JOURNAL OF PSYCHOPATHOLOGY
2018;24:215-223

Original article

A. Somma, F. Boni, E. Arlotta, G. Nazzaro, E. Masci, S. Busso, S. Beretta, R. Manini, S. Borroni, C. Maffei, A. Fossati

Vita-Salute San Raffaele University and San Raffele Turro Hospital, Milan, Italy

Pathological narcissism measures as predictors of self-reported physical aggression among 310 consecutively-admitted Italian outpatients

Summary

Objectives

There is still a dearth of studies on the relationships between pathological narcissism and physical aggression (PA), particularly among psychiatric adult subjects. The present study aimed at assessing the relationships between PA, pathological narcissism, and clinician's ratings and self-reports of DSM-5 Section II Narcissistic Personality Disorder (NPD).

Methods

Three-hundred and ten consecutively admitted Italian outpatient participants were administered the Italian translations of the Aggression Questionnaire (AQ), the Five Factor Narcissism Inventory (FFNI-SF), the Pathological Narcissism Inventory (PNI), the Personality Diagnostic Questionnaire (PDQ-4+) and the Structured Clinical Interview for DSM-5 Personality Disorders (SCID-5-PD), as part of their routine clinical assessment. Multiple regression analyses and hierarchical multiple regression analyses were performed in order to assess the relationships between physical aggression and pathological narcissism.

Results

The PNI and FFNI-SF yielded significant and non-negligible bivariate associations with self-reports of PA. Pathological narcissism measures explained from 13.0% (PNI total score) to 24.0% (FFNI-SF-SF total score) in the AQ PA scale score. Notably, moderation analyses did not evidence any significant role of participant's gender as moderator variables. Our multiple regression analysis findings showed that both grandiose and vulnerable features of pathological narcissism may be relevant for understanding self-reported PA among psychotherapy outpatients; however, this relationship was observed only when the FFNI-SF scale scores were used as predictors in multiple regression models. Rather, only the PNI vulnerable narcissism scale scores showed a significant association with the AQ PA score in multiple regression analyses. Hierarchical regression models documented that both PNI and FFNI-SF measures added a significant amount of information in predicting AQ PA scale scores to the information that was provided by both the PDQ-4+ NPD scale and the SCID-5-PD NPD scale.

Conclusions

As a whole, our findings suggest that both the PNI and the FFNI-SF should be used in assessing pathological narcissism features that may be relevant for understanding self-reported disposition towards physical aggression, at least in subjects who voluntarily asked for treatment.

Key words
Physical aggression • Pathological narcissism • Narcissistic personality disorder • DSM-5 Section II

Received: April 10, 2018
Accepted: May 27, 2018

Correspondence
Andrea Fossati
Servizio di Psicologia Clinica e Psicoterapia,
IRCCS San Raffaele Turro,
via Stamira d'Ancona 20, 20127 Milan, Italy
Tel. +39 02 26433241
E-mail: fossati.andrea@hsr.it

Introduction

Although a unitary definition of aggression is still missing, the large majority of conceptualization do not consider aggression as unidimensional construct [1]. Among components of aggression, physical aggression seems to represent a particularly relevant characteristic because of its

link to violence, couple aggression, crime, suicidal risk, homicide, and even sexual aggression, at least in men [2]. Although the Conflict Tactics Scale (CTS) [3] represents a measure of physical aggression (PA) which has been widely used in the social psychology literature, the Aggression Questionnaire (AQ) [4] represents one of the few self-report instruments that provides a scale directly assessing (PA).

Considering personality disorder (PD) research, historically a heightened risk for committing acts of violence has been described for antisocial PD, borderline PD, and psychopathy [5]. More recent data examined the associations between Narcissistic PD (NPD) and aggression [5-7]; however, there is still a dearth of studies on the relationships between pathological narcissism and PA, particularly among psychiatric adult subjects. Interestingly, NPD and pathological narcissism have been linked also to psychopathy and antisocial behavior [8]. This may represent a consequence of the recent re-definition of the pathological narcissism construct to include both vulnerable and grandiose components [6 7]. Indeed, the DSM definition of NPD has been criticized for being related only with the grandiose dimension of narcissism, yielding an inaccurate representation of narcissism [6-9]. To overcome the difficulties in the assessment of the vulnerable and grandiose dimensions of narcissism, Pincus and colleagues [7] and Glover and colleagues [6 10] developed two self-report measures – namely, the Pathological Narcissism Inventory (PNI) and the Five Factor Narcissism Inventory (FFNI), respectively. Although they were developed according to different theories of personality, currently the FFNI and PNI represents the most widely used measures of narcissism measuring both grandiose (GN) and vulnerable (VN) component of pathological narcissism. Indeed, the PNI was developed according to a dynamic model, which consider grandiosity and vulnerability as two alternating states [7]; rather, the FFNI is rooted in the Five Factor Model of personality, and NG and NV are conceived as orthogonal dimensions [6 10]. Notably, the reliability and validity of Italian translations of the PNI [11] and the Short Form of the FFNI (FFNI-SF) [12] have been recently documented; moreover, the official Italian translation of the PNI has been published [13].

Starting from these considerations, in the present study we aimed at assessing: (a) if the PNI total scores were associated with the AQ PA total scores over and above clinician's ratings and self-reports of DSM-5 Section II NPD; (b) if the FFNI-SF total score were associated with the AQ PA total scores over and above clinician's ratings and self-reports of DSM-5 Section II NPD; and (c) if the FFNI-SF total score remained a significant predictor of AQ PA total score in hierarchical regression model when the PNI total score was entered in the first step of the model, as well as the reverse model. The same sequence of hypotheses was tested for the role of PNI GN and VN scales and FFNI-SF GN and VN scales, respectively, in predicting the AQ PA scale scores. In all regression models the possible moderation role of gender was taken into account. Consistent with available evidence on the dimensional structure of PDs [14], in the present study we relied on continuously-assessed (i.e., number of symptoms) measures of DSM-5 Section II NPD, as well as of pathological narcissism. In the present study we relied on the Structured Clinical Interview for DSM-5 Personality Disorders (SCID-5-PD [15]) as a clinician-rated measure of DSM-5 Section II NPD. Since DSM-IV (APA, 1994) axis II PD criteria were retained unchanged from in the DSM-5 Section II, in the present study the Personality Diagnostic Questionnaire-4+ (PDQ-4+ [16]) was used as a self-report measure of DSM-5 Section II NPD.

Methods

Participants

Three-hundred and ten Italian adult outpatient participants who were consecutively admitted from January 2014 to December 2017 to the Clinical Psychology and Psychotherapy Unit of the San Raffaele Hospital of Milan were administered the Italian translations of the SCID-5-PD [15], FFNI-SF [10], PNI [7 13], PDQ-4+ [16] and AQ [4] as part of their routine clinical assessment. In our sample, participant's mean age was 42.04 years, SD = 13.56 years; 166 (53.5%) participants were female, 144 (46.5%) participants were male. None of the participants reported missing data.

According to SCID-5-PD, the most frequently diagnosed PDs were Narcissistic PD, n = 64, 20.6%, PD with Other Specification (i.e., Mixed PD), n = 61, 19.7%, Borderline PD, n = 36, 11.6%, Dependent PD, n = 15, 4.8% and Histrionic PD, n = 14, 4.5%. One hundred seventy-eight (57.4%) participants received at least one DSM-5 non-PD psychiatric disorder diagnosis; mood disorders (n = 98, 31.6%) were the most frequently diagnosed DSM-5 non-PD psychiatric disorders. Non-PD psychiatric disorder diagnoses were assessed by the clinicians who were following the participants in treatment or by trained clinical psychologists during their initial assessment interviews. Because non-PD psychiatric disorder diagnoses were not assessed using standardized interviews and were not the focus of this research, they were used only for descriptive purposes in the current study.

All participants were admitted to the Clinical Psychology and Psychotherapy Unit in order to receive psychotherapy treatment for interpersonal difficulties and/or problems with behavior and emotional regulation on a strictly voluntary basis. All participants gave their informed consent to participate in the study after ob-

taining a detailed description of the study. The present study was performed in accordance with the principles of the 1983 Declaration of Helsinki.

Potential participants were screened for the following exclusionary criteria: (1) do not speak Italian as their first language; (2) age less than 18 years; (3) IQ less than 80; (4) diagnosis of schizophrenia, schizoaffective disorder, schizophreniform disorder, or delusional disorder according to DSM-5 diagnostic criteria; (5) diagnosis of dementia or organic mental disorder according to DSM-5 diagnostic criteria; or (6) education level lower than elementary school. All participants in the current research passed this screening.

Participants with psychiatric disorder diagnoses were administered the AQ, the PDQ-4+, the SCID-5-PD interview, the PNI, and the FFNI-SF by expert trained raters after acute symptom remission according to the judgment of the clinicians who were following them in treatment to avoid confounding effects of psychiatric disorders on these measures [17]. All questionnaires were administered and scored blind to SCID-5-PD assessment results, as well as the SCID-5-PD administration was blind to all questionnaires' scores.

Measures

Reliability coefficient values for all measures are listed in Table I (main diagonal).

Buss-Perry Aggression Questionnaire (AQ) [4]. The AQ is a 29 item, Likert type, self-report questionnaire that was specifically developed to assess aggression, including physical aggression (PA) [4]. The Italian translation of the AQ showed adequate reliability and construct validity [18]. In the present study, we relied on the AQ PA scale as a measure of physical aggression.

Structured Clinical Interview for DSM-5 Section II Personality Disorders (SCID-5-PD) [15]. The SCID-5-PD is a 106-item semi-structured interview designed to assessment of DSM-5 PDs. The SCID-5-PD was preceded by administration of its self-report screening questionnaire. In order to obtain clinician's rating scores consistent with self-report scores of NPD (i.e., dimensional scores obtained as a sum of the criteria met by each participant) in the present study, we focused only on NPD dimensional (i.e., number of criteria) scores. The interrater reliability (IRR) of the Italian translation of the SCID-5-PD in clinical participants has been demonstrated [19]. The IRR of SCID-5-PD symptom count was assessed using a pairwise interview design on the first 150 participants. One-way ANOVA intraclass r (absolute agreement) was used as an IRR estimate (see Table I).

Personality Diagnostic Questionnaire-4+ (PDQ-4+) [16]. The PDQ-4+ is a 99-item true/false self-report measure that assesses DSM-IV PD symptoms; each individual item corresponding to a single DSM–5 diagnostic criterion. The PDQ-4+ is scored by summing the number of criteria endorsed for each PD. Additionally, it yields a total score consisting of the total number of pathological traits endorsed. The Italian translation of PDQ-4+ showed adequate reliability and construct validity [20].

TABLE I. *Aggression Questionnaire-Physical Aggression Scale, Personality Diagnostic Questionnaire-4+ Narcissistic Personality Disorder Scale, Structured Clinical Interview for DSM-5 Section II Personality Disorders Narcissistic Personality Disorder Scale, Five Factor Narcissism Inventory-Short Form Vulnerable and Grandiose Narcissism Scales and Pathological Narcissism Inventory Vulnerable and Grandiose Narcissism Scales: Descriptive Statistics, Reliability Coefficients (Cronbach α/intraclass r) and Measures Intercorrelations (i.e., Pearson r Coefficients).*

			Pearson r Coefficients								
	M	SD	1	2	3	4	5	6	7	8	9
1. AQ Physical Aggression Scale	17.85	7.12	.82								
2. PDQ-4+ NPD Dimensional Score	2.25	1.77	.36*	.79							
3. SCID-5-PD NPD Dimensional Score	1.97	2.14	.25*	.36*	.91						
4. FFNI-SF Total Score	139.75	29.62	.49*	.63*	.38*	.91					
5. FFNI-SF Grandiose Narcissism Score	91.49	23.54	.46*	.59*	.40*	.93*	.91				
6. FFNI-SF Vulnerable Narcissism Score	48.26	11.57	.32*	.40*	.15	.67*	.35*	.84			
7. PNI Total Score	2.01	.81	.36*	.56*	.24*	.74*	.57*	.73*	.95		
8. PNI Grandiose Narcissism Score	2.06	.83	.31*	.51*	.22*	.71*	.65*	.51*	.86*	.88	
9. PNI Vulnerable Narcissism Score	1.98	.86	.37*	.52*	.23*	.67*	.47*	.76*	.96*	.68*	.93

Note. AQ: Aggression Questionnaire; PDQ-4+: Personality Diagnostic Questionnaire-4+; NPD: Narcissistic Personality Disorder; SCID-5-PD: Structured Clinical Interview for DSM-5 Section II Personality Disorders Scales; FFNI-SF: Five Factor Narcissism Inventory-Short Form; PNI: Pathological Narcissism Inventory. Reliability coefficient estimates (i.e., Cronbach α/intraclass r) are reported on the main diagonal.

**Correlation coefficient significant at Bonferroni-corrected p < .002.*

In the present study, we relied only the PDQ-4+ NPD scale.

Five Factor Narcissism Inventory-Short Form (FFNI-SF) [10]. The FFNI-SF is a 60-item, self-report measure of 15 traits – namely, Acclaim-Seeking, Arrogance, Authoritativeness, Distrust, Entitlement, Exhibitionism, Exploitativeness, Grandiose Fantasies, Indifference, Lack of Empathy, Manipulativeness, Need for Admiration, Reactive Anger, Shame, and Thrill-Seeking – related to vulnerable and grandiose narcissism. Vulnerable narcissism is the sum of Cynicism/distrust, Need for Admiration, Reactive Anger, and Shame. Grandiose narcissism is the sum of the remaining scales. The FFNI-SF yields also a total score indexing subject's overall level of pathological narcissism. The FFNI-SF showed adequate reliability and validity [10] also in its Italian translation [12].

Pathological Narcissism Inventory (PNI) [7 13]. The PNI is a 52-item, Likert type, multidimensional self-report measure of pathological narcissism that assesses characteristics of grandiose and vulnerable narcissism. The PNI yields scores for narcissistic grandiosity (GN), narcissistic vulnerability (VN), and a total score measuring the overall level of pathological narcissism (i.e., the PNI total score). The reliability and validity of the Italian translation of the PNI have been documented [11 13].

Results

Descriptive statistics, reliability coefficients (Cronbach α/intraclass r), and Pearson r values for all measures used in the present study are listed in Table I.

All multiple regression analysis models in which our narcissism scale scores were entered as predictors of AQ PA scale scores, as well as moderated regression analysis results are summarized in Table II.

Only independent variables that proved to be significant predictors of the AQ PA score in multiple regression models were retained for hierarchical multiple regression analyses.

Hierarchical regression analysis results of PDQ-4+ NPD scale scores, SCID-5-PD Section II NPD scores, FFNI-SF total score, FFNI-SF Vulnerable Narcissism and Grandiose Narcissism scales, PNI total score, PNI Vulnerable Narcissism and Grandiose Narcissism scales as predictors of the AQ PA scale scores are listed in Tables III, IV and V, respectively.

TABLE II. *Personality Diagnostic Questionnaire-4+, Narcissistic Personality Disorder Scale, Structured Clinical Interview for DSM-5 Section II Personality Disorders Narcissistic Personality Disorder Scale, Five Factor Narcissism Inventory-Short Form Vulnerable and Grandiose Narcissism Scales, and Pathological Narcissism Inventory Vulnerable and Grandiose Narcissism Scales as Predictors of the Aggression Questionnaire-Physical Aggression Scale: Multiple Regression Analysis and Moderated Regression Analysis Results.*

	Aggression Questionnaire Physical Aggression		Gender moderation Interaction effect
	ß	VIF	R^2_{change}
PDQ-4+ Continuously-scored NPD	.31‡	1.15	.00
SCID-5-PD Continuously-scored NPD	.14*	1.15	.00
Adjusted R^2	.14‡		
FFNI-SF Total Score	.49‡	1.00	.00
Adjusted R^2	.24‡		
FFNI-SF Grandiose Narcissism Score	.39‡	1.14	.00
FFNI-SF Vulnerable Narcissism Score	.19‡	1.14	.00
Adjusted R^2	.23‡		
PNI Total Score	.36‡	1.00	.00
Adjusted R^2	.13‡		
PNI Grandiose Narcissism Score	.10	1.19	.00
PNI Vulnerable Narcissism Score	.31‡	1.19	.00
Adjusted R^2	.14‡		

Note. PDQ-4+: Personality Diagnostic Questionnaire-4+; NPD: Narcissistic Personality Disorder; SCID-5-PD: Structured Clinical Interview for DSM-5 Section II Personality Disorders Scales; FFNI-SF: Five Factor Narcissism Inventory-Short Form; PNI: Pathological Narcissism Inventory.

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

Discussion

Confirming and extending the available literature on the relationship between narcissism and aggression [5-10], our findings showed that all measures of narcissistic personality pathology that were included in our study yielded significant and non-negligible bivariate associations with self-reports of physical aggression in a large sample of consecutively-admitted psychotherapy patients, at least as it was operationalized in the AQ PA scale.

Consistent with previous reports [6-13], our data suggested that pathological narcissism could be reliably

TABLE III. *Personality Diagnostic Questionnaire-4+ Narcissistic Personality Disorder Scale, Structured Clinical Interview for DSM-5 Section II Personality Disorders Narcissistic Personality Disorder Scale and Five Factor Narcissism Inventory-Short Form Vulnerable and Grandiose Narcissism Scale as Predictors of the Aggression Questionnaire-Physical Aggression Scale: Hierarchical Regression Analysis Results.*

	Aggression Questionnaire Physical Aggression		Gender moderation Interaction effect
Step 1	**ß**	**VIF**	**R^2_{change}**
PDQ-4+ Continuously-scored NPD	.31†	1.15	.00
SCID-5-PD Continuously-scored NPD	.14*	1.15	.00
Adjusted R^2	.14‡		
Step 2			
PDQ-4+ Continuously-scored NPD	.08	1.70	.00
SCID-5-PD Continuously-scored NPD	.07	1.20	.00
FFNI-SF Total Score	.41‡	1.71	.00
Change in Adjusted R^2	.10‡		
Overall Adjusted R^2	.24‡		
Step 1			
FFNI-SF Total Score	.49‡	1.00	.00
Adjusted R^2	.24‡		
Step 2			
FFNI-SF Total Score	.41‡	1.72	.00
PDQ-4+ Continuously-scored NPD	.08	1.70	.00
SCID-5-PD Continuously-scored NPD	.07	1.20	.00
Change in Adjusted R^2	.00		
^{2}	.24‡		
Step 1			
PDQ-4+ Continuously-scored NPD	.31†	1.15	.00
SCID-5-PD Continuously-scored NPD	.14*	1.15	.00
Adjusted R^2	.14‡		
Step 2			
PDQ-4+ Continuously-scored NPD	.08	1.70	.00
SCID-5-PD Continuously-scored NPD	.07	1.23	.00
FFNI-SF Grandiose Narcissism Score	.32‡	1.67	.00
FFNI-SF Vulnerable Narcissism Score	.17†	1.22	.00
Change in Adjusted R^2	.10‡		
Overall Adjusted R^2	.24‡		

Note. PDQ-4+: Personality Diagnostic Questionnaire-4+; NPD: Narcissistic Personality Disorder; SCID-5-PD: Structured Clinical Interview for DSM-5 Section II Personality Disorders Scales; FFNI-SF: Five Factor Narcissism Inventory-Short Form.

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

TABLE IV. *Personality Diagnostic Questionnaire-4+ Narcissistic Personality Disorder Scale, Structured Clinical Interview for DSM-5 Section II Personality Disorders Narcissistic Personality Disorder Scale, and Pathological Narcissism Inventory Vulnerable and Grandiose Narcissism Scales as Predictors of the Aggression Questionnaire-Physical Aggression Scale: Hierarchical Regression Analysis Results.*

	Aggression Questionnaire Physical Aggression		Gender moderation Interaction effect
Step 1	**ß**	**VIF**	**R^2_{change}**
PDQ-4+ Continuously-scored NPD	.31‡	1.15	.00
SCID-5-PD Continuously-scored NPD	.14*	1.15	.00
Adjusted R^2	.14‡		
Step 2			
PDQ-4+ Continuously-scored NPD	.19*	1.57	.00
SCID-5-PD Continuously-scored NPD	.13*	1.15	.00
PNI Total Score	.23‡	1.45	.00
Change in Adjusted R^2	.04‡		
Overall Adjusted R^2	.18‡		
Step 1			
PDQ-4+ Continuously-scored NPD	.31‡	1.15	.00
SCID-5-PD Continuously-scored NPD	.14*	1.15	.00
Adjusted R^2	.14‡		
Step 2			
PDQ-4+ Continuously-scored NPD	.19†	1.58	.00
SCID-5-PD Continuously-scored NPD	.13*	1.15	.00
PNI Grandiose Narcissism Score	.03	2.00	.00
PNI Vulnerable Narcissism Score	.22†	2.02	.00
Change in Adjusted R^2	.04‡		
Overall Adjusted R^2	.18‡		

Note. PDQ-4+: Personality Diagnostic Questionnaire-4+; NPD: Narcissistic Personality Disorder; SCID-5-PD: Structured Clinical Interview for DSM-5 Section II Personality Disorders Scales; PNI: Pathological Narcissism Inventory.
** $p < .05$; † $p < .01$; ‡ $p < .001$*

and validly assessed, at least in psychotherapy outpatients. Indeed, reliabilities were greater than .70 for all pathological narcissism measures. With the exception of the FFNI-SF VN scale, the SCID-5-PD NPD dimensional scores correlated significantly and moderately with all the measures of narcissism that were used in this study. The PDQ-4+ NPD scale scores showed substantial, positive correlations with all other non-DSM-5 pathological narcissism measures, whereas adequate convergent validities were observed between the PNI scale scores and the FFNI-SF scale scores (although the discriminant validity of the PNI GN scale was suboptimal).

Our regression findings showed that pathological narcissism may represent a non-negligible factor in understanding the dispositional risk for physical aggression, at least as it was measured using self-reports based on the AQ PA scale. Pathological narcissism measures explained from 13.0% (PNI total score) to 24.0% (FFNI-SF-SF total score) in the AQ PA scale score. Interestingly, moderation analyses did not evidence any significant role of participant's gender as moderator variables, thus suggesting that the non-negligible and significant role of pathological narcissism as predictor of self-reported physical aggression held equally in female outpatients and in male outpatients.

Although the pathological narcissism measures that were used in our study showed adequate convergent validities, our regression analysis findings documented that they were not interchangeable in predicting self-reported physical aggression. Extending available information [5 9], our multiple regression analysis findings showed that both grandiose and vulnerable features of pathological narcissism may be relevant for understanding self-reported physical aggression among psychotherapy outpatients; however, this relationship was ob-

TABLE V. *Five Factor Narcissism Inventory-Short Form Vulnerable and Grandiose Narcissism Scales and Pathological Narcissism Inventory Vulnerable and Grandiose Narcissism Scales as Predictors of the Aggression Questionnaire-Physical Aggression Scale: Multiple Regression Analysis and Moderated Regression Analysis Results.*

	Aggression Questionnaire Physical Aggression		Gender moderation Interaction effect
Step 1	**ß**	**VIF**	**R^2_{change}**
PNI Total Score	.36‡	1.00	.00
Adjusted R^2	.13‡		
Step 2			
PNI Total Score	.01	2.22	.00
FFNI-SF Total Score	.49‡	2.22	.00
Change in Adjusted R^2	.10‡		
Overall Adjusted R^2	.23‡		
Step 1			
FFNI-SF Total Score	.49‡	1.00	.00
Adjusted R^2	.24‡		
Step 2			
FFNI-SF Total Score	.49‡	2.22	.00
PNI Total Score	.01	2.22	.00
Change in Adjusted R^2	.01		
Overall Adjusted R^2	.23		
Step 1			
PNI Grandiose Narcissism Score	.10	1.19	.00
PNI Vulnerable Narcissism Score	.31‡	1.19	.00
Adjusted R^2	.14‡		
Step 2			
PNI Grandiose Narcissism Score	-.17*	2.53	.00
PNI Vulnerable Narcissism Score	.20*	3.30	.00
FFNI-SF Grandiose Narcissism Score	.43‡	1.74	.00
FFNI-SF Vulnerable Narcissism Score	.10	2.36	.00
Change in Adjusted R^2	.11‡		
Overall Adjusted R^2	.25‡		

Note. FFNI-SF: Five Factor Narcissism Inventory-Short Form; PNI: Pathological Narcissism Inventory.
** p < .05; † p < .01; ‡ p < .001*

served only when the FFNI-SF scale scores were used as predictors in multiple regression models. Rather, only the PNI VN scale score showed a significant association with the AQ PA score in multiple regression analyses; this finding was consistent with previous studies suggesting that the PNI GN scale may manifest construct validity problems [9]. Interestingly, these findings support the hypothesis that VN should not misunderstood with "covert" or "hypervigilant" narcissism [7]; rather, it represents a vulnerability towards an uprising of dysregulated negative emotions – including anger and rage – in response to threat to the inflated self, which may end in physically aggressive acts [7].

Mostly, hierarchical regression models documented that both PNI and FFNI-SF measures added a significant amount of information in predicting AQ PA scale scores to the information that was provided by both the PDQ-4+ NPD scale and the SCID-5-PD NPD scale. In particular, the FFNI-SF GN and VN scale scores seemed to convey all relevant information of pathological narcissism as predictor of self-reported physical aggression that may be contained in both PDQ-4+ NPD scale

and SCID-5-PD NPD scale. Indeed, when the FFNI-SF GN and VN scales were entered in hierarchical regression models, they led to non-significance the contribution of both interview-based and self-report measures of DSM-5 Section II NPD. This finding was largely consistent with recent considerations suggesting the need for a trait-based, dimensional assessment of personality dysfunction [21].

In our study, hierarchical regression analysis results seemed to indicate that PNI and FFNI-SF represented complementary measures, rather than alternative instruments in explaining the variation in AQ PA scores. Indeed, FFNI-SF GN scale seemed to represent the strongest predictor of self-reported physical aggression in our hierarchical regression models. This finding was largely consistent with previous data showing that narcissistic grandiosity – i.e., a dysfunctional personality feature characterized by selfishness, deceitfulness, oppositionality, callousness, assertiveness, high activity level, and attention seeking/exhibitionism – may represent a major risk factor for physically aggressive behaviors, even characterized by severe sequalae for the victim (including the narcissistic subject in self-destructive acts) and/or legal consequences [7 9 13].

However, the PNI VN scale scores remained significantly associated with the AQ PA scale scores in hierarchical regression models, while reducing to non-significance the contribution of the FFNI-SF VN scale scores. Thus, the relative contribution of vulnerable narcissistic features, including entitlement rage, to understanding the risk for self-reported physical aggression could be best assessed using the PNI VN scale scores. Thus, our findings suggest that both the PNI and the FFNI-SF should be used in assessing pathological narcissism features that may be relevant for understanding self-reported disposition towards physical aggression, at least in subject who voluntarily asked for treatment.

Of course, the results of our study should be considered in the light of several limitations. Our sample was composed only of participants who were voluntarily seeking for psychotherapy treatment; this inherently limits the generalizability of our findings to other clinical samples. We relied on two sound measures of pathological narcissism, as well as on two measures of DSM-5 Section II NPD. Although were adopted a multiple-measure perspective on narcissism assessment, it should be observed that different measures of pathological narcissism and NPD exist; our data should not be uncritically generalized to these alternative definitions and measures of the construct. Moreover, the AQ PA scale, the PDQ-4+ NPD scale, the FFNI-SF, and the PNI were self-report measures of the corresponding constructs. Thus, their reciprocal associations may have been inflated by shared-method variance. Berkson [22] nicely demonstrated that clinical samples are likely to be biased by participants' severity levels, treatment-seeking attitude, treatment availability, etc. Thus, Berkson's [22] bias limits the generalizability of our results, while indicating the need for further studies on this topic. We relied on the AQ as a measure of aggressive behavior; however, different models and measures of PA exist. Thus, our findings should not be uncritically extended to other models/instruments assessing PA.

Even keeping these limitations in mind, findings suggest that pathological narcissism is a significant and non-negligible predictor of self-reported physically aggressive behavior even in psychotherapy outpatients. Fortunately, easy-to-administer and inexpensive measures of pathological narcissism exist, which may be used in routine and/or targeted clinical assessment.

Conflict of Interest

The authors have no conflict of interests.

References

1 Raine A, Dodge K, Loeber R, et al. *The reactive-proactive aggression questionnaire: differential correlates of reactive and proactive aggression in adolescent boys.* Aggress Behav 2006;32:159-71.

2 Reardon K, Tackett J, Lynam D. *The personality context of relational aggression: a five-factor model profile analysis.* Personal Disord 2018;9:228-38.

3 Straus MA. *Manual for the conflict tactics scale (CTS)*. Durham: University of New Hampshire 1990.

4 Buss A, Perry M. *The aggression Questionnaire*. J Pers Soc Psychol 1992;63:452-9.

5 Dunne AL, Gilbert F, Daffern M. *Elucidating the relationship between personality disorder traits and aggression using the new DSM-5 dimensional-categorical model for personality disorder.* Psychol Violence 2018;8:615-29.

6 Glover N, Miller J, Lynam D, et al. *The five-factor narcissism inventory: a five-factor measure of narcissistic personality traits*. J Pers Assess 2012;94:500-12.

7 Pincus A, Ansell E, Pimentel C, et al. *Initial construction and validation of the pathological narcissism inventory.* Psychol Assess 2009;21:365-79.

8 Miller J, Lynam D. *Structural models of personality and their relation to antisocial behavior: a meta-analytic review.* Criminology 2001;39:765-98.

9 Miller JD, Lynam DR, Hyatt CS, et al. *Controversies in narcissism.* Annu Rev Clin Psychol 2017;13:291-315.

10 Sherman E, Miller J, Few L, et al. *Development of a short form of the five-factor narcissism inventory: the FFNI-SF.* Psychol Assess 2015;27:1110-6.

11 Fossati A, Feeney J, Pincus A, et al. *The structure of pathological narcissism and its relationships with adult attachment styles: a study of Italian nonclinical and clinical adult participants.* Psychoanal Psychol 2015;32:403-31.

12 Fossati A, Somma A, Borroni S, et al. *Assessing dimensions of pathological narcissism: psychometric properties of the short form of the five-factor narcissism inventory in a sample of Italian university students*. J Pers Assess 2017;1-9.

[13] Fossati A, Borroni S. *Narcisismo patologico.* Milano: Raffaello Cortina Editore 2018.

[14] Widiger TA, Simonsen E. *Alternative dimensional models of personality disorder: finding a common ground.* J Personal Disord 2005;19:110-30.

[15] First M, Williams J, Benjamin L, et al. *SCID-5-PD: structured clinical interview for DSM-5 personality disorders*. American Psychiatric Association Publishing 2016.

[16] Hyler S. *Personality diagnostic questionnaire-4+.* New York: New York State Psychiatric Institute 1994.

[17] Zimmerman M. *Diagnosing personality disorders.* Arch Gen Psychiatry 1994;51:225-45.

[18] Fossati A, Maffei C, Acquarini E, et al. *A multi-group confirmatory component and factor analyses of the Italian version of the aggression Questionnaire.* Eur J Psychol Assess 2003;19:54-65.

[19] Somma A, Borroni S, Maffei C, et al. *Inter-rater reliability of the Italian translation of the Structured Clinical Interview for DSM-5 Personality Disorders (SCID-5-PD): a study on consecutively admitted clinical adult participants.* J Psychopathol 2017;23:105-11.

[20] Fossati A, Maffei C, Bagnato M, et al. *Criterion validity of the Personality Diagnostic Questionnaire-4+ (PDQ-4+) in a mixed psychiatric sample*. J Personal Disord 1998;12:172-8.

[21] Krueger RF Markon KE. *The role of the DSM-5 personality trait model in moving toward a quantitative and empirically based approach to classifying personality and psychopathology.* Ann Rev Clin Psychol 2014;10:477-501.

[22] Berkson J. *Limitations of the application of fourfold table analysis to hospital data.* Biometrics Bulletin 1946;2:47-53.