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Assessing Malignant Narcissism and its Associations with Dark Triad Dimensions, Social Deviance, Personality Disorders, Self-Harming Behaviors, Aggression, and Personality Functioning: A Study Among Community-Dwelling Participants and Psychotherapy Participants

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Abstract

Background: Dimensional conceptualization of personality pathology may be useful to describe and understand the nature of different manifestations of personality pathology, including malignant narcissism. Recently, a sound scoring procedure for malignant narcissism (i.e., MNARC index) based on the Personality Inventory for *DSM-5* trait scores was proposed. The present study aimed at providing further evidence of the reliability and validity of the MNARC index in a sample of community-dwelling adults and in a sample of psychotherapy adult participants.

Methods: Community-dwelling participants (*N* = 288; 59.4% female; mean age = 32.69 years), and psychotherapy participants (*N* = 168; 58.3% female; mean age = 34.52 years), were administered the Personality Inventory for DSM-5 and Five Factor Narcissism Inventory-Short Form. Moreover, community-dwelling adults completed the Machiavellianism Inventory-Version IV, Triarchic Psychopathy Measure, and Self-Report of Delinquency Scale; rather, clinical participants were administered the Structured Clinical Interview for *DSM-5* Personality Disorders, Clinician-Administered Nonsuicidal Self-Injury Disorder Index, Columbia Suicide Severity Rating Scale, Aggression Questionnaire, and Structured Clinical Interview for the *DSM-5* Alternative Model for Personality Disorders Module I.

Results: The MNARC index showed adequate reliability in both samples, and MNARC index mean score significantly discriminated clinical participants from non-clinical participants; moreover, according to exploratory graph analysis, the 11 PID-5 scale weighted scores shaped a highly coherent personality profile. In the community sample MNARC index was significantly closer to grandiose narcissism than to vulnerable narcissism, as well as to Machiavellianism and even psychopathy. In multiple regression analysis, MNARC index, showed unique, positive, significant and non-negligible contribution to explaining the variation in all social deviance dimensions. Among psychotherapy participants, exploratory graph analysis findings suggested that MNARC index clustered together with histrionic personality disorder, narcissistic personality disorder, and antisocial personality disorder symptom counts, as well as narcissistic grandiosity. Notably, we observed positive and significant associations between MNARC index, and physical aggression, impairment in personality functioning, and self-harming behaviors, respectively.

Conclusions: Confirming and extending previous data on the MNARC index, our findings supported the reliability and validity of the MNARC index. Our results expanded our empirical knowledge of malignant narcissism, while providing additional support to the possibility to rely on the Personality Inventory for *DSM-5* for assessing constructs grounded in different theoretical perspectives. Although our findings should be considered in the light of several limitations (e.g., non-random nature of our sampling strategy; cross-sectional data), our results may be useful in improving our knowledge of narcissistic features among community and clinical participants.

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1. Introduction

Current research on narcissism builds upon several decades of clinical investigations (e.g., Kernberg, 1975, 2007; Kohut, 1968; Ronningstam, 2005), clinical research (e.g., Miller et al., 2007; Pincus et al., 2009; Russ et al., 2008), and social personality psychology studies (e.g., Paulhus, 1998; Rhodewalt et al., 1998; Wink, 1991). Indeed, narcissism has a long history (see, for reviews, Cain et al., 2008, Miller et al., 2017; Pincus & Lukowitsky, 2010), beginning with H. Ellis (1898) and psychoanalytic theorists (e.g., Freud, 1914) through the development of object relations and self psychological theories (Kernberg, 1967; Kohut, 1968). Narcissism involves significant regulatory deficits and maladaptive strategies to cope with disappointments and threats to a positive self- image (Horowitz, 2009; Kernberg, 2009; Ornstein, 2009; Ronningstam, 2005).

Studies carried out in clinical settings indicate that narcissism is frequently observed and treated by clinicians, particularly by psychotherapists (Clemence et al., 2009; Doidge et al., 2002; Morey & Ochoa, 1989; Ronningstam & Gunderson, 1990; Shedler & Westen, 2007; Westen, 1997; Westen & Arkowitz-Westen, 1998). Moreover, it should be noted that epidemiological studies of narcissistic personality disorder (e.g., Stinson et al., 2008) found lifetime prevalence of 7.7% in male participants and 4.8% among female participants. Interestingly, the growing interest in narcissism is currently associated with different unanswered questions in the literature, including basic issues about the nature of the construct itself (e.g., Cain et al., 2008, Miller et al., 2017; Pincus & Lukowitsky, 2010). Areas of substantial debate include central versus peripheral features of narcissism and descriptions of grandiose and vulnerable dimensions of narcissism, with different hierarchical levels at which the narcissism construct can be examined (e.g., Miller

et al., 2021). Moreover, it should be observed that the reliability and validity of traditional taxonomies are limited by several aspects, including arbitrary boundaries between psychopathology and normality, and heterogeneity within disorders (e.g., Dalgleish et al., 2020; Kotov et al., 2017; Scull, 2021). From this perspective, dimensional models of psychopathology may be helpful in removing the distinctions between proposed psychiatric taxa.

Kernberg's (1984, 1998) conceptualization of pathological narcissism is embedded within his structural model of personality. Specifically, narcissism is characterized by a pathological grandiose self-constructed by combining all the positive and idealized characteristics of the self and others, resulting in an unrealistic self-image (Kernberg, 1984, 1998). Defensive avoidance of the awareness of negative aspects of self and others led people showing high levels of pathological narcissism to present a grandiose self to maintain their inflated but fragile self-esteem (Cain et al., 2008; Kernberg, 1984). Kernberg suggests that pathological narcissism ranges in severity as a function of the level of aggression infused within the personality structure; as aggression increases, narcissistic pathology ranges from narcissistic personality disorder to psychopathy, passing through malignant narcissism (see also Kernberg & Caligor, 2005).

In Kernberg's model (1984, 2007), malignant narcissism is considered as a severe variant of narcissism characterized by elements of grandiosity, cold-heartedness, proneness to paranoia, and, especially, aggression. Despite its foundation in clinical psychology, malignant narcissism remains a relatively understudies line of empirical research (e.g., Faucher et al., 2022). Indeed, until 2018, there was no possibility to assess malignant narcissism using a psychometric measure; to fill this gap, Lenzenweger, Clarkin, Caligor, Cain, and Kernberg (2018) carried out an exploratory study sought to develop a proxy dimensional measure of malignant narcissism using established assessment methods. Interestingly, Lenzenweger et al.'s (2018) results showed that higher levels of malignant narcissism, at least as they were assessed by the proposed malignant narcissism index, were associated with slower rates of improvement in global assessment of functioning in a sample of 57 participants diagnosed with borderline personality disorder and treated using different empirically supported treatments. As nicely noted by Lenzenweger et al. (2018), their findings seemed to provide further empirical evidence that dimensional conceptualization of personality pathology may be useful to better describe and understand the nature of different manifestations of personality disorders, including malignant narcissism.

The alternative model of personality disorders (AMPD) published in Section III of the *Diagnostic and Statistical Manual of Mental Disorders*, fifth edition (*DSM-5*; American Psychiatric Association, 2013) provided clinicians and researchers with an empirically based approach to personality

disorders (PDs) assessment (e.g., Zachar et al., 2016). The AMPD combines dimensional assessments of personality functioning (Criterion A) and dysfunctional personality traits (Criterion B), providing a theoretically and methodologically pluralistic approach to PD assessment. Indeed, practitioners of different orientations and disciplinary background will find many aspects of the AMPD familiar (e.g., Waugh et al., 2017). Notably, the *DSM-5* AMPD allows practitioners to rely on instruments commonly used to assess personality pathology (Waugh et al., 2017), and offers AMPD-specific instruments that are in the public domain (APA, 2013). Among the latter, the Personality Inventory for *DSM-5* (PID-5; Krueger et al., 2012) represents one of the most widely used measure to assess dysfunctional personality traits (i.e., *DSM-5* AMPD Criterion B) (Markon et al., 2024).

The PID-5 could be considered as an evolving assessment instrument, with new scales and scoring methods being constantly developed to allow clinicians to select the optimal use of the PID-5 based on their background and specific assessment needs (see Markon et al., 2024). Recently, Faucher et al., (2022) developed a scoring procedure for malignant narcissism using the PID-5 trait scores. Specifically, a prototype matching approach was used to aggregate ratings from 15 clinicians specialized in the treatment of personality pathology to develop a malignant narcissism index (MNARC index). The MNARC index is obtained computing a weighted sum of the scores of 11 PID-5 traits, reflecting the relative importance of each PID-5 dysfunctional personality trait (Faucher et al., 2022). Although the MNARC index showed promising criterion and incremental validity in a sample of 288 clinical participants, as well as in a community sample of 1,103 participants (Faucher et al., 2022), to the best of our knowledge, no additional study tried to assess the clinical utility of the MNARC index.

Providing further evidence as to the reliability and validity of the MNARC index, especially across different cultural contexts, may expand our empirical knowledge of malignant narcissism, while providing additional support to the possibility to rely on the PID-5 for assessing constructs grounded in different theoretical perspectives. For instance, as suggested by Lenzenweger et al. (2018), it might be potentially fruitful to explore connections between malignant narcissism construct and the dimensions of the *Dark Triad* (Paulhus & Williams, 2002). Indeed, the term *Dark Triad* refers to three socially aversive personalities (i.e., narcissism, Machiavellianism, and psychopathy) that appear to share some commonalities (e.g., a callous, antagonistic core; Vize et al., 2020), while being distinct from one another. From this perspective, in order to explore possible similarities and differences across *Dark Triad* dimensions and malignant narcissism, it could be useful examining the relationships between

antagonistic personalities and social deviance (e.g., DeLisi, 2019). Indeed, to the best of our knowledge, no previous studies examined the associations between malignant narcissism and crime. Despite previous research data documented a positive and significant association between MNARC index and *DSM-5* AMPD Criterion A (Faucher et al., 2022), no previous investigation explored the relationships between malignant narcissism, at least as it is operationalized in the MNARC index, and *DSM-5* Section II PDs. Exploring the association between MNARC index and *DSM-5* Section II PDs may prove useful to empirically test the hypothesis that malignant narcissism represents as a more severe variant of narcissistic PD (e.g., Caligor & Clarkin, 2010; Lenzenweger et al., 2018). Finally, although malignant narcissism was thought to be characterized by experiencing pleasurably self-mutilation behaviors (Kernberg, 1984, 2007; Lenzenweger et al., 2018), to the best of our knowledge, no previous study assessed the relationships between malignant narcissism and self-harming behaviors.

1.1 The present study

Against this background, the present study aimed at assessing the reliability of the MNARC index in a sample of community-dwelling adults, and in a sample of consecutively admitted psychotherapy participants; based on Faucher et al. (2022), we expected to observe adequate reliability for the MNARC index in both samples. Because no previous study examined the dimensionality of the MNARC index, we also aimed at examining the unidimensionality of the MNARC index relying on exploratory graph analysis. Moreover, we were interested in evaluating if the MNARC index showed significantly higher mean scores in the psychotherapy sample as compared to the community sample (Faucher et al., 2022).

In order to explore the associations between MNARC index and *Dark Triad* dimensions, community-dwelling adult participants were administered self-report instruments assessing narcissistic features (i.e., grandiosity and vulnerability), Machiavellianism, and psychopathy. Furthermore, community participants completed a self-report measure of crime to allow examining the risk for social deviance associated with malignant narcissism and *Dark Triad* dimensions. Based on previous investigations (e.g., Lenzenweger et al., 2018), we hypothesized to observe positive associations between MNARC index and grandiose narcissism, Machiavellianism, and psychopathy scores. Moreover, community-dwelling participants were administered a self-report measure of social deviance (Kernberg, 1984, 2007); specifically, we expected to observe moderate and positive associations between MNARC index and crime.

To further assess the validity of MNARC index among clinical participants, we relied on exploratory graph analysis to explore the relationships between *DSM-5* Section II PD symptom counts. Indeed, malignant narcissism was described as a constellation of characteristic intermediate between narcissistic personality disorder and antisocial personality disorder (e.g., Kernberg, 1989). However, to the best of our knowledge, no previous empirical investigation examined this issue. Based on previous investigations, we expected MNARC index to belong to the same dimensions clustering narcissistic PD and antisocial PD; moreover, a positive association with paranoid PD was expected (Kernberg, 1984, 2007, 1989; Lenzenweger et al., 2018).

In line with previous studies (e.g., Faucher et al., 2022), we expected to observe positive associations between MNARC index, and physical aggression and impairment in personality functioning (i.e., AMPD Criterion A), respectively. Finally, to expand available knowledge (e.g., Kernberg, 1984, 2007; Lenzenweger et al., 2018) on malignant narcissism and self-harming behavior, psychotherapy participants were administered interview-based measures of non-suicidal self-injury (NSSI), and suicidal ideation and behaviors. Based on previous empirical investigation on pathological narcissism, we expected to observe positive associations between MNARC index and suicidal ideation and behavior (e.g., Ellison et al., 2013; Lenzenweger et al., 2018; Pincus et al., 2014).

2. Materials and Methods

2.1 Participants

2.1.1 Community-Dwelling Sample

An original sample of 301 community-dwelling adult participants originally agreed to participate in the present study. To be included in the sample, participants had to confirm that they were adults (i.e., age higher than 18 years), that they speak Italian as their first language, and that their education level was higher than elementary school. Thirteen (4.3%) participants were excluded from the final sample because they spent less than 20 minutes completing the measures or did not report complete data on any measure (questionnaires were considered incomplete if more than 10% of the items in any given scale were not answered). Thus, the final sample was composed of 288 participants. One hundred seventy-one (59.4%) participants were female, 117 (40.6%) participants were male; none of the participants reported non-binary gender. Participants' mean age was 32.69 years, *SD* = 11.09 years. Table 1 summarizes the main demographic characteristics of Sample 1 participants.

Table 1. Demographic Characteristics of Sample 1 Community-Dwelling Adult Participants (N = 288).

Demographic characteristics	*N* (%)
Civil Status	
Unmarried	182 (63.2%)
Married	91 (31.6%)
Divorced	9 (3.1%)
Widow/-Er	2 (0.7%)
Refused to Report	4 (1.4%)
Education level	
Junior High School Degree	20 (7.0%)
High School Degree	93 (32.3%)
University Degree	172 (59.7%)
Refused to Report	3 (1.0%)
Job	
Unemployed	17 (5.9%)
Students	96 (33.3%)
Retired	2 (0.7%)
Housekeepers	15 (5.2%)
Active Workers	146 (50.7%)
Refused to Report	12 (4.2%)

2.1.2 Psychotherapy Sample

One hundred and sixty-eighty Italian adult participants, who were consecutively admitted to the Clinical Psychology and Psychotherapy Unit of a large Hospital in Northern Italy, agreed to participate in the present study. All participants were voluntarily admitted to the Unit in order to receive psychological treatment for interpersonal difficulties and/or problems with behavior and emotional regulation. To be included in the sample, the following inclusionary criteria were considered: (a) speak Italian as their first language; (b) age higher than 18 years; (c) IQ higher than 80; (d) education level higher than elementary school; (e) no diagnosis of neurocognitive disorders according to *DSM-5* diagnostic criteria; and (f) no diagnosis of schizophrenia spectrum and other psychotic disorders according to *DSM-5* diagnostic criteria. All potential participants met inclusion criteria and were included in the final sample (N = 168). Ninety-eight (58.3%) participants were female and 70 (41.7%) were male (none of the participants reported non-binary gender); participants' mean age was 34.52 years, SD = 13.53 years. The main demographic characteristics of Sample 2 participants are summarized in Table 2.

Table 2. Demographic Characteristics of Sample 2 Psychotherapy Adult Participants (N = 168).

Demographic characteristics	*N* (%)
Civil Status	
Unmarried	121 (72.0%)
Married	28 (16.7%)
Divorced	12 (7.1%)
Widow/-Er	1 (0.6%)
Refused to Report	6 (3.6%)
Education level	
Junior High School Degree	18 (10.7%)
High School Degree	97 (57.7%)
University Degree	49 (29.2%)
Refused to Report	4 (2.4%)
Job	
Unemployed	26 (15.5%)
Students	31 (18.4%)
Retired	5 (3.0%)
Housekeepers	4 (2.4%)
Active Workers	95 (56.5%)
Refused to Report	7 (4.2%)

Eighty-seven (51.8%%) participants received at least one *DSM-5* PD diagnosis according to SCID-5-PD; an identical rate of PD diagnoses was observed using SCID-5-AMPD; however, the agreement between the two *DSM-5* PD diagnostic systems (i.e., Section II and Section III) was at best fair, Cohen's $\kappa = .56$, $p < .001$. In this sample, 32 (37.2%) participants who met at least one PD diagnosis according to SCID-5-PD met criteria for two or more PD diagnoses. Borderline PD ($n = 34$, 20.2%), Avoidant PD ($n = 22$, 13.1%), Narcissistic PD ($n = 18$, 10.7%), and Paranoid PD, Obsessive-Compulsive PD, and Dependent PD ($n = 13$, 7.7%) were the most frequently diagnosed *DSM-5* Section II PDs.

2.1.3 Procedures

A priori power analysis was conducted using G*Power version 3.1 (Faul et al., 2007) for sample size estimation. Because we were interested in detecting even small, but theoretically meaningful (e.g., Faucher et al., 2022; Lenzenweger et al., 2018), associations between MNARC index and external variables, with a significance criterion of $a = .05$ and power = .80, the minimum sample size needed with a small-to-medium effect size (Pearson r value = .30) was equal to 84. Thus,

our final sample sizes (N = 288 and N = 168) were adequate to test the study hypotheses. Our study was not preregistered.

Community-dwelling adult participants agreed to participate in the study after responding to on-line advertisements asking for volunteers for a study on personality. Ethical Committee approval was obtained for all aspects of this study, which was conducted adhering to the American Psychology Association ethical norms. All participants had to confirm that they were of adult age (i.e., >18 years old), and gave their written consent to participate in the study. The measures were administered in random order and scored anonymously. All participants were administered the Italian translations of the instruments; the questionnaires were translated by clinical psychologists fluent in English and controlled via back translated versions by an English mother-tongue professional translator. None of the participants was paid either directly or indirectly in order to participate in the study.

Psychotherapy adult participants volunteered to take part in the study after being presented with a detailed description and all were treated in accordance with the Ethical Principles of Psychologists and Code of Conduct. Ethical Committee approval was obtained. Participants were asked to sign a written informed consent form to take part in the study. Participants received the measures in their official Italian translations (e.g., Fossati et al., 2013). All measures were administered as part of routine clinical assessment; none of the participants received any direct or indirect incentive for participating. Participants with non-PD psychiatric disorder diagnoses were administered the measures 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 (Zimmerman, 1994). Participants were administered the interviews and the self-report measure at 48-72 hours intervals. In the present study, the inter-rater reliability of the interviews was assessed. Twelve independent raters were included in the present study; specifically, interviewers were licensed clinical psychologists with 1-3 years of experience in PD assessment who received a specific training for each interview. For each interview, raters were independently randomized to each interview, and they were randomly assigned the role of interviewer and observer; each clinical psychologist acted the same number of times in each role.

2.2 Measures

Personality Inventory for DSM-5 (PID-5; Krueger et al., 2012) and Malignant Narcissism Index (MNARC; Faucher et al., 2022). The PID-5 is a 220-item questionnaire with a 4-point response scale, which

was explicitly designed to measure the *DSM-5* AMPD dysfunctional personality traits. Each PID-5 item is scored on only one PID-5 trait scale, and PID-5 items are summed to compose PID-5 trait scale. The adequacy of the psychometric properties of the PID-5 has been extensively supported across different context and age range (e.g., Al-Dajani et al., 2016; Markon et al., 2024), including Italian participants (e.g., Fossati et al., 2013). For the purposes of the present study, the MNARC index was computed and considered (Faucher et al., 2022). Cronbach's α values for the 11 PID-5 trait scales composing the MNARC index were adequate, both in the community-dwelling participant sample (*Mdn* = .83, *SD* = .05, min. = .73 [PID-5 Manipulativeness and Suspiciousness], max. = .87 [PID-5 Callousness], and in the psychotherapy participant sample (*Mdn* = .88, *SD* = .04, min. = .80 [PID-5 Irresponsibility and Restricted Affectivity], max. = .91 [PID-5 Attention Seeking and Impulsivity]).

Five Factor Narcissism Inventory-Short Form (FFNI-SF; Sherman et al., 2015). The FFNI-SF is a 60-item, self-report measure of vulnerable narcissism (i.e., the sum of Cynicism/distrust, Need for Admiration, Reactive Anger, and Shame first-order scales), and grandiose narcissism (i.e., the sum of the Acclaim-Seeking, Arrogance, Authoritativeness, Entitlement, Exhibitionism, Exploitativeness, Grandiose Fantasies, Indifference, Lack of Empathy, Manipulativeness, and Thrill-Seeking). The FFNI-SF scales showed good internal consistency, factor validity, and construct validity also in its Italian translation (Fossati et al., 2018). In the present study, Cronbach's α values were .92 and .77 for Grandiose Narcissism and Vulnerable Narcissism, respectively, in community-dwelling adults; among clinical participants, Cronbach's α values were .93 and .88 for Grandiose Narcissism and Vulnerable Narcissism, respectively.

2.2.1 Community-Dwelling Adults Measures

Machiavellianism Inventory-Version IV (MACH-IV; Christie & Geis, 1970). The MACH-IV is a 20-item, Likert-type, self-report scale that measures attitudes and behaviors associated with the Machiavellian personality construct. Each MACH-IV item is measured on a five-point ordinal scale, ranging from 1 (*Strongly disagree*) to 5 (*Strongly agree*). The MACH-IV yields a total score indexing the overall Machavellianism level; the higher the MACH-IV total score, the higher the subject's intensity of Machiavellianism. The Italian translation of the MACH-IV has been used in previous studies (e.g., Somma et al., 2020b). In our community-dwelling sample, Cronbach's α value for the MACH-IV total score was .78.

Triarchic Pyschopathy Measure (TriPM; Patrick, 2010). The TriPM is a 58-item self-report inventory that map the three phenotypic components specified by the triarchic model of psychopathy

(Patrick et al., 2009), namely boldness, meanness, and disinhibition. Participants respond to each item on a 4-point Likert scale (3 = *true*, 2 = *mostly true*, 1= *mostly false*, 0 = *false*). TriPM scores are summed to yield an overall Triarchic psychopathy score. Published research provides support for the validity of the TriPM as a measure of psychopathic features (e.g. Drislane et al., 2014); research also provides support for the validity of the Italian translation of the TriPM as a measure of psychopathic features in adult community participants (Sica et al., 2015). In our community-dwelling sample, Cronbach's α value for the TriPM total score was .91.

Self-Report of Delinquency Scale (SRDS; Elliott & Ageton, 1980). The SRDS assesses the participant's self-report of 40 illegal juvenile acts developed from a list of all offences listed in the Uniform Crime Report with juvenile base rates of greater than 1% (Elliott & Huizinga, 1984). Each SRDS item is answered on a 6-point ordinal scale. The SRDS measures a variety of delinquent behaviors, and yields scores for Theft, Drug/Sex, and Weapon illegal acts, and was previously used in its Italian translation (e.g., Somma et al., 2018). Consistent with previous use of the scale (Krueger et al., 1994), a composite measure was also created by summing the scores of all SRDS items. In the present study, Cronbach's α value for the Theft (.90), Drug/Sex (.83), Weapon (.81), and Total score (.93) were adequate.

2.2.2 Psychotherapy Sample Measures

Structured Clinical Interview for DSM-5 Personality Disorders (SCID-5-PD; First et al., 2016). The SCID-5-PD is a 119-item semi-structured interview designed to assess the 10 *DSM-5* personality disorders (PDs) included in Clusters A, B, and C. In the present study, the SCID-5- PD was preceded by the administration of its self-report screening questionnaire (SCID-5-SPQ). The SCID-5-PD interview enables direct probing of negative SCID-5-SPQ answers when this is considered clinically relevant for assessing the 10 *DSM-5* PDs. For the purposes of the present study, in line with previous investigations (e.g., Selby et al., 2012) we relied on SCID-5-PD symptom count scores (i.e., number of criteria met) for each PD. Previous studies (e.g., Somma et al., 2017) showed that the Italian translation of the SCID-5-PD was provided with adequate reliability.

In the present study, the intraclass correlation coefficient (ICC) for absolute rater agreement based on random-effect, one-way ANOVA for the individual SCID-5-PD symptom count scores ranged from .84 (Schizotypal PD and Schizoid PD) to 1.00 (Antisocial PD), median ICC value = .91, *SD* = .06, all *p*s <.001. The chance-corrected agreement (i.e., Cohen $\varkappa$ coefficient

value) for any PD diagnosis was .94, p <.001, whereas a Cohen $\varkappa$ value of .99, p <.001 was observed for SCID-5-PD With Other Specification PD diagnosis.

Clinician-Administered Nonsuicidal Self-Injury Disorder Index (CANDI; Gratz et al., 2015). The CANDI is a structured diagnostic interview for assessing *DSM-5* nonsuicidal self-injury disorder criteria. The CANDI allows to obtain a global severity rating score assessed using 5-point Likert-type scale ranging from *0 = no clinically significant symptoms, no distress and no functional interference* to *4 = extreme, marked distress or marked interference in two or more major areas of functioning*. The CANDI showed good inter-rater reliability and validity (Gratz et al., 2015), also in its Italian translation (Somma et al., 2024). The simple Cohen $\varkappa$ coefficient value for the CANDI Nonsuicidal Self-Injury Global Severity Index was .82, p <.001.

Columbia Suicide Severity Rating Scale (*C-SSRS;* Posner et al., 2011). The C-SSRS is a semi-structured interview that measures suicide ideation and behavior; specifically, it allows to obtain a Suicidal Ideation score, as well as a Suicide Behavior scale. The Suicidal Ideation score is measured on a 6 points Likert scale (from *0 = no ideation is present* to *5 = suicide intent with a plan*), and it assesses the severity of the suicidal ideation, whereas the Suicide Behavior scale measures the suicidal behavior on a 6 points Likert scale (from *0 = no behavior is present* to *5 = Completed Suicide*). The C-SSRS was translated in more than 140 country-specific languages, including Italian (https://cssrs.columbia.edu/the-columbia-scale-c-ssrs/translations/).

The C-SSRS showed its reliability, validity, and clinical usefulness (e.g., Posner et al., 2011), also among Italian participants (Castaldo et al., 2020). The simple Cohen $\varkappa$ coefficient values for the for the Suicidal Ideation score and Suicide Behavior score were 1.00 (p <.001) and 1.00 (p <.001), respectively.

Aggression Questionnaire (*AQ*; Buss & Perry, 1992). The prepublication version of the AQ is a 29 item, Likert type, self-report questionnaire that was specifically developed to assess different aspects of aggressive behavior; for the purposes of the present study, we considered the AQ Physical Aggression scale. The AQ showed adequate reliability and construct validity (e.g., Buss & Perry, 1992), also in its Italian translation (Fossati et al., 2003). In the present study, Cronbach's α value for the Physical Aggression scale was .88.

Structured Clinical Interview for the DSM-5 Alternative Model for Personality Disorders Module I (SCID-5-AMPD; Bender et al., 2018). The SCID-5-AMPD Module I is a semi-structured diagnostic interview to guide the assessment of the severity of impairment in personality functioning according to the Level of Personality Functioning Scale. SCID-5-AMPD Module I assessment

allows for a comprehensive evaluation of the individual's impairment in personality functioning. In the present study, we relied on the Italian translation of the SCID-5-AMPD, which was used in previous studies on the inter-rater reliability and validity of the SCID-5-AMPD (Somma et al., 2020a). In the present study, the ICC value for the Overall Level of Personality Functioning was .96, p <.001; the ICC values for the Identity, Self-direction, Empathy, and Intimacy were .94, .94, .94, and .95, respectively, all ps <.001.

2.3 Data analysis

Cronbach's α coefficient was used to evaluate the internal consistency reliability of the measures; Mosier's (1943) weighted composite index α was relied upon to assess MNARC index reliability. Exploratory graph analysis (EGA; Golino & Epskamp, 2017) was used to explore the dimensionality of the MNARC index. EGA is a method for dimensionality assessment which allows to obtain network plot as a visual guide to identify the number of dimensions to retain. Specifically, EGA combines the Gaussian graphical model (Lauritzen, 1996) model with a clustering algorithm for weighted networks (Walktrap; Pons & Latapy, 2006) to assess the dimensionality of the items in psychological constructs (Golino et al., 2020). In EGA models, nodes (i.e., circles) represent variables and edges (i.e., lines) represent associations between the nodes. EGA with triangulated maximally filtered graph (TMFG; Massara et al., 2016) was the best performing estimation method for unidimensional structures in Monte Carlo simulation studies (Golino et al., 2020). The associations between continuous measures were tested using the Pearson r coefficient with Bonferroni-corrected nominal p-level; Steiger's (1980) z test was used to assess the significance of the difference between overlapping correlations. Spearman r coefficient was used as a correlation coefficient for ordinal variables. Multiple regression analyses were performed in order to evaluate multivariate models in which the MNARC, FFNI-SF narcissistic grandiosity and narcissistic vulnerability, MACH-IV total score, and TriPM total scores were predictors of the SRDS scale and total scores, respectively. The Variance Inflation Factor (VIF) was computed to assess collinearity; VIF values greater than 10 were considered indicative of collinearity problems (Cohen et al., 2003). R^2 and adjusted R^2 values were used as effect size measures.

EGA was used to investigate the relationships between MNARC, FFNI-SF NG and NV scales, and *DSM-5* Section II PD symptom counts. We relied on the Loadings Comparison Test (LCT; Christensen & Golino, 2021) to evaluate if our data were generated from a network or a factor model (i.e., the data generating model); LCT with 1,000 replicated samples was performed; if

LCT findings supported the hypothesis of a network architecture of the data, we relied on EGA. Because the TMFG showed significant limitations with multidimensional structures that were composed of many variables per dimension, and with highly correlated dimensions, graphical least absolute shrinkage and selection operator (GLASSO; Friedman et al., 2008) was considered as an alternative estimator for EGA models (Golino et al., 2020). In line with the results of Golino et al.' (2020) simulation study, we relied on Von Neumman Total Entropy (TEFI.vn) to compare the results of EGA_{GLASSO} and EGA_{TMFG}; specifically, we selected the model with the lowest TEFI.vn (Golino et al., 2021). Moreover, to estimate the stability of dimensions identified by EGA, we relied on Bootstrap Exploratory Graph Analysis (bootEGA; Christensen & Golino, 2021), which allows to evaluate the stability of EGA results across bootstrapped EGA results. In the present study, we relied on the non-parametric bootEGA procedure that is implemented by resampling with a replacement from the empirical dataset (k = 1,000). Finally, based on non-parametric bootEGA procedure, we computed the number of times each variable is estimated in the same dimension as originally estimated by EGA.

All statistical analyses were performed using SPSS 29 software. EGA analyses were performed using 'EGAnet' *R* (R Core Team, 2023) package (Golino & Christensen, 2022); Steiger's (1980) z test were performed using 'cocor' *R* package (Diedenhofen & Musch, 2015).

3. Results

3.1 Samples Comparison

Community-dwelling participants did not differ significantly from psychotherapy participants on gender, $\chi^2(1) = 0.05$, $p > .80$, $\varphi = 0.01$, and age, $t(454) = 1.56$, $p > .10$, $d = 0.15$. However, educational level ($\chi^2[2] = 38.86$, $p < .001$, Cramer's V = 0.29), civil status ($\chi^2[3] = 14.08$, $p < .01$, Cramer's $V = 0.18$), and profession ($\chi^2[4] = 25.07$, $p < .001$, Cramer's $V = 0.24$), significantly differentiated the two samples.

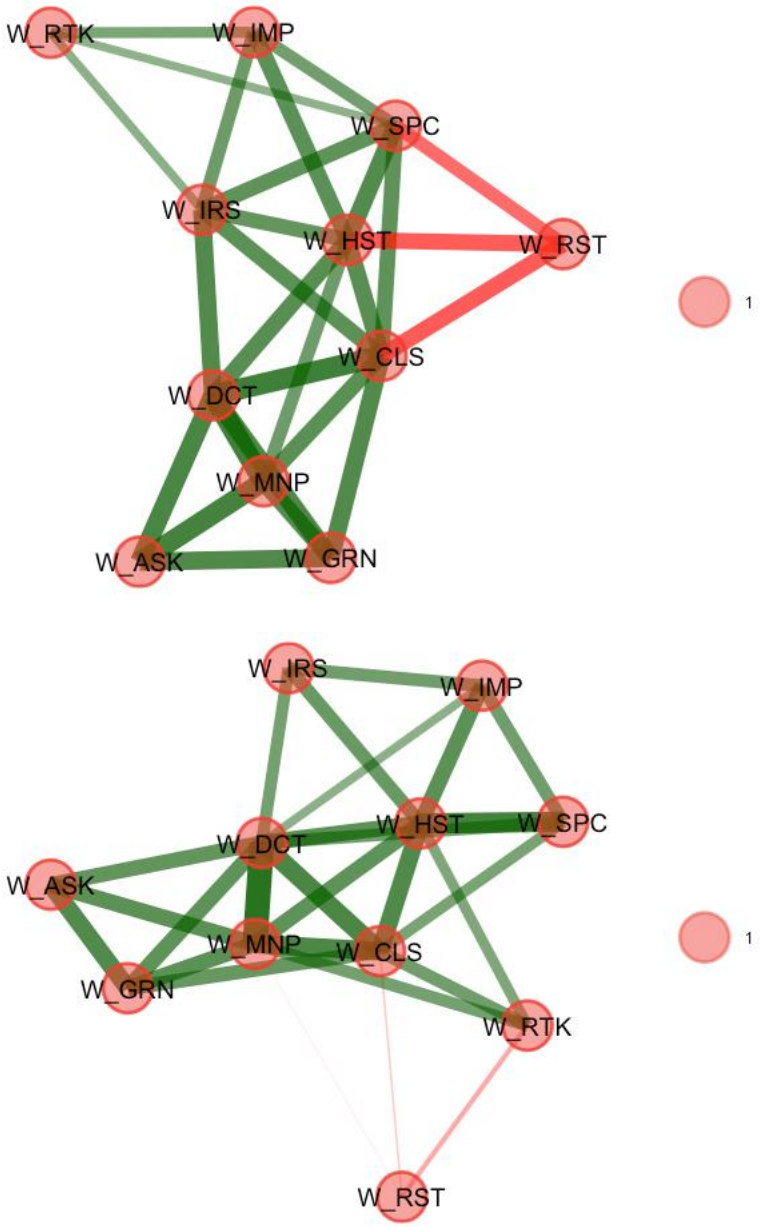
3.2 MNARC Index Measurement Properties in Community-Dwelling Participants and Psychotherapy Participants

The Moiser's (1943) α coefficient for the MNARC index was .95 (mean PID-5 weighed scale correlation = .30), and .97 (mean PID-5 weighed scale correlation = .32), in the community-dwelling adult participants and psychotherapy participants samples, respectively.

Figure 1 displays the EGA of the PID-5 trait scale weighted scores included in the MNARC index in the community-dwelling sample (upper panel), and in the psychotherapy sample (lower

panel). As it can be observed in Figure 1, EGATMFG suggested unidimensional structure for the PID-5 scales included in the MNARC index in both community-dwelling adults and psychotherapy adults.

Figure 1. Exploratory Graph Analysis of the PID-5 Trait Scale Weighted Scores included in the MNAR Index in the Community-Dwelling Sample (upper panel), and in the Psychotherapy Sample (lower panel).



Note. W_GRN: Weighted Grandiosity; W_CLS: Weighted Callousness; W_MNP: Weighted Manipulativeness; W_HST: Weighted Hostility; W_SPC: Weighted Suspiciousness; W_DCT: Weighted Deceitfulness; W_IRS: Weighted Irresponsibility; W_RTK: Weighted Risk Taking; W_RST: Weighted Restricted Affectivity; W_IMP: Weighted Impulsivity; W_ASK: Weighted Attention Seeking.

3.3 Associations Between MNARC Index and Dark Triad Dimensions, Vulnerable Narcissism, and Deviance in Community-Dwelling Participants

Descriptive statistics and bivariate associations (i.e., Pearson *r* coefficient) for MNARC Index, FFNI-SF GN and VN scales, MACH-IV total score, and TriPM total score are summarized in Table 1. As shown in Table 3, the MNARC index yielded significant, positive, and substantial associations with measures of Dark Triad dimensions, namely FFNI-SF NG, MACH-IV, and TriPM total scores.

Table 3. Malignant Narcissism Index, Five-Factor Narcissism Inventory-Short Form Grandiose Narcissism and Vulnerable Narcissism Scales, MACH-IV Total Score, and Triarchic Psychopathy Measure Total Score: Descriptive Statistics and Bivariate Associations (i.e., Pearson *r* Coefficient), in Community-Dwelling Adults (*N* = 288).

	M	*DS*	*1*	*2*	*3*	*4*	*5*
1. MNARC Index	25.74	9.64	--				
2. FFNI-SF GN	98.73	23.60	.66*	--			
3. FFNI-SF VN	46.19	9.45	.45*	.33*	--		
4. MACH-IV Total Score	2.69	0.47	.54*	.50*	.40*	--	
5. TriPM Total Score	42.27	14.09	.54*	.59*	.07	.37*	--

Note. MNARC Index: Malignant Narcissism Index; FFNI-SF; Five-Factor Narcissism Inventory-Short Form GN; Grandiose Narcissism; VN: Vulnerable Narcissism; TriPM: Triarchic Psychopathy Measure. The nominal significance level (i.e., p <.05) was corrected according to Bonferroni procedure and set at p <.005.

Although the MNARC index showed a positive and significant correlation with FFNI-SF NV scale, it was significantly lower than the correlation between MNARC index and FFNI-SF NG scale, Steiger's (1980) z = 4.05, p < .001. Rather, the correlation between MNARC index and FFNI NV scale score was not significantly different from the correlations between MNARC index and MACH-IV total score, Steiger's (1980) z = 1.68, p > .05, and between the MNARC index and the TriPM total score, Steiger's (1980) z = 1.39, p > .15. Interestingly, the correlation between the MNARC index with FFNI-SF NG scale was significantly larger than the correlation of MNARC index with MACH-IV total score, Steiger's (1980) z = 2.75, p < .01, and TriPM total score, Steiger's (1980) z = 2.99, p < .01, respectively. It should be observed that the PID-5 Antagonism score (i.e., the mean of PID-5 Manipulativeness, Deceitfulness, Grandiosity scale

scores; M = 0.61, SD = 0.47, Cronbach's α = .90) correlated .65, .29, .50, and 50 with FFNI-SF NG, FFNI-SF NV, MACH-IV total score and TriPM total scores, all p<.001.

Table 4. Malignant Narcissism Index Scores, Five-Factor Narcissism Inventory-Short Form Grandiose Narcissism and Vulnerable Narcissism Scores, MACH-IV Total Score, and Triarchic Psychopathy Measure Total Scores as Predictors of the Self-Reported Delinquency Scale Scores in Community-Dwelling Adults: Multiple Regression Analysis Results (N = 288).

Independent Variables	SRDS		Theft		Drug/Sex		Weapon		
	β	r	β	r	β	r	β	r	VIF
Malignant Narcissism Index	.38***	**.48**	.33***	**.46**	.33***	**.33**	.38***	**.43**	2.29
FFNI-SF Grandiose Narcissism	.03	**.38**	.10	**.39**	.00	**.24**	-.16*	**.27**	2.16
FFNI-SF Vulnerable Narcissism	-.09	.13	-.08	.14	-.19**	-.01	-.03	.12	1.43
MACH-IV Total Score	.08	**.32**	.08	**.31**	.06	**.19**	.04	**.26**	1.56
Triarchic Psychopathy Measure Total Score	.17*	**.41**	.12	**.38**	.09	**.28**	.28***	**.41**	1.77
R^2/R^2 corretto	.27***	.26***	.25***	.23***	.15***	.13***	.24***	.23***	
f^2/f^2 corretto	.36	.35	.33	.30	.18	.15	.32	.30	
M	52.22		32.65		7.54		12.05		
DS	15.00		10.64		2.56		3.48		

Note. FFNI-SF: Five-Factor Narcissism Inventory-Short Form; SRDS: Self-Report Delinquency Scale Total Score; VIF: Variance Inflation Factor. Within each column, the nominal significance level (i.e., p <.05) was corrected according to Bonferroni procedure and set at p <.01; bold highlights Bonferroni-corrected significant Pearson r values.

* p <.05

** p <.01

*** p <.001

Table 4 summarizes the bivariate correlation and multiple regression analysis results of MNARC index, FFNI-SF NG, FFNI-SF NV, MACH-IV total score and TriPM total scores as predictors of the SRDS total score, as well as of the SRDS first-order scale scores in community-dwelling adults. With the exception of vulnerable narcissism, at least as it was operationalized in the FFNI-SF NV scale, bivariate correlations (i.e., Pearson r values) showed significant, positive and moderate-to-large associations between self-reports of social deviance dimensions and self-reports of malignant narcissism, grandiose narcissism, Machiavellianism, and psychopathy. Multiple regression analyses clarified further our bivariate association findings. Indeed, according to Cohen's f^2 values (Cohen, 1988) our set of antagonist personalities explained a

large amount of variance in the SRDS total score; the Cohen f^2 values suggested moderate (SRDS Drug/Sex scale) or moderate-to-large (SRDS Property and Weapons scales) effect sizes of the MNARC index, FFNI-SF NG, FFNI-SF NV, MACH-IV total score and TriPM total scores on the SRDS first-order scales.

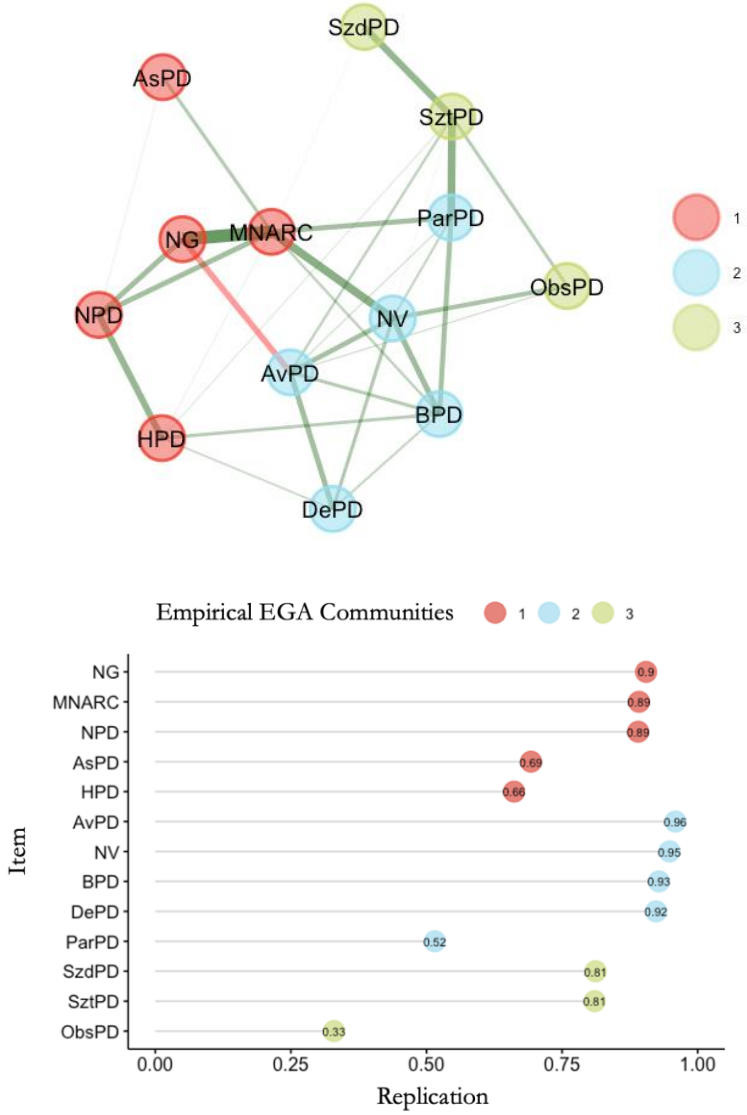
3.4 MNARC Index, Narcissistic Grandiosity, and Narcissistic Vulnerability among Clinical Participants: Descriptive Statistics and Sample Comparisons

On average, psychotherapy adult participants (M = 29.15, SD = 11.59) scored higher than community-dwelling participants (see Table 1) on MNARC index, $t(454) = 3.38$, $p<.001$, $d = 0.33$, and FFNI-SF NV scale (M = 55.48, SD = 11.75), $t(454) = 9.24$, $p<.001$, $d = 0.90$; rather, no significant difference was observed for FFNI-SF NG scale (M = 99.98, SD = 25.72), $t(454) = 0.53$, $p>.50$, $d = 0.05$.

3.5 Associations between MNARC Index, and Narcissistic Grandiosity, Narcissistic Vulnerability, and DSM-5Section II PDs among Clinical Participants

In the present study, we relied on EGA approach evaluate the net of relationships among MNARC index and FFNI-SF NG and NV scales, and SCID-5-PD symptom count scores in our psychotherapy sample. Indeed, the LCT, suggested that it was appropriate to rely on a network model (i.e., EGA) to explore the structure of these variables, proportion of network model = 0.562. When the TEFI.vn index was used to compare different dimensionality structures between GLASSO and TMFG EGA methods (Golino et al., 2021), the structure estimated via EGA_{GLASSO} suggested to retain three dimensions and presented a TEFI.vn value of -8.61. Rather, the value of the TEFI.vn obtained with EGA_{TMFG} was higher (-7.14) and suggested to retain two dimensions. According to bootstrap EGA_{GLASSO} results, 3 dimensions were highly stable, median across the replica = 3, SE = 0.69. The distribution of the proportion of times that a certain number of dimensions was replicated, confirms that 3 dimensions were the most stable dimensional organization of the data, being replicated 600 times (2 dimensions were replicated 187 times, 4 dimensions were replicated 185 times, and 5 dimensions were replicated 28 times). According to TEFI.vn indices and bootstrap EGA results, EGA_{GLASSO} three-dimension model was retained as best fitting model. Figure 2 represents the EGA_{GLASSO} network (upper panel), and the number of times each variable was replicated within the empirical EGA defined dimension (lower panel).

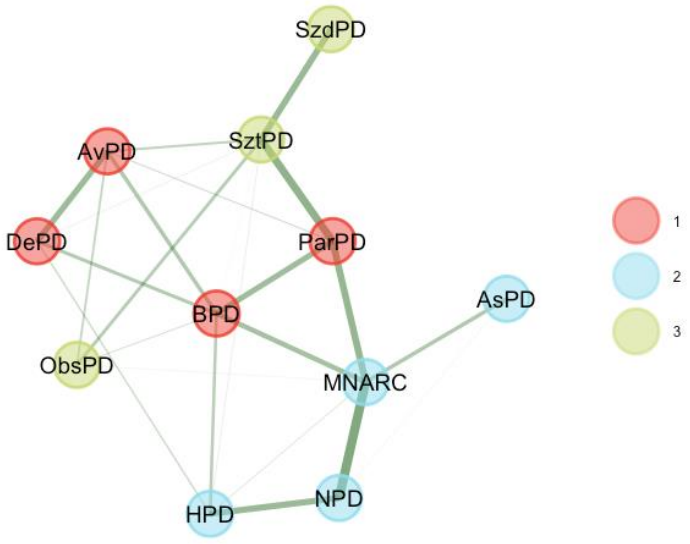
Figure 2. Exploratory Graph Analysis of the Malignant Narcissism Index, Five-Factor Narcissism Inventory-Short Form Narcissistic Grandiosity and Narcissistic Vulnerability, and Structured Clinical Interview for DSM-5 Personality Disorders Symptom Count Scores (upper panel), and number of times each variable was replicated within the empirical Exploratory Graph Analysis defined dimension (lower panel) in the Psychotherapy Sample (*N* = 168).

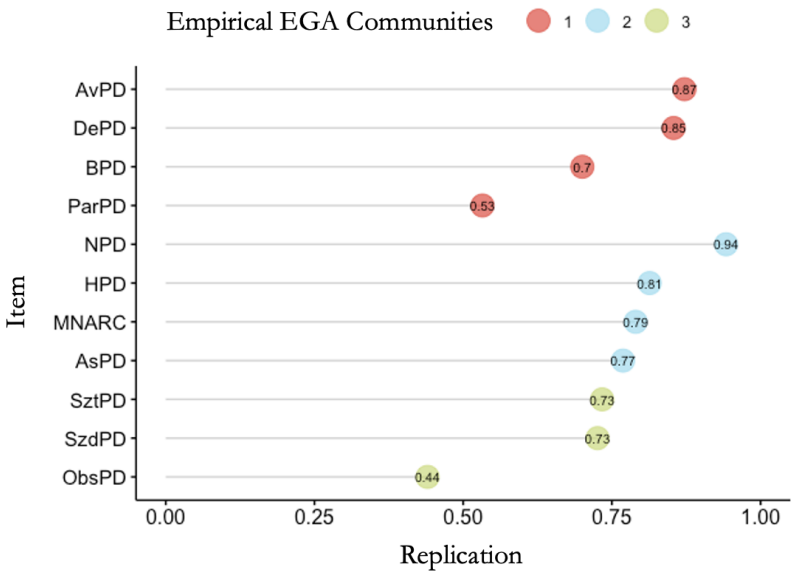


Note. MNARC: Malignant narcissism index; NG: Five-Factor Narcissism Inventory-Short Form Narcissistic Grandiosity Scale; NV: Five-Factor Narcissism Inventory-Short Form narcissistic vulnerability scale; AvPD: Avoidant personality disorder (PD) symptom count score; DePD: Dependent PD symptom count score; ObsPD: Obsessive-Compulsive PD symptom count score; AsPD: Antisocial PD symptom count score; BPD: Borderline PD symptom count score; HPD: Histrionic PD symptom count score; NPD: Narcissistic PD symptom count score; SzdPD: Schizoid PD symptom count score; SztPD: Schizotypal PD symptom count score; ObsPD: Obsessive-Compulsive PD symptom count score.

In order to provide further evidence of the relationships MNARC index and SCID-5-PD symptom count scores, we re-run EGA analysis excluding FFNI-SF NG and NV scales. The structure estimated via $EGA_{GLASSO,}$ suggested to retain three dimensions and presented a TEFI.vn value of -6.31. Rather, the value of the TEFI.vn obtained with EGA_{TMFG} was higher (-5.52) and suggested to retain two dimensions. According to bootstrap EGA_{GLASSO} results, 3 dimensions were highly stable, median across the replica = 3, *SE* = 0.67. The distribution of the proportion of times that a certain number of dimensions was replicated, confirms that 3 dimensions were the most stable dimensional organization of the data, being replicated 534 times (2 dimensions were replicated 326 times, 4 dimensions were replicated 136 times, and 5 dimensions were replicated 4 times). According to TEFI.vn indices and bootstrap EGA results, EGA_{GLASSO} three-dimension model was retained as best fitting model. Figure 3 represents the EGA_{GLASSO} network (upper panel), and the number of times each variable was replicated within the empirical EGA defined dimension (lower panel). As it can be observed in Table 3, MNARC index was included in the dimension clustering Antisocial PD, Histrionic PD, and Narcissistic PD; indeed, the three estimated EGA dimensions clustered the same SCID-5-PD symptom count scores included in the EGA model that included FFNI-SF NG and NV scale scores.

Figure 3. Exploratory Graph Analysis of the Malignant Narcissism Index and Structured Clinical Interview for DSM-5 Personality Disorders Symptom Count Scores (upper panel), and Number of Times Each Variable was Replicated within the Empirical Exploratory Graph Analysis Defined Dimension (lower panel) in the Psychotherapy Sample (N = 168).





Note. MNARC: Malignant narcissism index; NG: Five-Factor Narcissism Inventory-Short Form Narcissistic Grandiosity Scale; NV: Five-Factor Narcissism Inventory-Short Form narcissistic vulnerability scale; AvPD: Avoidant personality disorder (PD) symptom count score; DePD: Dependent PD symptom count score; ObsPD: Obsessive-Compulsive PD symptom count score; AsPD: Antisocial PD symptom count score; BPD: Borderline PD symptom count score; HPD: Histrionic PD symptom count score; NPD: Narcissistic PD symptom count score; SzdPD: Schizoid PD symptom count score; SztPD: Schizotypal PD symptom count score; ObsPD: Obsessive-Compulsive PD symptom count score.

3.6 Relationships between MNARC Index, and Physical Aggression, Self-Threatening Behaviors, and Impairment in Personality Functioning Dimensions among Clinical Participants

In the present study, Pearson *r* value suggested a positive, strong, and significant association between MNARC index and AQ Physical Aggression scale (M = 19.39, SD = 8.18), r =.70, p <.001.

In our clinical sample, the CANDI Global Severity Index (M = 0.34, Mdn = 0.00, SD = 0.82) was significantly and non-trivially associated with C-SSRS Suicidal Ideation frequency index (M = 2.49, Mdn = 3.00, SD = 1.93), Spearman r = .44, p <.001, and Suicidal Behavior frequency index (M = 1.43, Mdn = 0.00, SD = 1.71), Spearman r = .46, p <.001. Of course, the C-SSRS Suicidal Ideation frequency index was significantly and substantially associated with the C-SSRS Suicidal Behavior frequency index, Spearman r = .80, p <.001.

After controlling the nominal significance level (i.e., p <.05) according to the Bonferroni procedure and setting it at p <.0167, significant Spearman r values were observed for the

relationships between MNARC index, and CANDI global severity scores, r_S = .18, p <.0167, C-SSRS Suicidal Ideation frequency index, r_S = .29, p <.0167, and C-SSRS Suicidal Behavior frequency index, r_S = .27, p <.0167. When the frequency of suicidal ideation and suicidal behavior based on the C-SSRS interview was held constant, no significant association was observed between the MNARC index and NSSI severity (i.e., CANDI Global Severity score), partial Spearman r = .06, p >.30. Rather, when the CANDI Global Severity score was held constant in partial Spearman r analyses, the MNARC index remained significantly associated with both C-SSRS Suicidal Ideation frequency index, r_S = .25, p <.0167, and C-SSRS Suicidal Behavior frequency index, r_S = .21, p <.0167.

When the nominal significance level (i.e., p <.05) was corrected according to the Bonferroni procedure and set at p <.0125, the MNARC index yielded significant correlations (i.e., Pearson r coefficient values) with SCID-5-AMPD Module I ratings of Identity (M = 2.16, SD = 0.89), r = .42, p <.001, Self-Direction (M = 1.97, SD = 0.92), r = .37, p <.001, Empathy, (M = 1.80, SD = 0.91), r = .43, p <.001, and Intimacy (M = 2.12, SD = 0.88), r = .43, p <.001, *DSM-5* AMPD Criterion A domains. Of course, the four SCID-5-AMPD Module I domain scale scores were substantially and significantly inter-correlated, median r value = .75, SD = .04, min. r value = .68 (Self-Direction and Intimacy), max. r value = .78 (Empathy and Intimacy), all ps <.001.

4. Discussion

As a whole, the results of the present study suggested the possibility to assess malignant narcissism relying on the MNARC index, both in community-dwelling participants and in psychotherapy subjects. These findings suggested that the AMPD, in general, and the PID-5 administration, in particular, could allow also for a reliable and theoretically meaningful assessment of malignant narcissism. More in general, these results provide further support to previous research data suggesting that the AMPD allows for a theoretically pluralistic approach to PD assessment (see, also, Borroni et al., 2022, 2024; Gandino et al., 2018; Naumova & Naumov, 2022).

4.1 MNARC Index Reliability

In terms of reliability, the values of the Moiser's (1943) α coefficient suggested that malignant narcissism can be reliably assessed in both community and clinical adult samples, at least as it was operationalized in the MNARC index (Faucher et al., 2022). To the best of our knowledge, the present study represents the first attempt at assessing the dimensionality of the MNARC index relying on a dimensionality method based on network psychometrics (i.e., EGA). Notably,

EGA_{TMFG} results suggested that the 11 PID-5 scale weighted scores (i.e., EGA nodes) seemed to shape highly coherent personality profile, purportedly assessing malignant narcissism, paving the way to rely on this index for further analysis.

After partialling out the relationships among the PID-5 scales that were included in the MNARC index, the PID-5 Restricted affectivity weighted dimension seemed to provide a somewhat marginal contribution with possible negative relationships with other variables in the model across both samples. In line with Faucher et al.'s (2022) considerations, in our study, PID-5 Restricted affectivity weighted scores yielded direct negative association with PID-5 Callousness, Suspiciousness and Hostility weighted scores among community participants, and with PID-5 Risk taking weighted scores among clinical adults. Future studies should evaluate the usefulness of including restricted affectivity in the MNARC index (Faucher et al., 2022).

4.2 MNARC Index: External Correlates in Community-Dwelling Participants

Our data on the associations between MNARC index and Dark Triad dimensions, vulnerable narcissism, and deviance in community-dwelling participants seemed to suggest that malignant narcissism, at least as it is operationalized in the MNARC index, was significantly closer to grandiose narcissism than to vulnerable narcissism, as well as to Machiavellianism and even psychopathy. Confirming and extending previous data (Miller & Lynam, 2019), our findings suggested that grandiose narcissism, vulnerable narcissism, Machiavellianism and psychopathy lies on the same antagonistic continuum, although showing different levels of expression of antagonistic features.

With the exception of vulnerable narcissism, at least as it was operationalized in the FFNI-SF NV scale, bivariate correlations (i.e., Pearson *r* values) showed significant, positive and moderate-to-large associations between self-reports of social deviance dimensions and self-reports of malignant narcissism, grandiose narcissism, Machiavellianism, and psychopathy. Consistent with previous considerations (Lenzenweger et al., 2018), standardized regression coefficient values suggested that self-reports of malignant narcissism, as it was operationalized in the PID-5 MNARC index, showed unique, positive, significant and non-negligible contribution to explaining the variation in all SRDS dimensions, at least in community-dwelling adults. In other terms, self-reports of malignant narcissism are likely to represent a major risk factors for social deviance, including specific manifestations of rule-breaking behaviors such as property violations/destructions (i.e., SRDS Property scale), rule-breaking behaviors involving drug smuggling and/or prostitution (i.e., SRDS Drug/Sex scale), and aggression episodes in

which the subjects used weapons (e.g., knife, gun, etc.) and/or objects that can be used as weapons (e.g., broken bottle, club, etc.), at least when the SRDS is used to assess social deviance among community-dwelling adults.

In our multiple regression models the overall level of self-reported social deviance (i.e., the SRDS total score) was significantly predicted by self-reports of malignant narcissism (i.e., the MNARC index) and psychopathy (i.e., the TriPM total score). Self-reported malignant narcissism and psychopathy were the only significant predictors also of self-reports of aggression episodes in which the subjects used a weapon (i.e., the SRDS Weapon scale scores); interestingly, grandiose narcissism, at least as it was operationalized in the FFNI NG scale) was negatively and significatively associated with the subjects' propensity towards using weapons during fights (i.e., the SRDS Weapon scale scores) when the effect of the other antagonistic personalities that were entered in our regression model was controlled for.

Malignant narcissism, as it was operationalized in the MNARC index, seemed to represent the only significant and non-trivial predictor of self-reports of subject's propensity towards violating or destroying properties (i.e., the SRDS Property scale scores); rather, low vulnerable narcissism, as it was operationalized in the FFNI NV scale, and high malignant narcissism seemed to represent risk factor for self-reported drug/sex-related social deviance in our community-dwelling adult sample. As a whole, our multiple regression analyses seemed to confirm and extend previous data on antagonistic personalities as risk factors for social deviance (e.g., DeLisi, 2019), while suggesting the relevance to track malignant narcissism in the community also for preventing behaviors that may put subjects at risk for social deviance and law violations.

4.3 MNARC Index: External Correlates in Psychotherapy Participants

In our study, psychotherapy adult participants scored higher than community-dwelling participants. Thus, our findings confirmed and extended previous data (e.g., Ellison et al., 2013; Lenzenweger et al., 2018; Pincus et al., 2014) on narcissistic vulnerability as well as malignant narcissism as factors involved in the process of seeking for psychological treatment. Of course, future studies on the impact of malignant narcissism on treatment process and response are needed (e.g., Lenzenweger et al., 2018).

Interestingly, the EGA dimension clustering the MNARC index, *DSM-5* Section II Histrionic PD, Narcissistic PD, and Antisocial PD, as well as and FFNI-SF narcissistic grandiosity seemed to provide empirical support to theoretical perspective considering malignant narcissism as characterized by elements of narcissistic grandiosity, and proneness to bold disregard for socially

appropriate behavior, including antisocial and unethical behaviors (e.g., Lenzenweger et al., 2018). Indeed, this EGA cluster seemed to characterize individuals who are likely to maintain an inflated view of themselves as special and superior, which may in turn facilitate antagonistic behavior towards others (e.g., social deviance) and may promote attention-seeking behaviors (e.g., Hopwood et al., 2013). Notably, Paranoid PD maintained a positive association with MNARC index, despite being assigned to an EGA cluster characterized by self, emotion, and behavior dysregulation (e.g., Pincus et al., 2014). Indeed, in our psychotherapy samples, Paranoid PD clustered around narcissistic vulnerability, as least as it is operationalized in the FFNI-SF, Avoidant PD, Dependent PD, Borderline PD. These dimensions may share the tendency towards shame, feelings of worthlessness, angry and negative affect and interpersonal vulnerability (e.g., Pincus et al., 2014). Finally, Schizoid PD, Schizotypal PD and Obsessive-Compulsive PD seemed to cluster around a dimension characterized by psychoticism and rigid perfectionism (e.g., Dowling et al., 1995; Faure & Forbes, 2021). Our EGA findings obtained excluding FFNI-SF NG and NV scales seemed to provide further support to the hypothesis that malignant narcissism may lie on the same antagonistic dimension that brings together Narcissistic PD, Antisocial PD, and Histrionic PD (e.g., Lenzenweger et al., 2018; Pincus et al., 2014).

Notably, our findings on the positive and strong association between MNARC index and AQ Physical Aggression scale was consistent with previous data (Ellison et al., 2013; Faucher et al., 2022), and suggested the importance of considering the risk for behaviors causing or threatening physical harm towards others in psychotherapy participants showing high scores on the MNARC index. Confirming and extending previous clinical considerations on narcissism as a risk factor for committing suicide (e.g., Pincus et al., 2014; Ronningstam et al., 2021; Ronningstam & Maltsberger, 1998), our data suggested that malignant narcissism, at least as it was operationalized in the MNARC self-report index, seemed to be significantly, albeit moderately associated with increased risk for clinician-rated suicidal ideation and suicidal behavior. This finding highlights the importance for practitioners to assess malignant narcissism in clinical samples, because of its potential for suicidal gestures (Ellison et al., 2013; Lenzenweger et al., 2018).

Finally, our data on the associations between MNARC index and AMPD Criterion A dimensions, as least as they are operationalized in the SCID-5-AMPD Module I, seemed to confirm previous clinical considerations (e.g., Kernberg, 1984, 2007), suggesting that malignant narcissism is likely to represent a severe personality dysfunction, which is characterized by instability of self-representation, problems with self-direction, which may easily lead to criminal lifestyle when disposition towards aggression and social deviance is present, and problems with interpersonal regulation (Lenwenweger et al., 2018).

5. Strengths and Limitations

Despite our study has some important strengths (e.g., multiple samples, focus on different aspects of the MNARC index nomological network), our findings should be considered in the light of several limitations. Although we relied on both community-dwelling adult participant sample and psychotherapy participant sample, the relatively limited size of our samples and the non-random nature of our sampling strategy inherently limit the generalizability of our findings. Moreover, our participants received no incentive to participate in the study, and Berkson's bias (1946) is likely to occur in clinical samples; thus, further studies on this topic are needed. Our clinical sample participants were referred for psychotherapy treatment for possible personality problems on a voluntary basis; different findings may be obtained in clinical samples with different participants' characteristics. Although we tried to include different variables to assess the validity of the MNARC index across two samples, we did not include other measures of malignant narcissism (Lenzenweger et al., 2018); future studies should consider this issue. Indeed, further studies based on multiple methods and multiple instruments for each construct are badly needed before accepting our findings. The cross-sectional nature of our study prevented us from making any causal inference; longitudinal studies on this topic are thus needed. Finally, our study was not preregistered. Even keeping these limitations in mind, we feel that our results may be useful in improving our knowledge of narcissistic features among community and clinical participants.

5. Conclusions

In sum, our findings provided evidence for the reliability and validity of the MNARC index across different samples, supporting the possibility to rely on the PID-5 for assessing malignant narcissism. Confirming and extending previous findings (Faucher et al., 2022), our data suggested that the MNARC index could be safely used both in research and clinical context. The availability of the MNARC index across different cultural and applied context may pave

the way for a wide range of studies on the assessment of malignant narcissism, as well as on the effectiveness of psychotherapeutic intervention targeting antagonistic features (e.g., Miller & Lynam, 2019).

Ethical approval

Institutional Review Board was obtained. Ethical Committee Approval: #TREATEFFPD_2019. Date of approval: May 22nd, 2019.

Informed Consent Statement

Informed consent was obtained from all subjects involved in the study.

Data Availability Statement

Data are available upon request, by sending an email to the corresponding author. Data cannot be made publicly available, because this was not explicitly approved by the participants at the moment of assessment.

Conflict of interest statement

The author declare that the research was conducted in the absence of any potential conflict of interest.

Author Contributions

AS: Conceptualization; Formal analysis; Writing - Original Draft; GG: Data Curation; Writing - Review & Editing; CA, LB, ADC, LM, CF: Investigation; AF: Conceptualization; Formal analysis; Writing - Original Draft; Supervision.

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