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Narcissus Going Public: Pathological Narcissism and Reactions to Public vs. Private Exposure in Ego-relevant Events

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Abstract

Pathological narcissism implies a fragile self-view. The psychological effects of ego-relevant events in people high in pathological narcissism, however, are still uncertain. The study examined the effects of pathological narcissism on psychological reactions to ego-relevant events occurring in private or public settings. Participants ($N = 410$) completed measures of pathological narcissistic traits, and then they took part in a scenario-based experimental session. They were randomly assigned to four conditions: ego-threatening vs. ego-fostering events in public vs. private settings. Self-esteem and affective states before and after the experimental manipulation were measured. Results showed that vulnerable and grandiose manifestations of pathological narcissism affect differently psychological reactions to ego-relevant events. Vulnerable narcissism made people particularly sensitive to ego-threatening and ego-fostering events, especially when occurring in public settings. Grandiose narcissism was linked to a reduction in emotional responses to ego-relevant events. Findings suggest that self- and affective reactions to ego-relevant events depend on narcissistic prevailing manifestations, and that public exposure has a key role in vulnerable narcissism.

Keywords Grandiose narcissism · Vulnerable narcissism · Self-esteem · Emotional reactions · Public Exposure

Contemporary clinical theories (e.g., Gabbard & Crisp 2018) and empirical findings (e.g., Miller et al., 2013) indicate that pathological narcissism comprises grandiose and vulnerable manifestations. However, our understanding of shared and distinctive psychological features of narcissistic manifestations needs to be clarified. Grandiose and vulnerable manifestations have shown different correlates in empirical studies: narcissistic vulnerability is linked to low explicit self-evaluations (Di Pierro et al., 2016; Di Pierro & Fanti 2021) and feelings of shame (Di Sarno et al., 2020), while narcissistic grandiosity is related to sense of superiority over others (Di Pierro & Fanti, 2021) and sense of entitlement (Miller et al., 2011). According to Ackerman et al., (2019), grandiose pathological narcissism is strongly linked to self-promotion strategies, while vulnerable pathological narcissism usually relates to self-protection strategies.

Albeit using different self-regulatory strategies, however, individuals with different manifestations of pathological narcissism share the need to maintain a stable and positive self-concept (Ackerman et al., 2019). This is supported by clinical observations on the poorly integrated sense of self of narcissists (Kernberg, 2012) and by empirical evidence (Di Pierro et al., 2019) demonstrating that event-contingent self-esteem is a central trait of pathological narcissism. In this sense, we may expect individuals with pathological narcissism to be particularly sensitive to events that may respectively threaten or foster their self-view. We may also expect that their psychological reactions to these events differ according to their prevailing narcissistic manifestations.

The impact of ego-threatening and ego-fostering events on people high in pathological narcissism has been empirically examined investigating their effects on self-esteem levels and affect states. Existing studies on this topic, however, are still limited in number, and results are mixed.

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Psychological reactions to ego-threatening events in pathological narcissism

Grandiose Narcissism

Some studies suggested that grandiose narcissistic manifestations, measured through the Narcissistic Personality Inventory (NPI; Raskin & Hall 1979), are linked to decreasing levels of self-esteem after both achievement (Rhodewalt & Morf, 1998; Zeigler-Hill et al., 2010) and interpersonal negative events (Rhodewalt et al., 1998). However, other studies did not confirm such a greater self-esteem sensitivity of NPI grandiose narcissists when facing interpersonal (Zeigler-Hill & Besser, 2013; Zeigler-Hill et al., 2010) and achievement (Zeigler-Hill & Besser, 2013) ego-threats, also when using another self-report measure of grandiose narcissism (Zeigler-Hill & Besser, 2013), namely the Pathological Narcissism Inventory (PNI; Pincus et al., 2009).

Moreover, individuals high in NPI grandiose narcissism experience greater negative affect states after negative achievement events (Besser & Priel, 2010; Rhodewalt & Morf, 1998; Stucke & Sporer, 2002) but, again, these findings were not entirely confirmed (Rhodewalt et al., 1998).

Vulnerable Narcissism

Only one study (Zeigler-Hill & Besser, 2013) investigated the link between vulnerable narcissism and self-esteem reactions to negative events. Findings suggest that neither interpersonal nor achievement ego-threatening events significantly affect self-esteem levels in people with high traits of vulnerable narcissism, measured through the PNI.

Conversely, different measures of vulnerable narcissism showed to be linked to greater affective sensitivity (Besser & Priel, 2010) when experiencing interpersonal negative events, particularly to increasing levels of negative emotions such as shame (Di Sarno et al., 2020; Freis et al., 2015). Moreover, there is evidence of increasing negative internalized emotions in people high in vulnerable narcissism, measured through the Hypersensitive Narcissistic Scale (Hendin & Cheek, 1997), after achievement ego-threats (Atlas & Them, 2008).

As shown, empirical findings on the role of grandiose narcissism on psychological reactions to negative ego-relevant events are mixed. Conversely, empirical findings on the role of vulnerable narcissism are more consistent, but studies are limited in number.

Psychological reactions to ego-fostering events in pathological narcissism

Grandiose Narcissism

Empirical findings (Rhodewalt et al., 1998; Rhodewalt & Morf, 1998; Zeigler-Hill et al., 2010; Zeigler-Hill & Besser, 2013) suggest that grandiose narcissism, measured through different self-report questionnaires (i.e., NPI; PNI), is not significantly associated with variations in levels of self-esteem after ego-fostering events (both interpersonal and achievement ones).

Moreover, Di Sarno et al., (2020) observed that neither achievement nor interpersonal daily positive events affect shame levels in individuals with high traits of grandiose narcissism, measured through the Five Factor Narcissism Inventory (FFNI; Glover et al., 2012).

Vulnerable Narcissism

According to Zeigler-Hill & Besser (2013), individuals high in PNI vulnerable narcissism experience increasing levels of self-esteem after daily positive interpersonal events, while no significant variations have been found after positive achievement events.

Results on affective reactions of vulnerable narcissists to ego-fostering events are quite inconsistent. Malkin et al., (2011) found that HSNS vulnerable narcissism relates to higher negative emotions (i.e., shame) in response to positive achievement events. Conversely, Di Sarno et al., (2020) found that neither achievement nor interpersonal daily positive events affect shame responses in individuals with high traits of PNI vulnerable narcissism.

The setting where ego-relevant events occur

As shown, empirical investigation of psychological effects of ego-relevant events in pathological narcissism has been primarily focused on negative events, and less attention has been given to positive ones. Moreover, most studies were based on the idea that the nature of ego-relevant events (i.e., interpersonal vs. achievement ones) would have been responsible for differences in psychological reactions of grandiose and vulnerable narcissists, with grandiose narcissism being particularly sensitive to achievement events and vulnerable narcissists being sensitive to interpersonal events.

In the attempt to address inconsistency of previous findings, Besser & Zeigler-Hill (2010) hypothesized that the type of setting (public vs. private), rather than the nature of ego-threatening events (i.e., interpersonal vs. achievement

ones), would be primarily responsible for peculiar psychological reactions in grandiose and vulnerable narcissists. Accordingly, the authors observed that individuals high in PNI grandiose narcissism are highly sensitive to negative events occurring in public settings, while individuals high in PNI vulnerable narcissism are sensitive to those occurring in private (Besser & Zeigler-Hill, 2010), and that emotional reactions were not affected by the nature of the ego-threats. In this sense, a new insight on our understanding of the effect of ego-threatening events on affective responses in pathological narcissism has been provided by this study. Surprisingly, however, this new perspective has not been applied to the examination of either self-esteem reactions to ego-threatening events or affective and self-esteem responses to ego-fostering events.

The Present Study

The present study aims at clarifying whether traits of pathological narcissism affect variations in levels of self-esteem and affective states after events that may respectively threaten or foster a positive self-view. By doing so, we attempted to overcome some serious limitations of previous studies that might be considered responsible for inconsistency of findings. Firstly, the validity of some measures of narcissism used by past studies has been questioned recently, as in the case of the HSNS (Jauk et al., 2017), the NPI (Cain et al., 2008), and the PNI (Crowe et al., 2019). Therefore, we used a self-report measure of pathological narcissism (i.e., the Five Factor Narcissism Inventory) which has shown to capture reliably and validly both grandiose and vulnerable manifestations of pathological narcissism (Crowe et al., 2019). Moreover, previous studies did consider global measures of self-esteem only, while it is now well known that self-esteem comprises two components (Gebauer et al., 2013) related to agency (i.e., based on qualities of competence) and communion (i.e., reflecting qualities of warmth) respectively, and that both grandiose and vulnerable narcissistic self-views are mainly based on agentic attributes, rather than on communal ones (Hyatt et al., 2018). In the same vein, most studies focused their findings on two broad categories of emotions (i.e., positive vs. negative ones), without taking into account the specificity of discrete emotions, as recently suggested (An et al., 2017; Rowe & Fitness, 2018). Preliminary findings (Di Sarno et al., 2020; Konrath et al., 2014) have confirmed indeed the need of considering the specificity of affective states when investigating narcissistic functioning. In this sense, we investigated the effects of ego-relevant events on narcissistic psychological reactions, by testing the specificity of affective reactions, and agentic and communal self-esteem responses to ego-relevant events. Finally, promising results by Besser & Zeigler-Hill (2010) stressed the relevance of the setting where ego-relevant events occur in explaining peculiar psychological reactions of grandiose and vulnerable narcissists respectively, but this perspective has not been examined in depth until now. Here, we considered the effects of both the nature of events (ego-fostering vs. ego-threatening events) and the setting where they occur (public vs. private settings) to better understand grandiose and vulnerable narcissistic reactions to ego-relevant events.

We anticipated that traits of grandiose and vulnerable narcissism would affect differently self- and affective reactions to ego-relevant events, depending on nature of these events and on the setting where they occur in. We hypothesize that people high in grandiose narcissism would openly react to ego-threatening events by showing a greater decrease of self-esteem and a greater increase of affect states of negative valence, but only when these events occur in public. Conversely, they would not openly show significant psychological reactions to ego-threatening events occurring in private contexts. In fact, people high in narcissistic grandiosity usually deny external feedback and information disconfirming their grandiose self (Caligor, 2013). However, they have intense needs for admiration (Back et al., 2013), and being exposed to ego-threatening events in public settings may cause intense psychological reactions. In other words, we hypothesize that people high in grandiose narcissism would not react to ego-threat in itself, but rather to public ego-threat, since it prevents the chance to gain admiration from others. We expect also that individuals high in grandiose narcissism would react with increasing levels of self-esteem and affect states with positive valence, when experiencing ego-fostering events, especially when occurring in public contexts. In fact, such gratifying events would bolster the grandiose self and, when occurring in public, potentially expose people high in grandiose narcissism to others' admiration.

Since people high in vulnerable narcissism consciously experience helplessness, shame and low self-esteem (Pincus et al., 2009), and rely on external validation (Dickinson & Pincus, 2003), we expect that they would show decreasing levels of self-esteem and increasing levels of affect states with negative valence after ego-threatening events, and that public exposure would amplify these reactions. For the same reason, we expect that individuals high in vulnerable narcissism would show increasing levels of self-esteem and affect states with positive valence when facing go-fostering events, especially when these events are externally validated (i.e., public).

Since only agentic attributes have a central role in self-view of people with high traits of narcissism (Hyatt et al., 2018), we expect that the above-mentioned variations in

self-esteem levels would involve the agentic component of self-esteem only. As for variations in affective states of people high in pathological narcissism, instead, our approach is exploratory, and we cannot detail the role of discrete emotions in advance due to the paucity of empirical studies on this topic.

Method

Participants and Procedure

The study involved 410 university students (females: $N = 174$) with a mean age of 21.88 ($SD = 3.00$; range 18–37). Distribution of university programs attended by participants was heterogeneous in the sample, ranging from science & technology ($N = 99$; 24.6%), to psychological sciences ($N = 67$; 16.3%), politics & economics ($N = 65$; 15.9%), foreign language and communication ($N = 34$; 8.3%), social sciences ($N = 28$; 6.8%), and other programs. Some participants ($N = 7$; 1.7%) did not report their academic program.

We calculated required a priori sample size with GPower 3.1 software. Since we were interested in conducting a general linear model to test the three-way interaction effect among narcissism, the event condition and the setting condition, a small effect size was expected. Results indicated that a sample of 395 participants was needed to detect such effects (*effect size*: 0.02, *alpha*: 0.05, *power*: 0.80). Consistently, we planned to recruit at least 400 participants (i.e., 100 participants for each condition).

Participants were recruited through posting advertisements on social media (e.g., Facebook). We described the study as an investigation of the role of personality on psychological reactions to positive and negative academic events. Participants had to be university students, with no limits of age. Participation was voluntary: all participants signed informed consent and authorized the use of their data. Drop-out was permitted at any moment, and participants did not receive any incentive (e.g., money or credits) to participate. The Ethics Committee in charge approved the study (protocol n. RM-2016-67).

The study included two separate sessions: a baseline assessment and an experimental session. At the baseline, participants completed a general demographic questionnaire asking about their gender, age, and the university program they were attending at that moment, and a measure of pathological narcissistic traits. At the end of the baseline, participants expressed their interest (or disinterest) in taking part in the second session of the study[1]. After two days, we sent them an email with the link to the second part of the study. Participants had to complete this session by the next 24 h. We selected an interval of 2 days because it was long enough to allow us to separate the assessment of self-reported predictors from the experimental manipulation and post-manipulation outcomes, but it was still short enough to keep track of participants and minimize attrition. No attrition occurred between the baseline and the experimental session. During the experimental session, participants read a hypothetical scenario and imagined themselves living the situation that was described (see Appendix A in Supplementary Materials). All the scenarios described the same academic situation occurring with a professor the student considers as a mentor. The experimental manipulation involved four conditions: the professor may humiliate (i.e., ego-threatening event) or gratify (i.e., ego-fostering event) the student in front of the entire classroom (i.e., public setting) or by taking him/her aside (i.e., private setting). Participants were randomly assigned to one of the four conditions. We assessed state self-esteem and affective states before and after the experimental manipulation. Four participants were excluded from the final sample, because of missing values. The final sample consisted of 406 participants: 203 were randomly assigned to the ego-threatening event conditions (private setting: $N = 100$, public setting: $N = 103$), and 203 were randomly assigned to the ego-fostering event conditions (private setting: $N = 102$, public setting: $N = 101$). We provided participants with a written debriefing statement at the end of the study.

Measures

Baseline

Narcissistic traits were assessed through the Five-Factor Narcissism Inventory – Short Form (FFNI-SF; Sherman et al., 2015). The FFNI-SF consists of 60 items rated on a 5-point Likert (from 1 = disagree strongly, to 5 = agree strongly). The FFNI-SF assesses both grandiose (GN) and vulnerable (VN) traits of pathological narcissism. Both GN and VN showed good internal consistency in our sample (GN: $\alpha = 0.91$; VN: $\alpha = 0.80$).

[1] A sample of 491 participants completed the baseline (females: $N = 204$; age: $M = 21.69$, $SD = 2.96$). Among them, 81 participants (16.5%) declared not to be interested in taking part in the second session of the study. No gender differences were found ($\chi^2 = 0.61$, $p = .44$) between them (females: $N = 30$, males: $N = 51$) and those who participated in the second part of the study. Significant age differences were found ($F\ (1, 488) = 11.20$, $p = .001$): participants who were not interested in participating in the second session of the study were significantly younger ($M = 20.69$, $SD = 2.54$) than those who agreed in taking part in the second session.

Experimental session

State self-esteem was assessed by asking participants to indicate how they were perceiving themselves right in that moment, rating some adjectives reflecting agentic and communal self-states. Adjectives were rated on a 9-point likert scale ranging from 0 (not at all) to 8 (totally). Selection of adjectives was based on findings from Abele and colleagues (2008). According to the authors, adjectives of agentic self-esteem reflect attributes relate to goal-achievement and assertiveness, while adjectives of communal self-esteem relate to social connectedness and morality. In our study, agentic self-esteem was described by 3 adjectives with positive valence (Assertive, Determined, Striving) and 3 with negative valence (Gullible, Shy, Vulnerable). Similarly, communal self-esteem consists of 3 adjectives with positive valence (Helpful, Sympathetic, Understanding) and 3 with negative valence (Detached, Dogmatic, Egoistic). Agentic and Communal self-esteem scores were obtained by averaging ratings of the three adjectives with positive valence and the three adjectives with negative valence (reversed scores). Agentic and Communal state self-esteem were measured before and after the manipulation. All the scales showed acceptable internal consistency (range $\alpha = 0.60 - 0.68$).

Affective states were measured through the PANAS-X (Watson & Clark, 1994). The PANAS-X is a 60-item self-report measure of affective states. Participants were asked to rate each item indicating to what extent they were feeling a certain emotion right in the moment, using a 5 point-likert scale (from 1 = not at all, to 5 = extremely). For the purpose of the present study, we measured a selection of affective states describing basic emotions with positive and negative valence, according to the PANAS-X. Affective states with negative valence comprised Fear (6 items), Hostility (6 items), and Sadness (5 items); while affective states with positive valence comprised Joviality (8 items) and Self-assurance (6 items). We excluded those affective states included in the PANAS-X basic emotions that were not consistent with the purpose of the present study and relevant to the experimental manipulation (i.e., guilt and attentiveness). Affective states were measured before and after the experimental manipulation (range α: 0.80 – 0.98).

Manipulation check. We asked participants to what extent they felt humiliated or gratified while imagining the scenario. The two items were rated on a 5-point likert scale (0 = not at all; 4 = extremely).

Statistical Analyses

We performed statistical analyses using JAMOVI version 1.8 (The Jamovi Project, 2021). ANOVAs were conducted to test: (1) differences in all the variables measured before the experimental manipulation among participants randomly assigned to different conditions; (2) the efficacy of the experimental manipulation (i.e., manipulation check). We performed General Linear Models (GLMs) to examine whether narcissistic traits affect variations in levels of state self-esteem and affective states when facing ego-threatening or ego-fostering events in public vs. private settings. GLMs tested the effects of Event, Setting, Pathological narcissism, and their interaction terms on delta scores of affect states and self-esteem levels. We computed delta scores by subtracting *before* scores from *after* scores: positive scores reflected an increase in affective states and state self-esteem after the experimental manipulation, whereas negative scores reflected a decrease in affective states and state self-esteem after the experimental manipulation. We conducted GLMs separately for grandiose and vulnerable pathological narcissism. Data are available at https://osf.io/kx5ag/?view_only=76b68e59bbf9411eb0e41c9606646d7d.

Results

Descriptive Statistics and Manipulation Check

A series of ANOVA models including 2 (Event: Ego-threatening vs. Ego-fostering) X 2 (Setting: Public vs. Private) between-subject factors, and their interaction effect, were conducted to examine differences between the participants randomly assigned to the different conditions for grandiose and vulnerable narcissism, as well as for affective states and state self-esteem levels before the experimental manipulation. Results showed that there were no significant differences in the variables assessed before the experimental manipulation between participants randomly assigned to different conditions (see Table B1 in Supplementary Materials).

Two ANOVA models including 2 (Event: Ego-Threatening vs. Ego-Fostering) X 2 (Setting: Public vs. Private) between-subject factors, and their interaction effect, were conducted to test whether scenarios elicited the subjective experiences they were supposed to provoke in participants. Results confirmed the efficacy of the experimental manipulation in eliciting gratifying and humiliating subjective experiences. The *Event* factor significantly affected both humiliating ($F\ (1,\ 402) = 1652.08$, $p < .001$) and gratifying ($F\ (1,\ 402) = 4159.84$, $p < .001$) subjective experiences. Participants facing an ego-threatening event reported higher subjective experiences of humiliation ($M = 3.48$, $SD = 0.84$) than participants facing an ego-fostering event ($M = 0.31$, $SD = 0.73$). On the contrary, participants facing an ego-fostering event reported higher experiences of gratification ($M = 3.66$, $SD = 0.66$) than participants in the

ego-threatening event conditions ($M = 0.11$, $SD = 0.42$). Neither *Setting* ($F\ (1, 402) = 2.27$, $p = .13$) nor its interaction with *Event* ($F\ (1, 402) = 0.70$, $p = .40$) significantly affected humiliating subjective experiences. The *Setting* factor ($F\ (1, 402) = 0.36$, $p = .55$) and its interaction with the *Event* factor ($F\ (1, 402) = 0.03$, $p = .86$) did not affect significantly subjective experiences of gratification.

Narcissistic Reactions to ego-threatening and ego-fostering Events Occurring in Private vs. Public Settings

Results of GLMs are in Table 1.

Event showed a significant effect on changes in affective states and variations in self-esteem levels in all the models tested. Participants in the ego-threatening event conditions showed increasing levels of those affect states having negative valence and decreasing levels of affective states with positive valence after manipulation, while participants in the ego-fostering event conditions showed increasing positive affective states and decreasing negative ones after manipulation, with the only exception of feelings of fear (Table 2). In fact, results show individuals' levels of fear were not significantly affected by experiencing ego-fostering events. Also, participants in the ego-fostering event conditions reported increasing levels of agentic state self-esteem, while they did not show significant variations in levels of communal state self-esteem. Finally, participants in the ego-threatening event conditions reported decreasing levels of both agentic and communal state self-esteem.

Neither *Setting* nor its interaction with *Event* had significant effects on changes in affective states and variations in self-esteem levels after the experimental manipulation[2].

Pathological narcissism was significantly associated with variations in some discrete affective states after the experimental manipulation. Results show that vulnerable narcissism was negatively associated with variations in feelings of fear ($\beta = -0.09$, $t(1, 398) = -2.13$, $p = .03$), hostility ($\beta = -0.11$, $t(1, 398) = -3.59$, $p < .001$), and sadness (β

Table 1 Effects of event, setting, pathological narcissistic traits, and their interaction terms on variations in affect states and self-esteem levels (Delta scores)

	Agency		Communion		Fear		Hostility		Joy		Sadness		Self-Assurance	
	$F_{(1, 398)}$	η^2p	$F_{(1, 398)}$	η^2p	$F_{(1, 398)}$	η^2p	$F_{(1, 398)}$	η^2p	$F_{(1, 398)}$	η^2p	$F_{(1, 398)}$	η^2p	$F_{(1, 398)}$	η^2p
Grandiose Narcissism model[a]	20.17***	0.26	23.31***	0.29	21.00***	0.27	83.30***	0.59	148.44***	0.72	79.22***	0.58	56.81***	0.50
Event	134.66***	0.25	155.02***	0.28	136.40***	0.26	567.70***	0.59	1022.41***	0.72	533.36***	0.58	382.53***	0.49
Setting	0.00	0.00	0.01	0.00	0.17	0.00	0.02	0.00	0.08	0.00	0.02	0.00	1.94	0.01
Narcissism	0.91	0.00	4.29*	0.01	4.32*	0.01	1.58	0.00	1.75	0.00	3.96	0.01	1.44	0.00
Event*Setting	1.29	0.00	0.68	0.00	0.03	0.00	0.07	0.00	4.16*	0.01	0.25	0.00	3.28	0.01
Event*Narcissism	3.33	0.01	0.73	0.00	1.17	0.00	0.99	0.00	1.87	0.01	9.28**	0.02	4.76*	0.01
Setting*Narcissism	0.11	0.00	2.05	0.01	1.60	0.00	0.02	0.00	0.27	0.00	0.38	0.00	0.11	0.00
Event*Setting*Narcissism	0.08	0.00	0.44	0.00	1.83	0.01	3.92	0.01	0.64	0.00	2.01	0.01	0.39	0.00
Vulnerable Narcissism model[a]	23.52***	0.29	22.17***	0.28	21.72***	0.28	88.58***	0.61	159.55***	0.74	84.99***	0.60	60.13***	0.51
Event	143.46***	0.26	152.84***	0.28	139.79***	0.26	599.34***	0.60	1083.50***	0.73	562.68***	0.59	400.30***	0.50
Setting	0.01	0.00	0.00	0.00	0.22	0.00	2.858	0.00	2.31	0.00	0.01	0.00	2.41	0.01
Narcissism	4.92*	0.01	0.20	0.00	4.53*	0.01	12.87***	0.03	21.25***	0.05	9.85**	0.02	7.81**	0.02
Event*Setting	0.72	0.00	0.38	0.00	0.02	0.00	0.14	0.00	3.72	0.01	7.49	0.00	2.52	0.01
Event*Narcissism	10.57**	0.03	0.85	0.00	5.63*	0.01	4.00	0.01	3.48	0.01	18.41***	0.04	5.72*	0.01
Setting*Narcissism	3.28	0.01	0.57	0.00	0.21	0.00	0.81	0.00	0.13	0.00	1.24	0.00	0.56	0.00
Event*Setting*Narcissism	5.25*	0.01	0.27	0.00	2.73	0.01	4.35*	0.01	1.59	0.00	4.54*	0.01	4.70*	0.01

Note. [a]$F_{(7, 398)}$; * $p < .05$; ** $p < .01$; *** $p < .001$

[2] We found a significant interaction effect of *Setting X Event* on variations in feelings of joviality, when controlling for grandiose pathological narcissism and its interaction with the two between-subject factors (i.e., Event and Setting). Inspection of post-hoc results, however, revealed no significant differences in those comparisons that are of interest for this study. In fact, the effects of ego-relevant events on variations of joviality did not change depending on the setting these events occurred in. Variations of joviality after the private ego-threatening event (M = -1.42, $SE = 0.09$) did not significantly differ from those reported by participants after the public ego-threatening event (M = -1.27, $SE = 0.09$, t (1, 398) = -1.24, $p = 1.00$). Similarly, variations in feelings of joviality after the private ego-fostering event ($M = 1.58$, $SE = 0.09$) did not significantly differ from those reported by participants after the public ego-fostering event ($M = 1.38$, $SE = 0.09$, t (1, 398) = 1.64, $p = .61$).

Table 2 Fixed effects of Event on variations in affective states and self-esteem levels (Delta scores): Means and Standard Errors

	Grandiose Narcissism model			Vulnerable Narcissism model		
	M	*SE*	*95^ CI*	*M*	*SE*	*95^ CI*
Agency						
Ego-threatening event	-1.25	0.12	[-1.48, -1.02]	-1.26	0.11	[-1.48, -1.03]
Ego-fostering event	0.63	0.11	[0.41, 0.86]	0.65	0.11	[0.42, 0.87]
Communion						
Ego-threatening event	-1.42	0.09	[-1.60, -1.25]	-1.42	0.09	[-1.59, -1.24]
Ego-fostering event	0.13	0.09	[-0.04, 0.31]	0.14	0.09	[-0.04, 0.31]
Fear						
Ego-threatening event	1.39	0.08	[1.23, 1.54]	1.39	0.08	[1.24, 1.55]
Ego-fostering event	0.10	0.08	[-0.06, 0.25]	0.09	0.08	[-0.06, 0.25]
Hostility						
Ego-threatening event	1.42	0.06	[1.31, 1.53]	1.43	0.06	[1.32, 1.54]
Ego-fostering event	-0.53	0.06	[-0.64, -0.41]	-0.53	0.06	[-0.64, -0.42]
Joy						
Ego-threatening event	-1.34	0.06	[-1.47, -1.22]	-1.35	0.06	[-1.47, -1.23]
Ego-fostering event	1.48	0.06	[1.36, 1.60]	1.48	0.06	[1.36, 1.60]
Sadness						
Ego-threatening event	1.29	0.07	[1.15, 1.44]	1.30	0.07	[1.17, 1.44]
Ego-fostering event	-1.04	0.07	[-1.18, -0.90]	-1.04	0.07	[-1.18, -0.90]
Self-Assurance						
Ego-threatening event	-0.87	0.06	[-0.99, -0.76]	-0.88	0.06	[-0.99, -0.77]
Ego-fostering event	0.73	0.06	[0.62, 0.85]	0.74	0.06	[0.62, 0.85]

Note. $N = 406$

$= -0.10$, $t(1, 398) = -3.14$, $p = .002$). Moreover, vulnerable narcissism was positively linked to variations in feelings of joviality ($\beta = 0.12$, $t(1, 398) = 4.61$, $p < .001$), self-assurance ($\beta = 0.10$, $t(1, 398) = 2.79$, $p = .01$), and levels of agentic self-esteem ($\beta = 0.09$, $t(1, 398) = 2.22$, $p = .03$). Finally, grandiose narcissism was associated positively with levels of communal self-esteem ($\beta = 0.09$, $t(1, 398) = 2.07$, $p = .04$), but negatively with feelings of fear ($\beta = -0.09$, $t(1, 398) = -2.08$, $p = .04$).

We also found that two-way interactions of *Pathological narcissism X Event*, as well as three-way interactions of *Pathological narcissism X Event X Setting* had significant effects on variations in some affective states of participants (Fig. 1). Variations in feelings of sadness and self-assurance were significantly affected by the two-way interaction effect of *Event X Grandiose Narcissism*, as well as by the three-way interaction effect of *Event X Setting X Vulnerable Narcissism.* Figure 1a shows that the higher grandiose narcissism the lower the increase of levels of sadness when facing an ego-threatening event ($\beta = -0.26$, $t(1, 398) = -3.66$, $p < .001$), while the association between variations in feelings of sadness and grandiose narcissism was non-significant in the ego-fostering event condition ($\beta = 0.05$, $t(1, 398) = 0.73$, $p = .47$). Moreover, the higher grandiose narcissism the lower the increase in feelings of self-assurance when facing ego-fostering events ($\beta = -0.01$, $t(1, 398) = -2.33$, $p = .02$), while grandiose narcissism was not significantly associated with variations in feelings of self-assurance when facing ego-threatening events ($\beta = 0.04$, $t(1, 398) = 0.71$, $p = .48$), as shown in Fig. 1b. Vulnerable narcissism was associated with a greater decrease in feelings of sadness when facing both private (Fig. 1d, $\beta = -0.32$, $t(1, 398) = -3.39$, $p < .001$) and public (Fig. 1e, $\beta = -0.42$, $t(1, 398) = -4.03$, $p < .001$) ego-fostering events. Also, vulnerable narcissism was associated with a greater increase in feelings of sadness when facing an ego-threatening event in public (Fig. 1e, $\beta = 0.22$, $t(1, 398) = 2.20$, $p = .03$), but not in private (Fig. 1d, $\beta = -0.10$, $t(1, 398) = -1.05$, $p = .30$). Moreover, no significant association was found between vulnerable narcissism and variations in feelings of self-assurance in the private ego-fostering event condition (Fig. 1f, $\beta = 0.15$, $t(1, 398) = 1.99$, $p = .05$), while vulnerable narcissism was associated with a greater increase in feelings of self-assurance in the public ego-fostering event condition (Fig. 1 g, $\beta = 0.27$, $t(1, 398) = 3.15$, $p = .002$). Also, Fig. 1f g show that vulnerable narcissism was not significantly associated with variations in feelings of self-assurance when facing both private ($\beta = 0.13$, $t(1, 398) = 1.66$, $p = .10$) and public ($\beta = -0.10$, $t(1, 398) = -1.26$, $p = .21$) ego-threatening events. The three-way interaction of *Vulnerable Narcissism X Event X Setting* had a significant effect also on variations in feelings of hostility. Vulnerable narcissism was associated with a greater decrease in feelings of hostility when facing both private (Fig. 1 h, $\beta = -0.18$, $t(1, 398) = -2.32$, $p = .02$) and public (Fig. 1i, $\beta = -0.27$, $t(1, 398) = -3.24$, $p = .001$) ego-fostering events. Moreover, Fig. 1 h shows that the higher vulnerable

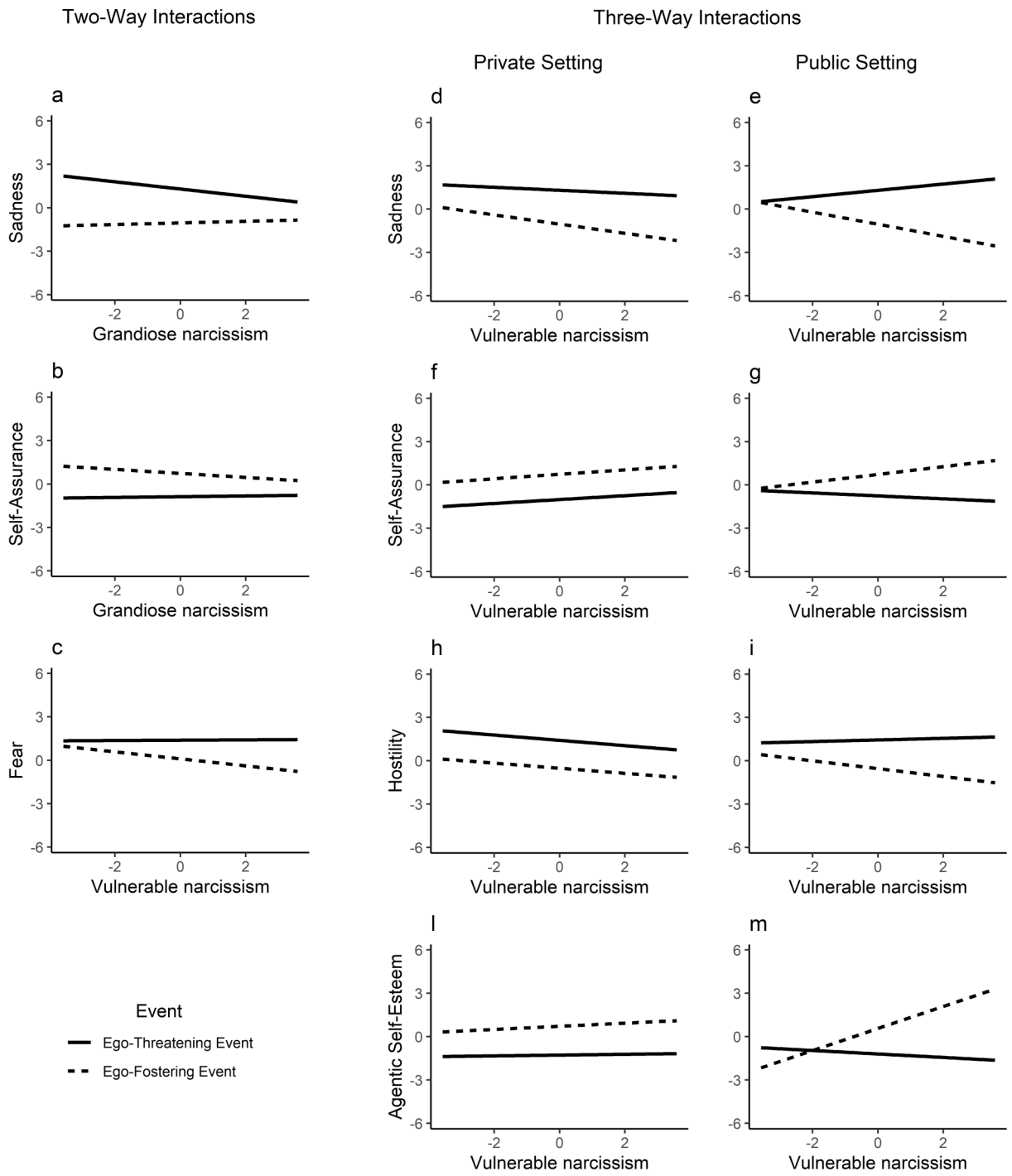

Fig. 1 Pathological Narcissism and psychological reactions to Ego-relevant Events occurring in Public vs. Private settings: Two- and Three-way interaction effects

narcissism the less the increase of hostile feelings in the private ego-threatening event condition ($\beta = -0.18$, $t(1, 398) = -2.28$, $p = .02$), while the association between vulnerable narcissism and variations in feelings of hostility was non-significant in the public ego-threatening event condition (Fig. 1i, $\beta = 0.06$, $t(1, 398) = 0.70$, $p = .49$). The two-way interaction of *Vulnerable Narcissism X Event* had a significant effect on variations in feelings of fear (Fig. 1c). Vulnerable narcissism was associated with a greater decrease in feelings of fear in the ego-fostering event condition ($\beta = -.25$, $t(1, 398) = -3.19$, $p = .002$), while variations in feelings of fear in the ego-threatening event condition were

not significantly associated with vulnerable narcissism ($\beta = 0.01$, $t(1, 398) = 0.17$, $p = .86$).

Finally, the three-way interaction of *Event X Setting X Vulnerable Narcissism* had a significant effect on variations in levels of agentic state self-esteem. No significant associations of vulnerable narcissism with variations in levels of agentic state self-esteem were found in the private ego-fostering event condition ($\beta = 0.11$, $t(1, 398) = 0.72$, $p = .47$), as shown in Fig. 1 l. Conversely Fig. 1 m shows that vulnerable narcissism was associated with a greater increase in levels of agentic state self-esteem when facing the public ego-fostering event ($\beta = 0.76$, $t(1, 398) = 4.57$, $p < .001$). Vulnerable narcissism was not significantly associated with variations in levels of agentic self-esteem in the ego-threatening event conditions (private setting: $\beta = -0.04$, $t(1, 398) = -0.28$, $p = .78$; public setting: $\beta = -0.12$, $t(1, 398) = -0.76$, $p = .45$). Neither vulnerable nor grandiose pathological narcissism significantly affected variations in levels of communal state self-esteem after ego-relevant events occurring in public vs. private settings (Table 1).

Discussion

At a general level, the present study provides information on potential psychological effects of public and private ego-relevant events in people, in terms of self-esteem and affective reactions. Moreover, it contributes to a more nuanced understanding of narcissistic functioning, by showing how individuals may differently react to public and private ego-relevant events depending on their prevailing narcissistic manifestations.

Psychological Reactions to ego-relevant Events

Our study shows that ego-threatening and ego-fostering events have different effects on state self-esteem and affective states, and that the setting where these events occur does not significantly affect individuals' psychological reactions.

Unlike previous studies based on unidimensional measures of self-esteem (Rhodewalt et al., 1998; Rhodewalt & Morf, 1998; Zeigler-Hill & Besser, 2013; Zeigler-Hill et al., 2010), our study demonstrates the need of considering the two components of self-esteem separately when investigating the effects of ego-relevant events. In fact, ego-fostering and ego-threatening events respectively bolster and undermine self-esteem with specific effects on its agentic and communal components. Ego-threatening events decreased self-views at a global level, while ego-fostering events affected self-views at a more specific level: participants in this condition perceived themselves as more agentic but not more prone to being connected to others. The lack of previous studies on the effect of ego-fostering events on agentic and communal self-esteem does not allow us to interpret unequivocally such findings. However, results on the specific effect of ego-fostering events on agentic state self-esteem might depend on the experimental paradigm we used, since our scenarios described events occurring in an academic environment where agentic features are primarily involved by definition. In this sense, we expect that by using scenarios describing ego-fostering events in contexts that involve primarily communal aspects of the self (e.g., dinner with friends), peculiar effects on the communal component of self-esteem, but not on the agentic one, might be found. Albeit plausible, this explanation needs to be tested by future studies.

Previous findings showed that academic ego-fostering events increased positive affective states and decreased negative ones in university students, while academic ego-threatening experiences increased negative affective states and decreased positive ones (Kim & Lee, 2019). The present study extends these findings, by indicating that the effects of ego-relevant events on individuals' affective responses may differ according to the specificity of the emotional states taken into account. For instance, we found ego-fostering events to significantly decrease negative emotions of hostility and sadness, but not those related to fear.

Vulnerable Narcissism and Psychological Reactions to ego-relevant Events

The results of our study confirmed our expectations by showing that vulnerable narcissism is associated with a greater sensitivity to ego-relevant events. Furthermore, they suggest that external validation of ego-relevant events (i.e., public exposure) may amplify specific psychological reactions in people with high traits of vulnerable narcissism.

Firstly, findings show that vulnerable narcissism makes people particularly sensitive to ego-fostering events, in line with the idea that self-regulation is strongly dependent on external feedback in individuals high in vulnerable narcissism(Dickinson & Pincus, 2003). Previous studies on affective reactions to ego-fostering events in vulnerable narcissism (Di Sarno et al., 2020; Malkin et al., 2011) have been limited to shame feelings. Our results demonstrate that vulnerable narcissists' greater sensitivity to ego-fostering events can be expressed through peculiar responses also at the level of other negative emotions: they showed, indeed, greater decreasing levels of hostility, sadness and fear. Moreover, these affective reactions do not depend on the setting where ego-fostering events occur.

Specific affective responses of people high in vulnerable pathological narcissism have been found also when experiencing ego-threatening events. Previous findings on

variations in affective states after ego-threats in vulnerable narcissism have been limited to internalized negative emotions (Atlas & Them, 2008), especially to shame (Di Sarno et al., 2020; Freis et al., 2015). Our study extends these findings by showing that ego-threats may elicit peculiar negative affective reactions in vulnerable narcissists, but with some specificities depending on the specific type of emotion and the setting where these events occur. On the one hand, vulnerable narcissists experience particularly intense feelings of sadness after ego-threats, but only when they occur in public, while the intensity of feelings of sadness after private ego-threats is comparable to that of people low in vulnerable narcissism. On the other hand, when facing ego-threats in private, people high in vulnerable narcissism react with less intense feelings of hostility than people low in vulnerable narcissism, while hostile affective reactions are comparable when experiencing ego-threats in a public setting. Miller et al., (2012) found evidence that people high in vulnerable narcissism can manifest either dominant/aggressive or submissive/unassured attitudes toward others. Conditions that may foster these opposite attitudes, however, are still unknown. It is of note that the private condition of our study calls for a physical proximity with the person who threatens (or fosters) the individual's self-view: the two private scenarios describe that the student was taken aside by the professor before experiencing ego-relevant events. In this sense, it is plausible that the lack of hostile reactions of people high in vulnerable narcissism to ego-threats occurring in private settings would reflect their proneness to assume a submissive and defensive attitude when perceiving physical proximity to a person who is humiliating them. This explanation is in line with the idea that people high in vulnerable narcissism have a strong proneness to approach-avoidance motivations and self-protection strategies (Ackerman et al., 2019). However, this hypothesis needs further investigation, and future studies should test the effects of physical proximity vs. physical distance from the source of ego-threats on hostile reactions of people with high traits of vulnerable pathological narcissism.

Our results contribute to clarify also the relationship between instability in the sense of self and need for others' approval in vulnerable narcissism (Zeigler-Hill et al., 2008). On the one hand, we found that vulnerable narcissists experience decreasing levels of self-assurance and agentic self-esteem to a similar extent than those of people low in vulnerable narcissism, and regardless of the settings where ego-threats occur. On the other hand, however, vulnerable pathological narcissism showed to get individuals highly sensitive to being gratified in front of others: vulnerable narcissists experience particularly intense feelings of self-confidence and greater increase in agentic self-perception when events fostering a positive self-view occur in front of others (i.e., public exposure). In other words, the lack of others' approval does not have a peculiar impact on self-confidence in vulnerable narcissists, while obtaining others' approval does inflate their agentic sense of self when it happens in public.

As shown, our study confirms the relevance of considering the setting where events occur when examining narcissistic psychological reactions to ego-relevant events, as suggested by Besser & Zeigler-Hill (2010). It is of note, however, that our results do not entirely support previous findings (Besser & Zeigler-Hill, 2010). The authors found that vulnerable pathological narcissism was linked to significant variations in some negative emotions only when ego-threats occurred in private settings. Some considerations, however, need to be taken into account when comparing our study with that of Besser & Zeigler-Hill (2010). Firstly, most of the negative emotions assessed in the two studies differ: Besser & Zeigler-Hill (2010) measured levels of dysphoria, anxiety, and hostility, while we measured levels of fear, sadness, and hostility. Moreover, the two studies implemented different methods of analyzing affective reactions: Besser & Zeigler-Hill (2010) tested such variations at the level of a single latent variable called "negative affect". On the contrary, we considered the specificity of each single negative affective state. This strategy demonstrated that vulnerable pathological narcissism is not generically linked to a greater increase in negative affective states when facing ego-threatening events: traits of vulnerable pathological narcissism affected only some affective states among the others (i.e., sadness and hostility).

Grandiose Narcissism and Psychological Reactions to ego-relevant Events

Existing empirical findings and clinical observations indicate that people high in grandiose narcissism are self-absorbed (Caligor, 2013) and insensitive to criticism (Atlas & Them, 2008), but have also intense needs for admiration (Back et al., 2013). Accordingly, we expected grandiose pathological narcissism to be associated with defensive reactions to private ego-threatening events (i.e., no significant variations in affective states and self-esteem levels) but intense psychological reactions to public ego-threats. Our results, however, only partially confirm these expectations. Firstly, our study suggests that proneness of people high in grandiose pathological narcissism to react defensively to ego-threats by showing emotional insensitivity cannot be generalized to all affective states. Moreover, defensive reactions of people high in grandiose pathological narcissism to ego-threats do not seem to be linked to the setting these events occur in. When facing ego-threatening events, individuals with high traits of grandiose pathological narcissism

report variations in most affective states (with both positive and negative valence) that are similar to those of individuals low in these traits, regardless of the setting where these events occur. The only exception is for sadness feelings: individuals high in grandiose pathological narcissism show little to no variations in levels of sadness when experiencing ego-threats. Sadness is an internalized emotion and, according to Besser & Priel (2010), feelings of sadness reflect self-blame processes related to a sense of inferiority. Thus, a possible explanation for our results is that individuals high in grandiose pathological narcissism would contrast defensively self-blame processes originating from ego-threats, by preventing them from experiencing greater sadness. This interpretation is consistent with recent studies showing that grandiose narcissism is strongly linked to responsibility derogation after a failure (Hart et al., 2019), and prevents individuals from experiencing shame, which is another internalized emotion, when facing with daily negative events (Di Sarno et al., 2020). However, this hypothesis needs further empirical support and future studies should deepen the role of self-blaming processes in mediating reactions of sadness to ego-threatening events in people with high traits of grandiose pathological narcissism.

Our findings suggest specific affective reactions of people high in grandiose narcissism also to ego-fostering events. In line with the idea of individuals marked by self-absorption and sense of entitlement (Caligor, 2013), we found evidence for low emotional sensitivity of people high in grandiose narcissism to ego-fostering events. Contrary to our expectations, however, this grandiose emotional insensitivity does not depend on the setting where ego-fostering events occur. In particular, such a peculiar affective reaction can be seen when inspecting feelings of self-assurance. When experiencing ego-fostering events in private or in public, individuals high in grandiose narcissism show a lower increase in feelings of self-assurance, compared to individuals low in grandiose narcissism. In other words, these findings suggest that gratifying experiences do not have an impact on how much people high in grandiose pathological narcissism believe in themselves.

Unlike emotional experiences of self-assurance, neither ego-threatening nor ego-fostering events seemed to affect peculiarly agentic and communal self-esteem of people high in grandiose narcissism. Some past studies suggest that grandiose narcissism predisposes individuals to be less self-esteem reactive to negative events (Zeigler-Hill & Besser, 2013), while others show a greater decrease of state self-esteem in people with high traits of grandiose narcissism after negative events (Rhodewalt et al., 1998; Rhodewalt & Morf, 1998; Zeigler-Hill et al., 2010). Moreover, those few studies investigating the impact of positive events on self-esteem in narcissism revealed that narcissistic grandiosity was related to fewer fluctuations in self-esteem levels (Rhodewalt, 2005; Rhodewalt et al., 1998; Rhodewalt & Morf, 1998; Zeigler-Hill et al., 2010). All these studies, however, administered self-report instruments (i.e., PNI and NPI) that have been questioned (Cain et al., 2008; Crowe et al., 2019). By using the FFNI, which has shown to validly capture grandiose manifestations of pathological narcissism (Crowe et al., 2019), our study demonstrates that individuals high in grandiose narcissism experience variations in agentic and communal self-perceptions that are consistent with those of people low in grandiose narcissism, and that these reactions are not affected by public visibility at all.

Overall, our findings confirm the relevance of considering the setting where ego-relevant events occur (Besser & Zeigler-Hill, 2010), in addition to the nature of these events (i.e., positive vs. negative ego-relevant events), in order to have a better understanding of narcissistic psychological responses to events that may threaten or foster a positive self-view. At a more specific level of analysis, however, our results do not support the idea that public exposure and private settings are essentially responsible for peculiar psychological reactions in grandiose and vulnerable narcissism, respectively. It is of note that there are several elements that differentiate our study from that of Besser & Zeigler-Hill (2010), and that might help to explain contrasting findings. Firstly, we extended the examination of psychological reactions to ego-relevant events in pathological narcissism, by considering both ego-fostering and ego-theratening events, while previous findings were based on ego-threatening events only. Moreover, Besser & Zeigler-Hill (2010) measured pathological grandiose narcissism through the PNI which has been questioned recently because the PNI narcissistic grandiosity scale would include themes related to vulnerable manifestations of pathological narcissism (Crowe et al., 2019). As a consequence, the partial overlap between vulnerable and grandiose features might have affected their findings. This hypothesis is supported by our results showing that only vulnerable narcissism gets individuals highly sensitive to the setting where ego-relevant events occur.

Our results should be interpreted in light of some limitations. Our experimental manipulation describes academic situations, and this might partially explain the lack of effects on communal self-esteem. Scenarios that include social positive and negative experiences could be implemented and confronted with more achievement-related scenarios to explore the presence of specific reactions in terms of self-esteem. The study shows two- and three-way interaction effects of pathological narcissism with event and event X setting respectively on psychological responses of participants. Albeit significant, some of these interactions showed smaller effect sizes (*all effect sizes*: 0.01) than the one we set in the a-priori power analysis (0.02). Therefore,

further studies should examine these interaction effects in larger samples. Moreover, we chose to involve a sample of university students: this allowed us to build scenarios that were meaningful for all participants. Future studies could replicate the study in more varied populations in order to test the generalizability of our results. Finally, the present study examined the psychological effects of ego-relevant events in pathological narcissism, by focusing on affective and self-esteem responses. Our findings contribute to shed a light on emotional and self-functioning in pathological narcissism, however, we did not investigate behavioral reactions to such events. In the field of clinical psychology, affective, behavioral and self-functioning are all key elements to take into account for a better understanding of clinical and subclinical conditions related to pathological personality expressions. Consequently, future studies should extend our investigation on narcissistic reactions to ego-relevant events by integrating behavioral measures along with self-esteem and emotional ones. By doing so, they might clarify whether ego-relevant events have similar or different effects on emotional, behavioral and self-functioning in pathological narcissism. For instance, we found no evidence for intense hostility responses of grandiose narcissists to ego-threatening events, whereas grandiose narcissism was linked to greater negative affective reactions, including hostility, to ego-threatening events in past studies (e.g., Besser & Priel 2010; Besser & Zeigler-Hill, 2010) and to proneness to other-directed aggression (Vize et al., 2019). Inconsistency of findings might depend on methodological differences between our study and previous ones: past studies did not inspect feelings of hostility in a specific way, but rather they used composite scores of negative emotions including hostility along with other negative (e.g., dysphoria, resentfulness) and aggressive emotions (e.g., anger). As a consequence, results of these studies might have suffered from confounding effects linked to the impact of negative events on affective states other than hostility. In this sense, future studies should investigate reactions of grandiose narcissists to ego-threats by measuring a wider range of aggressive emotions (e.g., anger and irritation) in order to inspect their specificity. Another possible explanation, however, could be that peculiar aggressive reactions of grandiose narcissism would be seen at the level of behavioral manifestations rather than of individuals' emotional experience. In this sense, the investigation of behavioral reactions – along with self-esteem and emotional ones - to ego-relevant events could enhance our understanding of narcissistic functioning.

Conclusion

Our findings indicate that pathological narcissism involves peculiar psychological reactions when facing ego-relevant events. On the one hand, our study emphasizes the role of public visibility in people with high traits of vulnerable narcissism. In fact, these individuals showed to have a boost in their sense of self after ego-fostering events, but only when publicly recognized, and a greater increase in internalized emotions (i.e., sadness feelings) after public ego-threats. On the other hand, our study shows that the settings where ego-relevant events occur do not affect psychological reactions in people with high traits of grandiose pathological narcissism, and that narcissistic grandiosity is linked to a reduction in specific emotional responses (i.e., sadness and self-assurance) when facing ego-relevant events. Finally, our results suggest the need of considering a wide range of emotions, and their specificity, when investigating narcissistic reactions to ego-threatening and ego-fostering events in order to have a more nuanced understanding of narcissistic functioning.

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Author Contributions All the authors contributed to the study conception. Rossella Di Pierro and Emanuele Preti designed the study, wrote the protocol, and were both involved in data collection. Statistical analyses were performed by Rossella Di Pierro and Marcello Gallucci. The first draft of the manuscript was written by Rossella Di Pierro and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

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Data Availability The data that support the findings of this study are available in Open Science Framework at https://osf.io/kx5ag/?view_only=76b68e59bbf9411eb0e41c9606646d7d.

Declarations

Competing Interests The authors have no competing interests to declare that are relevant to the content of this article.

Ethics Approval The study was carried out in accordance with the recommendations of the ethical standards of the Ethics Commitee of the University of Milano – Bicocca, with the 1964 Helsinki Declaration and its later amendments. The study was approved by the Ethics Committee of the University of Milano – Bicocca (No. RM-2016-67).

Consent Informed consent was obtained from all individual participants included in the study.

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