating the levels of Grandiose Narcissism and Vulnerable Narcissism. In turn, these main two scales result from the convergence of others seven subscales. Specifically, the Grandiose Score results from the sum of the *Exploitative*, *Self-Sacrificing Self-Enhancement*, *Grandiose Fantasy* and *Entitlement* scores. Complementarily, the Vulnerable score is the sum of the *Contingent Self-Esteem*, *Hiding the Self* and *Devaluing* subscales of the instrument. The PNI has demonstrated good psychometric properties that have been confirmed in our study with good reliability (all Cronbach alphas were higher than .75, being .89 for the *Grandiosity* factor and .94 for the *Vulnerability* dimension).

- *Difficulties in emotion regulation* were assessed throughout the widely used Difficulties in Emotion Regulation Scale (Gratz and Roemer 2004; Giromini et al. 2012). Such instrument includes 36 items where participant has to answer on a Likert-type scale ranging from 1 (*Never*) to 5 (*Always*). The self-report questionnaire provide a total score indicating the general level of difficulties in emotion regulation and six scores corresponding to several facets of emotion dysregulation capacities namely (1) Impulse-control difficulties (2) Difficulties engaging in goal-directed behavior (3) Lack of emotional awareness (4) Lack of emotional clarity (5) Limited access to effective emotion-regulation strategies (6) Non acceptance of emotional responses. In our study, Cronbach's alphas ranged from .74 (*Non awareness* subscale) to .90 (Total Score), indicating a good reliability.

Statistical Analyses

First, preliminary analyses were conducted in order to verify skewness and kurtosis of all continuous variables. As all variables of the study showed a normal distribution, no transformations were made. Then, Cronbach's alphas were calculated for each instrument to ensure the reliability of our measures. Descriptive analyses were then carried on, namely means and standard deviations were calculated for all sample and for each group taken separately. An Univariate Analysis of Variance (ANOVA) was carried out to confirm that groups differed on SOGS scores ($p < .001$). Then, t test for independent samples was conducted to ensure that the control and the clinical group did not differ for Age ($p = .56$). Similarly, a Chi squared test showed that groups did not differ on gender composition ($p = .12$). Then, Multivariate analyses of the covariance (MANCOVAs), controlling for the effect of substance and alcohol use, were used to evaluate significant differences between AGs and non-AGs on the PNI and DERS scores. Partial correlational analyses were carried on using r-Pearson correlations to explore the relationships between all variables involved in the study controlling for the effect of substance and alcohol use. Then, a hierarchical multiple linear regression was conducted to test if subscales the PNI were significant predictors of severity of GD beyond the effect of age, gender and both alcohol and substance use. In order to test if different types of gambling activity would correspond to differences in pathological narcissism levels, we divided the clinical group on the basis of preferred gambling type activities and conducted a multivariate analysis of covariance (MANCOVA), controlling for substance and alcohol use. Finally, we tested if Emotion Dysregulation mediated the relationship between narcissism and severity of GD conducting a series of regression analyses following the Baron and Kenny steps (1986). Namely, we (1) Tested the predicting role of Grandiose Narcissism in relation to severity of GD; (2) Tested the predicting role of Grandiose Narcissism in relation to ED; (3) Tested the predicting role of ED in relation to GD; (4) Tested if ED remained a significant predictor of severity of GD after controlling for the effect of Grandiose Narcissism and if Grandiose Narcissism indirectly predicted severity of GD throughout ED. Statistical significances were tested throughout the bootstrap method. All statistical analyses were carried on with the use of SPSS 23.0 software for Windows.

Table 1 Analyses of variance (ANOVA and MANCOVAs) comparing groups on GD severity Pathological Narcissism and emotional dysregulation measures controlling for alcohol and drug use

	Control group (N = 105)		Addicted gamblers (N = 74)		F	p
	Mean	SD	Mean	SD		
SOGS total score	0.20	0.72	11.21	2.75	**1482.41**	< .001
PNI grandiosity	70.52	19.70	77.68	19.11	**5.41**	.021
Exploitative	14.26	4.14	14.58	4.48	0.27	.601
Self-sacrificing self-enhancement	18.71	5.39	21.29	5.52	**9.52**	.002
Entitlement	20.09	7.72	22.55	7.88	3.51	.063
Grandiose fantasy	17.46	7.05	19.27	6.61	2.90	.090
Vulnerability	62.61	18.99	70.34	20.44	**5.28**	.023
Contingent self-esteem	27.04	10.23	29.19	10.83	1.38	.242
Hiding the self	21.30	6.41	23.63	6.40	**4.76**	.031
Devaluing	14.28	5.81	17.52	6.14	**10.06**	.002
DERS total score	68.55	17.15	83.16	20.64	**20.59**	< .001
Goals	10.67	3.52	12.28	4.06	**5.44**	.021
Impulse	10.28	3.60	12.71	4.59	**15.79**	< .001
Non awareness	13.74	4.08	15.58	4.68	**9.19**	.003
Clarity	8.82	2.74	10.07	3.20	**8.36**	.004
Non acceptance	11.42	3.69	15.44	6.39	**20.59**	< .001
Strategies	13.62	4.57	17.08	6.11	**16.84**	< .001

Bolded values are statistically significant

SOGS South Oaks Gambling Screen; *PNI* Pathological Narcissism Inventory; *DERS* Difficulties in Emotion Regulation Scale

Results

Differences Between Groups

We explored differences across groups throughout several statistical tests. These results are displayed in Table 1. The analysis of Variance (ANOVA) confirmed that SOGS scores obtained in the clinical group were statistically higher than those obtained in the non-clinical group. Then, in order to test our first hypothesis, we performed two separated multivariate analyses of covariance (MANCOVAs), controlling for alcohol and substance use, to evaluate differences between groups on PNI and DERS scores. As the Pillai's criterion reached statistical significance for both PNI [$F(7, 167) = 2.97$; $p = .006$] and DERS scores [$F(7, 148) = 4.95$; $p < .001$], we performed post hoc analyses using the Bonferroni correction for alpha inflation due to multiple testing. In relation to PN, we found that addicted gamblers scored significantly higher on the *Self-Sacrificing Self-Enhancement*, *Hiding the Self*, *Devaluing*, *Grandiosity* and *Vulnerability* scales of the PNI compared to the control group. Addicted gamblers also obtained higher scores on the *DERS Total Score* and all the DERS's subscales compared to non-clinical participants.

Table 2 Partial correlations between gambling disorder severity, pathological narcissism and emotion dysregulation, controlling for frequency of alcohol and drug use

	SOGS	PNI grandiosity	PNI vulnerability	DERS	Goals	Impulse	Non awareness	Clarity	Non acceptance	Strategies
SOGS total score	–									
PNI										
Grandiosity	.17*	–								
Vulnerability	.13	.76**	–							
DERS total score	.34*	.47**	.65**	–						
Goals	.16	.38**	.50**	.79**	–					
Impulse	.28**	.48**	.54**	.80**	.66**	–				
Non awareness	.27*	.21*	.23*	.50**	.21*	.23*	–			
Clarity	.26*	.37**	.48**	.74**	.45**	.44**	.56**	–		
Non acceptance	.29**	.34**	.57**	.81**	.55**	.59**	.16*	.45**	–	
Strategies	.28*	.40**	.61**	.91**	.68**	.71**	.26**	.56**	.80**	–

SOGS South Oaks Gambling Screen; *PNI* Pathological Narcissism Inventory; *DERS* Difficulties in Emotion Regulation Scale

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

Associations Between GD Severity, Pathological Narcissism and Emotion Dysregulation

Then, we aimed to explore the relationships between GD, PN and ER. Results of partial correlations, controlling for alcohol and substance use, are displayed in Table 2. We found that GD severity was significantly correlated with Grandiose Narcissism ($r = .17$, $p < .05$) but not with Vulnerable Narcissism. Moreover, all DERS's subscales, except the *Goals* factor, were positively and significantly associated with GD severity. Finally, DERS Total Score correlated moderately with both GD severity ($r = .34$, $p = .001$), and Grandiose facet of PN ($r = .47$, $p < .001$) but strongly with Vulnerable Narcissism ($r = .65$, $p < .001$).

In order to explore which facets of PN would predict GD severity, we performed a hierarchical multiple linear regression entering age and gender in the first step, substance and alcohol use in the second one and PNI dimensions in the final model. As showed in Table 3, we found that *Contingent Self-Esteem* negatively predicted GD severity whereas *Self-Sacrificing Self Enhancement* and *Devaluing* positively predicted SOGS scores.

Differences Between Subgroups of Gamblers

To test if different types of gambling activity would differentiate narcissistic profiles, we replicated a distinction previously introduced in empirical literature (see Myrseth et al. 2010; Bonnaire et al. 2017), splitting our clinical sample in two groups, namely strategic and non-strategic gamblers. Two participants, who gave incoherent answers on the items measuring frequency of gambling type activities, were excluded from the analysis. The subgroup of strategic addicted gamblers was formed by 27 participants gambling more than one time by week (or more) to cards, sporting betting or animals betting (i.e. scoring 2 on one of the first three items of the SOGS). Also, 13 participants belonging to this group were addicted to others forms of gambling as for example slot machines. The 45 participants forming the non-strategic group of addicted gamblers were not involved in strategic

Table 3 Hierarchical multiple regression analysis predicting GD severity from narcissism controlling for age, gender and both alcohol and substance use

Factors	Model 1					Model 2					Model 3				
	ß	t	p	r	sr	ß	t	p	r	sr	ß	t	p	r	sr
Age	.037	.482	.631	.013	.037	.031	.403	.687	.013	.031	.022	.300	.764	.013	.022
Gender	−.150	−1.951	.053	−.144	−.148	−**.168**	−2.140	.034	−.144	−.163	−**.165**	−2.151	.033	−.144	−.156
Alcohol use						−.086	−1.103	.272	−.056	−.084	−.067	−.886	.377	−.056	−.064
Drug use						.047	.612	.541	.045	.046	.033	.450	.653	.045	.032
PNI															
EXP											−.071	−.837	.404	.079	−.061
SSSE											**.274**	2.780	.006	.213	.201
ENT											−.009	−.080	.937	.133	−.006
GF											.005	.040	.968	.110	.003
CSE											−**.397**	−3.070	.003	.033	−.222
HS											.034	.374	.709	.135	.027
DEV											**.370**	2.998	.003	.227	.217
Model R^2	.022					.032					.156				
R^2 change	.022					.010					.125				
F change	(1.918) = .150					(0.815) = .444					(3.406) = .002				

Bolded values indicate significant ß; Gender with males coded as 1 and females coded as 2

PNI Pathological Narcissism Inventory; *EXP* Exploitative; *SSSE* Self-Sacrificing Self-Enhancement; *ENT* Entitlement; *GF* Grandiose Fantasy; *CSE* Contingent Self-Esteem; *HS* Hiding the Self; *DEV* Devaluing

Table 4 Multivariate analysis of covariance (MANCOVA) on Pathological Narcissism dimensions controlling for alcohol and drug use

	Strategic AGs (N = 27)		Non strategic AGs (N = 45)		F	p
	Mean	SD	Mean	SD		
Self-sacrificing self-enhancement	20.93	4.75	21.47	6.38	0.18	.668
Hiding the self	24.67	5.17	22.64	6.86	1.68	.199
Devaluing	19.78	6.46	16.56	6.16	**5.31**	.024

Bolded values are statistically significant

AGs Addicted Gamblers; *PNI* Pathological Narcissism Inventory

games. These participants were addicted to slot machines, scratch-cards or both. Then, we performed a Multivariate Analysis of Covariance (MANCOVA), controlling for substance and alcohol use, to test if these two groups would diverge on PNI scores. We inserted only the *Self-Sacrificing Self-Enhancement*, *Hiding the Self* and *Devaluing* dimensions as the other subscales were found to not discriminate between AGs and control group. The Pillai's criterion reached statistical significance [F(3, 66) = 2.83; *p* = .045] so we performed post hoc analyses using the Bonferroni correction technique to control for alpha inflation due to multiple comparisons. As shown in Table 4, analyses indicated that strategic addicted gamblers scored higher on the *Devaluing* dimension of the PNI compared to non-strategic addicted gamblers.

The Mediating Role of Emotion Dysregulation in the Relationship Between Grandiose Narcissism and GD Severity

To achieve our goal to explain the pathway by which PN leads to GD, we tested the mediating role of ED in such relationship. As only Grandiose Narcissism was associated with GD we did not test such mediation model for Vulnerable Narcissism. As displayed in Table 5, we ensured that Grandiose narcissism positively predicted severity of GD (Step 1), that Grandiosity positively predicted ED levels (Step 2), that ED was a significant predictor of GD severity (Step 3) and that ED significantly predicted GD severity also after controlling for Grandiosity effect (Step 4). Finally, we found that ED effectively mediated the relationship between Grandiose Narcissism and GD severity with the direct effect turning non significant (Step 4).

Discussion

The main objective of our study was to investigate the role of pathological narcissism in GD. First, our results indicate that addicted gamblers may exhibit higher levels of grandiose narcissism compared to a non-clinical population. Such data is in line with previous studies showing high prevalence of NPD among addicted gamblers (Livingston 1974; Rosenthal 1986; Taber and Chaplin 1988; Blaszczynski and Steel 1998), which typically corresponds to arrogant, entitled and grandiose aspects of pathological narcissism (Cain et al. 2008). Moreover, grandiose narcissism predicted significantly severity of GD, in line with results found elsewhere, showing positive and significant association between

Table 5 Direct and indirect effects of grandiose narcissism on severity of gambling disorder trough emotion dysregulation

	B	SE	Bootstrap confidence interval [95%]
Step 1 PNI grandiosity -› SOGS $R^2 = .030$; $p = .022$			
Constant	1.101	1.668	− 1.8877 to 4.0846
PNI grandiosity	**.051**	.022	.0107 to .0902
Step 2 PNI grandiosity -› DERS total score $R^2 = .23$; $p < .001$			
Constant	**39.14**	5.16	28.9463 to 49.3337
PNI grandiosity	**.49**	.07	.3527 to .6206
Step 3 DERS total score -› SOGS $R^2 = .077$; $p < .001$			
Constant	− 2.19	1.61	− 5.2412 to 1.0494
DERS total score	**.087**	.02	.0489 to .1242
Step 4 PNI grandiosity + DERS total score -› SOGS $R^2 = .11$; $p < .001$			
Constant	− 2.52	1.85	− 6.1741 to 1.1357
DERS total score	**.09**	.01	.0458 to .1392
PNI grandiosity -› SOGS	.01	.02	− .0418 to .0530
PNI grandiosity -› DERS total score -› SOGS	**.05**	.01	.0241 to .0728

Bolded values are statistically significant

PNI Pathological Narcissism Inventory; *DERS* Difficulties in Emotion Regulation Scale; *SOGS* South Oaks Gambling Screen

narcissism, measured with the NPI, and GD severity (Lakey et al. 2008; MacLaren and Best 2013).

Interestingly, it has to be remembered that Blaszczynski and Nower (2002) argued that a specific subtype of pathological gamblers, with high levels of impulsivity and antisocial traits, would have higher levels of GD severity compared to the others subtypes. Complementary, our study suggests that elevated narcissistic traits might identify a more severe subtype of addicted gamblers. In addition to this insight, our research shed light on the role of a specific component of grandiose narcissism. Specifically, we found that only a single subscale of grandiose narcissism, *Self-sacrificing self Enhancement* resulted higher in the clinical sample compared to the control group suggesting that addicted gamblers tend to use presume altruist actions in order to support a grandiose image of the self.

In relation to this point, we note that some authors advanced the hypothesis that GD might be understood as a masochistic behavior (Von Hattinberg 1914; Rosenthal 2015) where the gambler gambles in order to lose and not to win. Indeed, clinical literature asserted that addicted gamblers look for pain or punition in order to relieve guilt associated with unconscious conflicts (Freud 1928; Bergler 1957). Also, Bergler (1957) argues that some individuals may sacrifice libidinal satisfactions in order to satisfy narcissistic needs. To this point, within a recent and growing interest toward the relationships between narcissism and masochism, it has been asserted the existence of a subtype of narcissism, labelled masochistic-narcissistic personality (Cooper 2009; Ronningstam 2005). Specifically,

individuals belonging to this subtype would intend pain as an integrative and exceptional part of their personality. In that sense, self-destructive behavior would have the function to demonstrate the exceptionality of the self which is not rightly recognized. Interestingly, our results seem to go in the same direction of these clinical understandings of GD. Also, to use presume altruist actions to support grandiose self-image would probably lead to unauthenticity in interpersonal relationships, exacerbating consequences of typical narcissistic trait, namely lack of empathy. Indeed, GD has been showed to be related with a number of interpersonal difficulties as loneliness (Botterill et al. 2016) and family conflicts (Dowling et al. 2016). Consequently, it is possible that the relationship between interpersonal difficulties and GD could be, albeit partially, explained by grandiose narcissistic traits.

Beyond the relationship between GD and grandiose narcissism, our study adds an important insight for the understanding of gambling addiction showing that vulnerable narcissism potentially accounts for the development and the maintenance of the disorder. Such result may be interpreted in different ways. First, description of vulnerable narcissistic individuals encompasses specific characteristics which seem to be shared by addicted gamblers. For instance, shame is often a self-reported emotion in this clinical population and proneness to experience feelings of shame in interpersonal situations has been related to chasing behavior (Yi 2012). Shame experienced by individuals with high vulnerable narcissistic traits is related to their own ambitions or needs. Thus, our results suggest that addicted gamblers may experience intense feelings of shame because of their vulnerable narcissistic traits and consequently look for a way to escape from such negative emotional states throughout gambling. Noteworthy, previous literature pointed out the role played by emotion dysregulation in the pathway by which shame leads to maladaptive behavior (Velotti et al. 2017). Moreover, shame related to the expression of own ambitions and need would probably lead the individual to interpersonally suppress their expression while secretly feeling pain for their frustration. Indeed, we found that addicted gamblers were typically unwillingness to show others their own fault or needs (i.e.: *Hiding the Self* dimension) compared to controls. Also, we found that the *Devaluing* subscale of vulnerable narcissism significantly discriminated addicted gamblers from non-clinical population. Thus, our study suggests that addicted gamblers show a lack of interest in others who do not support their need of admiration. Moreover, they tend to experience shame due to their need for recognition. Such result agrees with clinical literature asserting that the frequent use of devaluation mechanism in addicted gamblers aims to defend the subject against intimacy experiences (Rosenthal 1986). This idea is in line with results brought by the attachment research field, showing that addicted gamblers have often an insecure and avoidant attachment style (Di Trani et al. 2017), corresponding to an image of the self as underserving of care and love united with an image of the others as not available and responsive. Consequently, avoidant individuals hide their own needs because of a deep fear of interpersonal rejection when expressing vulnerability. Supporting this idea, literature asserted that avoidance is a characteristic strategy of both vulnerable narcissism (Pimentel 2008; Lamkin, Clifton, Campbell and Miller 2014) and GD (Riley 2012; Di Trani et al. 2017). Indeed, it is possible that addicted gamblers find in gambling activity a way to suppress intolerable emotional states as shame but also that they aim to escape from personal needs that they are not able to express in intimate relationships.

Then, our study aimed to shed light on potential differences between psychopathological profiles of PN depending on the preferred type of gambling activity among a population of addicted gamblers. Interestingly, we found that gamblers involved in strategic games (as card or sport betting) scored higher on a vulnerable subscale compared to others addicted gamblers, indicating a specific proneness to devalue who do not support their need of

admiration and to be ashamed of their need to be recognized from a disappointed other (*Devaluing* dimension). First, we note that our results partially contrast with data brought by Levesque et al. (2012) who found that poker players scored higher on grandiose narcissism measured with the NPI. A possible explanation for this contrasting result is that this previous study examined the topic among a non clinical population and did not measure pathological facets of narcissism. Moreover, in our study, the category of strategic games encompasses sport-betting games and various cards games, not being limited to poker. Anyway, our result suggests that strategic addicted gamblers could find, in games involving higher perceived levels of ability, an opportunity to obtain the admiration that they feel to deserve. For instance, games favoring the illusion of control throughout the elaboration of complex winnings systems might seem a way to obtain narcissistic and intellectual gratification for self-esteem. Also, such individuals may avoid to explicit such needs in working or interpersonal context because of an excessive rejection sensitivity. In such context, gambling would be an ideal place in which pursue their aim of supporting their self-image, contemporaneously avoiding the risk of an interpersonal disconfirmation. Finally, the fact that strategic addicted gamblers exhibited a different narcissistic profile compared to other addicted gamblers, supports the hypothesis (McCormick 1988; Lesieur 2001) of the existence of a subtype of gamblers with high level of narcissistic traits who preferably involve in games with a high excitatory potential.

Further objectives of our study were to explore the role of ED in both GD and PN and to investigate the role played by such relationship in the link between PN and GD. Indeed, we found high levels of emotion dysregulation among addicted gamblers compared to controls and all dimension of emotion dysregulation were positively associated with the severity of GD. To this point, several hypotheses may be formulated. First, addicted gamblers have difficulties accepting in a non-judgmental way their negative emotional states, supporting studies showing poor mindfulness capacities in addicted gamblers (de Lisle et al. 2012). Such characteristic may lead them to suppress negative feelings (for example deriving from loses) and consequently disable an adaptive use of the information contained in negative emotional states. As such, not integrating negative emotional experience may impede addicted gamblers to adequately falsify a dysfunctional behavioral strategy, favoring chasing behaviors. Moreover, a difficulty to access effective emotion regulation strategies may signal a low emotional regulation self-efficacy, reinforcing the positive meta-cognitive belief that gambling is the unique effective way to effectively regulate negative emotional states (Spada et al. 2015). In addition, high levels of lack of emotional clarity and emotional awareness have been found in our clinical sample, in agreement with previous results showing high levels of alexithymia in addicted gamblers (Parker et al. 2005; Lumley and Roby 1995). Finally, acting rashly and having difficulty to pursue goal directed behavior when experiencing intense and negative emotional states characterized our sample of addicted gamblers. This finding is in line with empirical and conceptual literature indicating impulsiveness as a central feature of GD (Kim and Grant 2001). As a whole, our results toward the relationship between ED and GD supported previous research (Williams et al. 2012) showing that addicted gamblers may have a specific difficulty to regulate intense and negative emotional states. Data go in the direction of theory of GD asserting that these individuals gamble in order to escape from negative emotional states because of a deficit in their emotion regulation capacities.

Then, we found that ED was positively associated with all dimensions of PN. Such results are in line with the hypotheses, supported elsewhere, that emotion dysregulation is associated with personality impairments (Velotti and Garofalo 2015; Dimaggio et al. 2017) and that grandiose narcissism is related to a difficulty to regulate emotional negative

states (Pollock et al. 2016; Ronningstam 2016). However, we found that the intensity of such relationship was only moderated for grandiose narcissism, whereas strong associations between ED and vulnerable narcissism emerged, going in the same direction of studies where ED has been saw to be related to only vulnerable narcissism but not to grandiose narcissism (Zeigler-hill and Vonk 2015, Zhang et al. 2015; Di Pierro et al. 2017). The fact that we found a relationship between grandiose narcissism and ED may be due to the clinical nature of our sample in contrast to previous studies investigating such link in nonclinical populations.

Moreover, we found that ED fully mediated the relationship between grandiose narcissism and GD severity. Several explanations of such result may be advanced. For instance, grandiose narcissistic individuals are thought to be highly impulsive (Raskin and Terry 1988), as well as addicted gamblers (Kim and Grant 2001). Proneness to focus on reward and low punishment sensitivity (cognitive impulsivity) are both shared characteristics of GD and NDP and may account for their association (Jiménez-Murcia et al. 2017; Spencer et al. 2017). In line with this idea, we found that proneness to act rashly under the influence of intense and negative emotional states was associated with both grandiose narcissism and GD severity. As such, it is possible that emotional impulsivity would play an important role in the pathways by which grandiose narcissism leads to GD. Also, the fact that addicted gamblers seem to sacrifice themselves for others to support their grandiose self-image suggests that they potentially act specific dysfunctional interpersonal patterns. Indeed, it is possible that addicted gamblers do not allow to themselves to express personal needs and desires in intimate relationships because such self-disclosure would invalidate their self-image built on sacrifice. Thus, putting their need as priority would consequently reduce such defensive grandiose self-image and represent a threat to self-esteem. Gambling is often described as an escape strategy and may assume, in individuals who have interpersonal difficulties, the role of a special place where they have the possibility to satisfy their own needs. Finally, such narcissistic trait may not allow the individual to express emotional distress within relationships and consequently deprive them of effective interpersonal coping strategies as sharing with others. It is thus possible that such individuals resort preferentially to maladaptive emotion regulation strategies as suppression of emotions expression or emotional avoidance. Such emotion regulation deficits would in turn drive the individual to find other, external, emotional regulators that allow to suppress negative emotional states and simultaneously provide relief throughout an increase of mood tone.

Our study suggests interesting clinician implications for GD. In relation to assessment, clinicians should be trained to pay attention to manifestations of narcissistic pathological personality traits, especially when patients are involved in strategic types of gambling activities. For example, clinicians should explore potential fantasies related to self-sacrifice underlying chasing behavior or a possible association between overconfidence biases and grandiose narcissistic personality traits. Also, depression and anxiety are frequently associated with both GD and NPD. Consequently, clinicians should be cautious and explore the nature of beliefs underlying these symptoms, possibly explained by vulnerable narcissistic personality traits. To early identify covert narcissism among AGs is relevant as it may lead to premature termination of therapy. Indeed, experiencing shame when showing personal vulnerabilities and devaluing the other in reaction to perceived criticism are strong barriers to treatment compliance (Bender 2005). As such, therapists should be aware of possible triggers that may lead the patient to drop-out. Noteworthy, our study suggests that the relationship between grandiose narcissism and GD severity may explicate throughout deficits in emotion regulation capacities. Training focused on emotion regulation deficits may be a strategic therapeutic approach in the treatment of AGs with pronounced narcissistic

personality traits. As a whole, assessment and treatment for GD need to pay more attention to the role played by narcissistic personality traits and to opportunely provide interventions targeting emotion regulation deficits.

Limitations of the Study and Future Directions

Despite the insightful conclusions of our study, some important limitations should be considered.

First, the cross-sectional nature of the research design does not allow to draw conclusion toward causal relationships between the variable involved in the study. As such, longitudinal studies aiming to explore the relationship between PN, ED and GD should be carried on to support our results. However, PN is thought to be a personality variable and, as such, should develop from the infancy and represent a stable psychological trait across time.

Also, the snowball and purposive sampling techniques used in the study contradict many assumptions underlying random sampling, as for example the independency of observations, and consequently limit the possibility to make statistical inferences and to generalize results from the sample to the population. Thus, these preliminary results should be replicated in a study using a more rigorous method sampling.

Then, we made an exclusive use of self-report that may be object of concerns especially because we measured pathological personality traits, which are typically ego syntonic in nature. To this point future studies aiming to replicate our results should consider the use of clinician reported or implicit measures of narcissism.

In addition, a reserve has to be expressed in relation to the comparison between strategic and non-strategic AGs. Indeed, the group of strategic AGs included participants gambling exclusively in strategic games and AGs who also involved in others types of gambling activities. A study, with a larger sample of AGs, exploring if these two categories of AGs further diverge in relation to narcissistic traits, may support the idea that different gambling activities assume distinct psychological functions in the same individual.

Then, the fact that our participants were mostly males has to be noted. As gender has been seen to be differently related with narcissism (Grijalva et al. 2015), it is possible that the relationship observed between pathological narcissism and GD in our study would not be replicated in a sample of female AGs. Also, different narcissistic personality traits accounting for GD as well as alternative pathways linking narcissism to addiction might operate in female population.

Finally, some other important variables have been left out from our study. For instance, Lakey et al. (2008) found that the relationship between narcissism and GD severity was mediated by cognitive biases. Thus, a future study should investigate the role of emotion dysregulation in such pathway. For instance, a specific interaction between cognitive biases and emotion dysregulation may play an important role in the pathway by which grandiose narcissism leads to GD. Also, fragility of self-esteem is an important feature of both PN and GD and, as such, should be examined in a future study. Finally, proneness to shame is probably be a key variable in the explanation of the role of ED in relation to PN and GD but has not been explicitly measured in our study. Indeed, it is not clear which kind of negative emotional states are involved in our mediation model. For instance, we argued that shame might be a key variable but the role of others emotional states involved in both GD and NPD, as anger, should be examined.

Compliance with Ethical Standards

Conflict of interest   The Authors declare that they have no conflict of interests.

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