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The moderating effect of intolerance of uncertainty on the relation between narcissism and aggression

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Abstract

This study examined the moderating role of intolerance of uncertainty (IU) in the association between narcissism (i.e., grandiose, vulnerable, psychopathic) and aggression (i.e., proactive, reactive). The sample consisted of 310 participants, ages 18 to 30. Consistent with previous research, the three dimensions of narcissism were associated with both functions of aggression. Additionally, IU significantly moderated the relations of vulnerable and psychopathic narcissism with proactive aggression such that the highest aggression was endorsed among participants with high levels of narcissism and IU. The same pattern was evident for self-reported IU in social situations when overall IU was controlled. These findings indicate that IU can affect the relation between narcissism and proactive aggression.

Keywords Narcissism · Aggression · Intolerance of uncertainty

Several previous studies on narcissism and aggression are based on the threatened egotism hypothesis, which proposes that narcissism is related to aggression in reaction to interpersonal threats (Baumeister, Smart, & Boden, 1996; Bushman & Baumeister, 1998). More specifically, negative performance feedback (Bushman & Baumeister, 1998), social rejection (Twenge & Campbell, 2003), or challenge against superiority (Morf & Rhodewalt, 1993) are presumed to lead to aggressive behaviors for narcissistic individuals. Therefore, this model applies specifically to the association between narcissism and reactive aggression.

However, more recent studies (e.g., Lee-Rowland, Barry, Gillen, & Hansen, 2017; Lobbestael, Baumeister, Fiebig, & Eckel, 2014; Reidy, Foster, & Zeichner, 2010) reported that narcissism also predicts aggression even without external provocation (i.e., proactive aggression). This association has been consistently supported even though narcissism is a multidimensional construct. According to the Narcissism Spectrum Model, a core attribute of narcissism is entitled self-importance, which can be manifested as narcissistic grandiosity or vulnerability (Krizan & Herlache, 2018). Grandiose narcissism (GN) is characterized by boldness and an approach-dominant orientation (Krizan & Herlache, 2018). Individuals with higher levels of GN are likely to actively express their grandiosity and seek opportunities for self-enhancement (Morf & Rhodewalt, 2001). Further, they may behave aggressively to demonstrate their superiority and get admiration from others. In this case, aggression is essentially instrumental as a means for gaining something desirable.

In contrast, vulnerable narcissism (VN) is characterized by reactivity and an avoidance-dominant orientation (Krizan & Herlache, 2018). Individuals with higher levels of VN are highly sensitive to threats against themselves because they have low self-esteem despite fantasies of their grandiosity (Pincus et al., 2009; Zeigler-Hill, Clark, & Pickard, 2008). As a result, individuals displaying VN are likely to pursue constant validation from others and show vindictive and aggressive behaviors if their fantasies are damaged by criticism. In this case, aggression is reactive given that it is prompted by external provocation. However, another possibility is that such individuals may show aggression proactively even without observable criticism. Indeed, a relation between VN and proactive aggression has been supported by past research (Lee-Rowland et al., 2017). Given that VN involves fragile self-esteem that is contingent on external validation (Zeigler-Hill et al., 2008), proactive aggression may be a viable option for preemptively meeting interpersonal and emotion regulation needs.

Although GN and VN are the most extensively discussed dimensions in the personality literature, other theoretical

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approaches to understanding maladaptive personality constructs also incorporate narcissism. Psychopathy is one such construct, with psychopathic narcissism (PN) including excessive self-importance but also more behavioral manifestations of narcissism. For example, the Narcissism scale of the Antisocial Process Screening Device (APSD; Frick & Hare, 2001) has been primarily used to assess PN. While the existing scales for GN and VN are characterized by preferences or attitudes about oneself, the narcissism scale in APSD focuses on interpersonal behaviors (e.g., bragging, exploiting others). PN also demonstrates some conceptual overlap and divergence with both GN and VN. Specifically, as mentioned above, PN characteristics involve outward displays of superiority or antagonism toward others, which is similar to GN and in contrast to the avoidance orientation of VN (Krizan & Herlache, 2018). However, PN, like VN, is also associated with internalizing problems including low self-esteem (Barry & Wallace, 2010). Such relations are not evident for GN (Barry & Malkin, 2010). Thus, consideration of PN in relation to proactive aggression may highlight particular factors that are important in this relation and help provide further context for the relations of GN and VN with proactive aggression.

Further, although many studies have reported significant relations between each dimension of narcissism and proactive aggression, the results are somewhat mixed (Barry, Loflin, & Doucette, 2015; Barry et al., 2007; Lee-Rowland et al., 2017), which raises the question as to the conditions under which this connection may exist. In particular, factors that can affect individuals' understanding of the situational demands of social interactions should be considered. The purpose of this study was to investigate intolerance of uncertainty as one such factor in the narcissism-aggression relation.

Narcissism and Intolerance of Uncertainty (IU)

Although each dimension of narcissism involves distinctive internal processes and behavioral characteristics, they share a continuous pursuit of affirmation of superiority from others to sustain their self-importance. However, because this goal may not be realistic in many interpersonal contexts, frustration is likely. Along these lines, IU may be an individual factor that determines how narcissism is manifested in social situations. IU is a tendency to consider uncertain information as unacceptable (Dugas, Gosselin, & Ladouceur, 2001) and has been examined as a core factor for internalizing problems like anxiety and depression (Carleton et al., 2012). Although uncertainty can be distressing for everyone, IU may be more evident for narcissistic individuals due to the importance of social contexts, particularly concerning their social status.

Narcissistic individuals define and continuously evaluate themselves via feedback from others and their perceived superiority relative to others (Morf & Rhodewalt, 2001), which indicates that social contexts are highly important for them. Further, narcissism is associated with a preference for tasks that enable displays of superiority and for evaluative feedback based on social comparisons (Bogart, Benotsch, & Pavlovic, 2004; Morf, Weir, & Davidov, 2000). However, given that these contexts consist of many interested parties who share control over situations, narcissistic individuals may face uncertainty about their social status while not fully controlling the situations. Hence, social situations may be both an opportunity and a risk for them about whether they can confirm their superiority to others, and their reaction to such context may depend on how they deal with a lack of clarity. One such response to a combination of IU and narcissism may be aggression.

Although the concept of uncertainty may play a role in interpersonal contexts, such as in social status comparisons, it has not gained much attention in research on narcissism. Further, previous studies on the relation between narcissism and uncertainty have shown mixed results. Specifically, although some evidence suggests that narcissism is related to IU or maladjustment in uncertain situations (e.g., Martinez, Zeichner, Reidy, & Miller, 2008; Sabouri et al., 2016), others reported that individuals with high narcissism tend to deny their sensitivity to uncertainty (e.g., Alexander, Humensky, Guerrero, Park, & Loewenstein, 2010; Foster & Campbell, 2005). However, notably, most research in this area examined uncertainty in non-social contexts (e.g., one's ability in decision-making, feedback on performance), and such inconsistent results might have been related to differences in how important each context was for enduring narcissistic individuals' self-definition. Along these lines, it is notable that IU in the most relevant situation pertaining to narcissism (i.e., social context) has been barely examined. Also, previous studies on the relation of narcissism and IU focused only on GN. Given that each dimension of narcissism has different characteristics and distinctive relations with maladjustment (Krizan & Herlache, 2018; Miller et al., 2016), the interplay between IU and narcissism may differ by the dimension of narcissism.

IU and Aggression

Although IU may be clearly linked with internalizing problems, uncertainty can be so distressing for some individuals that it might induce aggressive behaviors as well. Specifically, IU is based on negative beliefs about uncertainty (e.g., uncertainty has negative behavioral and self-referent implications, uncertainty is unfair and spoils everything; Sexton & Dugas, 2009). Therefore, individuals with high levels of IU might show aggression because they are likely to recognize uncertainty as a barrier to goal attainment (Fracalanza, Koerner, Deschênes, & Dugas, 2014). Indeed, the relation between IU and externalizing issues (e.g., trait aggression, anger, hostility)

has been demonstrated in some previous studies (e.g., Fracalanza et al., 2014; Gorka, Phan, Hosseini, Chen, & McCloskey, 2018). However, it has not yet been sufficiently explored in the context of self-perception variables such as narcissism.

Because IU is necessarily tied to ambiguous situations, it would not seem relevant to reactive aggression, as that function is based on a specific situational trigger. In contrast, if there is no ego threat, but social approval or dominance is uncertain, narcissistic individuals may proactively show aggression. Further, GN or PN may be affected by IU, particularly in social situations, because individuals with these narcissistic features may be apt to engage in aggression proactively if they find admiration or power to be uncertain. Similarly, VN, which involves concerted efforts to compensate for low self-esteem, may be associated with preemptive aggression when needed external responses are ambiguous. However, these links are speculative, as research has not addressed this issue.

The present study is the first known investigation of the role of IU in the well-established connection between narcissism and aggression. Because narcissism is versatile in its relation to both proactive and reactive aggression, further consideration of relevant intrapersonal or social-cognitive risk factors is warranted. This investigation is novel in that it is not yet clear whether IU is involved in the manifestation of aggression among individuals with high levels of narcissism, particularly in social contexts. Given that uncertainty is often an aspect of social situations, and narcissism is oriented toward social status preoccupation, IU is expected to perform a function in this process. Accordingly, this study aimed to investigate IU as one such factor in the narcissism-aggression relation. Further, because narcissism is a multidimensional construct, this study explored three dimensions of narcissism in relation to overall IU and IU in social situations.

Hypotheses

First, it was hypothesized that all three dimensions of narcissism (i.e., GN, VN, PN) would be significantly, positively related to proactive and reactive aggression (Hypothesis 1). Second, IU and IU in social situations (i.e., "IU social") were expected to be significantly, positively related to aggression (Hypothesis 2). Third, it was hypothesized that IU would moderate the association between narcissism and proactive aggression such that aggression would be highest for individuals with high levels of narcissism and high levels of IU (Hypothesis 3). More specifically, for this hypothesis, we explored whether the moderation effect of IU might differ for each combination of narcissism and aggression, with the expectation that high levels of IU would exacerbate the hypothesized relation between narcissism and aggression. Finally, it was hypothesized that IU social would also moderate the association between narcissism and proactive aggression in a similar manner when controlling for overall IU (Hypothesis 4).

Method

Participants

A total of 311 adults agreed to participate in the study. However, among them, one outlier on proactive aggression (i.e., more than 3.29 standard deviations above the mean) was excluded due to excessively high self-reported proactive aggression. Thus, the final sample included 310 participants (151 males, 157 females, 2 not reported) aged 18–30 years ($M = 24.88$, $SD = 3.67$) from throughout the United States. For gender identity, participants were given the option to respond *"male," "female," "transgender," "other identity,"* or *"prefer not to answer."* The majority (59%) of participants identified as White/Caucasian, 20.3% as Black/African-American, 8.4% as Hispanic/Latinx, 6.1% as Asian, 3.5% as multiracial, 1.6% as Native-American, and 1% identified as other ethnicities.

We collected responses for IU, GN and PN, and aggression from all participants. However, responses for VN were collected from a subset of 157 participants because the present study was part of a larger project on correlates of self-perception variables that included two waves of data collection with different combinations of measures. According to an a priori power analysis, this sample size, including for VN, was sufficient to find a medium effect (Cohen, 1988) at an alpha level of .05 with a selected level of power at .90 accounting for the maximum number of predictors in this study.

Measures

Narcissistic Personality Inventory-16 (NPI-16; Ames, Rose, & Anderson, 2006). The NPI-16 is a short version of the NPI (Raskin & Hall, 1979) and was used to measure GN in this study. The NPI-16 consists of 16 items assessing narcissism (e.g., "I like to be the center of attention"), and a *yes/no* response format was used whereby participants indicated whether the statement applied to them. In this study, the internal consistency of the NPI-16 was $\alpha = .84$.

Brief Pathological Narcissism Inventory (B-PNI; Schoenleber, Roche, Wetzel, Pincus, & Roberts, 2015). The B-PNI is a short version of the PNI (Pincus et al., 2009) with 28 items (e.g., "It irritates me when people don't notice how good a person I am"). In this study, 16-item Vulnerable Narcissism scale was used with a six-point response scale from *not at all like me* to *very much like me*. The internal consistency of this scale was $\alpha = .91$ in this study.

Antisocial Process Screening Device (APSD; Frick & Hare, 2001). The APSD is a 20-item self-report rating scale assessing psychopathic traits. Although it was originally developed for adolescents, its validity and reliability have been supported in adults (Goodwin, Sellbom, & Salekin, 2015). In this study, the 7-item Narcissism scale was of particular interest and measured PN (e.g., "You brag a lot about your abilities, accomplishments, or possessions"). Each item is rated on a three-point scale (0 = *not at all true*, 1 = *sometimes true*, 2 = *definitely true*). The internal consistency of the APSD Narcissism scale was $\alpha = .82$ in the current study.

Intolerance of Uncertainty Scale (IU; Buhr & Dugas, 2002). The IU scale is a 27-item self-report scale (e.g., "Uncertainty makes me uneasy, anxious, or stressed"). In addition, to explore our hypotheses and to assess IU in social contexts, we revised each item to focus on social situations (e.g., "Uncertainty in social situations makes me uneasy, anxious, or stressed") referred to as "IU social" as opposed to "IU" for scores on the original scale. Thus, participants completed the original IU scale as well as the modified IU social scale. Each item was rated on a five-point scale ranging from *not at all true of me* to *entirely true of me*. The IU scales demonstrated high internal consistency in the current study (IU: $\alpha = .95$, IU social: $\alpha = .96$).

Reactive-Proactive Aggression Questionnaire (RPQ; Raine et al., 2006). The RPQ is a 23-item self-rating scale, with 11 items assessing reactive aggression (e.g., "I get angry when threatened") and 12 items assessing proactive aggression (e.g., "I had fights with others to show who was on top"). Each item is rated on a three-point scale (0 = *never*, 1 = *sometimes*, 2 = *often*). Internal consistencies for scores on reactive and proactive aggression were, $\alpha = .85$, and, $\alpha = .91$, respectively.

Procedure

This study was approved by the Institutional Review Board at the authors' affiliated university. Participant recruitment and data collection were conducted through the online survey program, Qualtrics. Specifically, participants in survey panels were contacted with a link to the consent form and study measures. Participation was voluntary, and participants completed all measures after indicating consent and verifying their age as between 18 and 30. For participation, they received market points that can be redeemed in online sites. A validity check item (i.e., *Please respond 2 to this item*) was used to ensure that respondents were adequately attending to questionnaire items. No participants responded incorrectly to this item.

Results

Correlational analyses were conducted to test Hypotheses 1 and 2. Moderated multiple regression models were analyzed to test Hypothesis 3. More specifically, a narcissism dimension (GN, VN, or PN) was entered as a predictor, and IU was entered as the moderator in the first step of a model predicting proactive aggression. The interaction term between the narcissism variable and IU was entered into the subsequent step. This approach was used for all three dimensions of narcissism. These models were also analyzed with reactive aggression as the dependent variable, although the third hypothesis specifically focused on proactive aggression. To test the last hypothesis, these regression models were repeated with IU social included as the moderator instead of overall IU; however, overall IU was included as a control variable.

Descriptive statistics and bivariate correlations for all study variables are shown in Table 1. Males scored higher than females on GN, ($M_{male} = 8.33$, $SD = 4.01$; $M_{female} = 6.98$, $SD = 4.17$), $t(306) = 2.89$, $p = .004$, and proactive aggression, ($M_{male} = 5.42$, $SD = 5.73$; $M_{female} = 4.12$, $SD = 4.85$), $t(306) = 2.16$, $p = .03$. Thus, gender was controlled in all regression analyses predicting proactive aggression. Other socioeconomic variables (i.e., ethnicity, age, and education level) were related to neither narcissism nor aggression. Consistent with Hypotheses 1 and 2, all narcissism and IU variables were correlated with proactive and reactive aggression. Although GN was not associated with either measure of IU, VN and PN were related to both IU scales.

IU, Narcissism, and Aggression

Next, multiple regression models examined whether the association between each dimension of narcissism and aggression was moderated by IU (Hypothesis 3). Thus, we analyzed 6 separate models (i.e., 3 dimensions of narcissism as predictors × 1 moderator × 2 aggression criterion variables). Scores on all narcissism and IU variables were centered for these analyses. To reduce family-wise error given the number of analyses, the alpha criterion was set to $p < .01$. Regression results for proactive aggression are presented in Table 2. With GN as a predictor, the overall model was significant, $R^2 = .21$, $p < .001$, and main effects for GN and IU were also significant. However, the interaction between GN and IU was non-significant. For reactive aggression, the overall model was significant, $R^2 = .14$, $p < .001$, as were main effects of GN, $\beta = .18$, $p < .001$, and IU, $\beta = .32$, $p < .001$. The interaction between GN and IU was again non-significant.

For VN as the predictor and proactive aggression as the criterion, the overall model was significant, $R^2 = .22$, $p < .001$. The main effect of narcissism was also significant, but the main effect of IU was not significant. In the subsequent step, the interaction effect between VN and IU was significant. To further probe the interaction effect, a simple slope analysis was conducted according to high (> +1 *SD*) and low (< −1 *SD*) levels of IU. As shown in Fig. 1, the highest aggression was present for participants high in both narcissism and IU, in

Table 1 Descriptive statistics and correlations between study variables

	1.	2.	3.	4.	5.	6.	7.
1. Grandiose Narcissism[a]	–						
2. Vulnerable Narcissism[b]	.17*	–					
3. Psychopathic Narcissism[a]	.38***	.53***	–				
4. IU[a]	.02	.59***	.33***	–			
5. IU Social[a]	.02	.62***	.34***	.81***	–		
6. Proactive Aggression[a]	.34***	.39***	.72***	.29***	.31***	–	
7. Reactive Aggression[a]	.19**	.53***	.62***	.32***	.33***	.60***	–
Mean	7.65	32.61	3.89	79.94	76.89	4.80	8.17
SD	4.15	17.14	3.26	21.78	22.87	5.38	4.85
Range	0–16	0–80	0–14	27–129	27–132	0–22	0–22
Skew	.18	.10	.68	−.21	−.18	1.27	.39
Kurtosis	−.73	−.44	−.46	−.15	−.28	.67	−.32

Note: IU = IU scale total score; IU Social = total score from IU scale attuned to social contexts

[a] $n = 310$; [b] $n = 157$

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

accordance with our hypothesis. For reactive aggression, the overall model was significant, $R^2 = .33$, $p < .001$, and the main effect of VN was also significant, $\beta = .51$, $p < .001$. However, the main effect of IU and the interaction between VN and IU were not significant.

The overall model with PN as the predictor and proactive aggression as the criterion was significant, $R^2 = .56$, $p < .001$. PN had a significant main effect, but IU did not. In the subsequent step, the interaction effect between PN and IU was significant. Probing this interaction indicated that the highest aggression was present for participants high in both PN and IU (Fig. 2). For reactive aggression, the overall model was significant. Main effects of PN, $\beta = .57$, $p < .001$, and IU, $\beta = .13$, $p = .004$, were significant, but the interaction between narcissism and IU was non-significant.

IU Social, Narcissism, and Aggression

We also explored the moderational impact of IU social for the two models in which there was a significant IU x narcissism interaction (Hypothesis 4). That is, we considered the interactions of IU social with PN and VN in predicting proactive aggression while controlling for overall IU (see Table 3). Like the previous analyses, the alpha criterion was set to $p < .01$. For VN, the overall model was significant, $R^2 = .23$, $p < .001$, and there was a main effect for VN but not for IU social. The interaction between narcissism and IU social was significant, following the pattern from overall IU, as the highest aggression was present for participants high in both narcissism and IU social.

Likewise, for PN, the overall model was significant, $R^2 = .58$, $p < .001$. PN had a significant main effect on proactive

Table 2 Regression models with narcissism and IU predicting proactive aggression (controlling for gender)

Predictors	Grandiose Narcissism (N=308)	Vulnerable Narcissism (N=156)	Psychopathic Narcissism (N=308)
Step 1	F=4.65, $R^2 = .02$	F=2.24, $R^2 = .01$	F=4.65, $R^2 = .02$
Gender	−.12	−.12	−.12
Step 2	$\Delta R^2 = .19$***	$\Delta R^2 = .17$***	$\Delta R^2 = .53$***
Narcissism	.32***	.33***	.71***
IU	.30***	.12	.07
Step 3	$\Delta R^2 = .002$	$\Delta R^2 = .04$**	$\Delta R^2 = .02$***
Narcissism × IU	.05	.20**	.15***

Note: Standardized coefficients are shown. "Narcissism" refers to the specific dimension of narcissism that was the predictor in the model, with the first column showing effects with grandiose narcissism as the predictor, the second column showing effects with vulnerable narcissism as the predictor, and the third column showing effects pertaining to psychopathic narcissism

**$p < .01$; ***$p < .001$

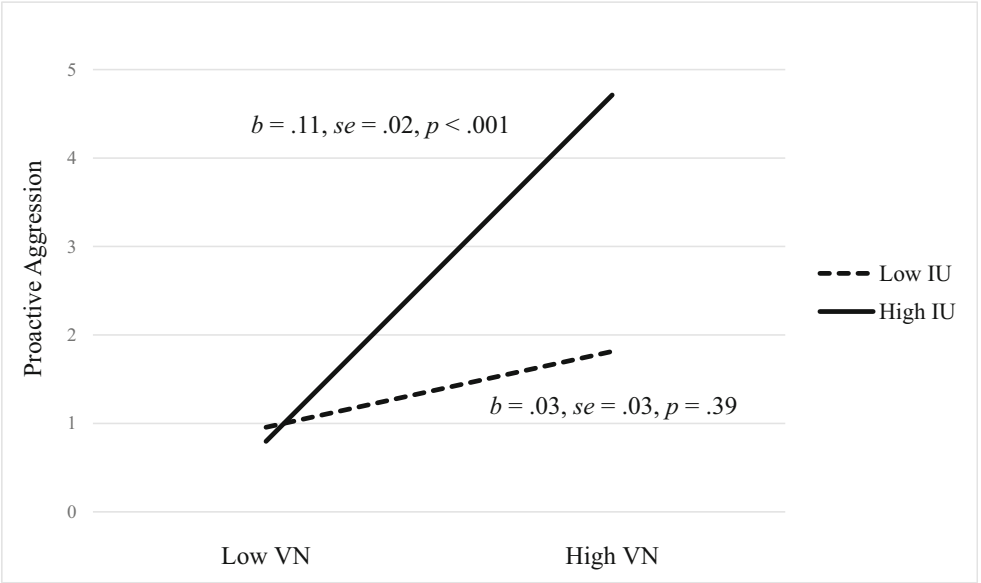

Fig. 1 Two-way interaction between vulnerable narcissism (VN) and IU in predicting proactive aggression when controlling for gender. *Note: Low and high denote each -1SD and + 1SD of the sample distribution*

aggression, but IU social did not. The interaction between PN and IU social was significant, indicating that the highest aggression was present for participants with high in both narcissism and IU social.

Discussion

The relation between narcissism and aggression is well-established, but factors involved in the association between narcissism and proactive aggression in particular are not well understood. This study investigated how IU might moderate the relation between narcissism and proactive aggression. As expected, narcissism was associated with higher reactive and proactive aggression. More importantly, the link between narcissism and aggression was exacerbated by the presence of IU, depending on the dimensions of narcissism and aggression. Specifically, participants reported the highest aggression when they had high levels of both narcissism (VN or PN) and IU, but this interaction was only relevant for proactive aggression. Further, these findings held when IU was evaluated for social situations.

Based on the results of the present study, IU appears to be a promising factor to help explain conditions under which individuals with narcissism show aggression without provocation. The impact of IU suggests distress concerning ambiguous contexts as compatible with aggression. This process is not fully explained by the threatened egotism hypothesis which is based on direct provocation. Because individuals with narcissism are egocentric (Morf & Rhodewalt, 1993), they may always expect instant feedback (i.e., admiration) from others and perceive

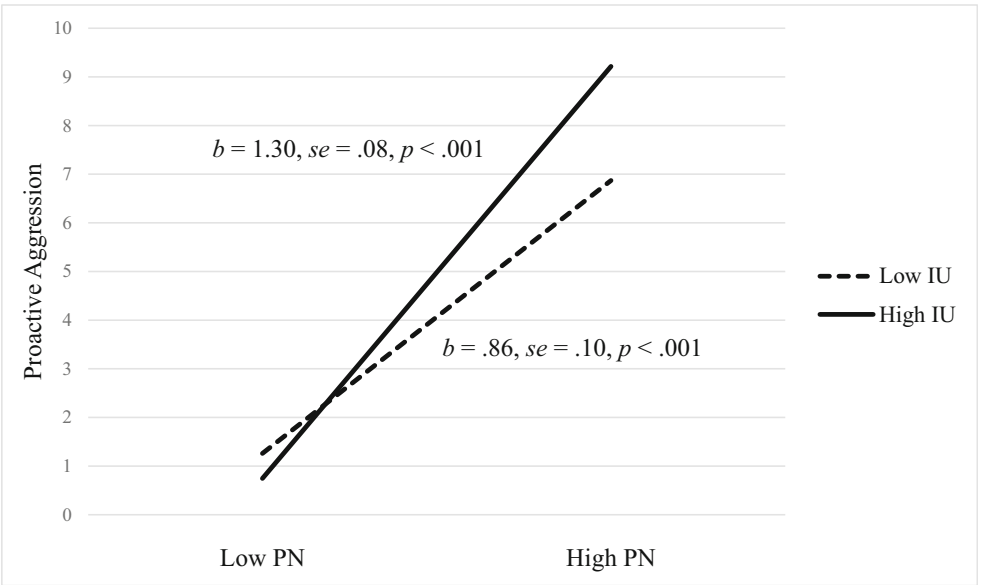

Fig. 2 Two-way interaction between psychopathic narcissism (PN) and IU in predicting proactive aggression when controlling for gender. *Note: Low and high denote each -1SD and + 1SD of the sample distribution*

Table 3 Regression models with narcissism and IU social predicting proactive aggression (controlling for gender and overall IU)

Predictors	Vulnerable Narcissism (N=156)	Psychopathic Narcissism (N=308)
Step 1	F=9.55, R^2 =.11***	F=18.33, R^2 = .11***
Gender	−.16	−.13
IU	.31**	.30***
Step 2	ΔR^2 =.07**	ΔR^2 = .44**
Narcissism	.33**	.70***
IU Social	−.01	.10
Step 3	ΔR^2 = .04**	ΔR^2 = .03***
Narcissism × IU Social	.20**	.18***

Note: Standardized coefficients are shown. "Narcissism" refers to the specific dimension of narcissism that was the predictor in the model, with the first column showing effects with vulnerable narcissism as the predictor, and the second column showing effects pertaining to psychopathic narcissism

** $p < .01$; *** $p < .001$

situations where others' appraisals are delayed or uncertain as a challenge against their sense of being special (e.g., Martinez et al., 2008). Therefore, even if there is no clear provocation, they may show aggression because their expectations are not met, or their social standing is unclear. Further, the same process was supported for IU in social contexts independent from overall IU. This result indicates not only the relevance of social contexts where individuals with narcissism do not have complete control but also the possibility that they are particularly hypersensitive to ambiguous interpersonal stimuli. These findings may help fill the prior gap in the literature on narcissism and proactive aggression and may have intervention implications in terms of assisting individuals cope with uncertainty, particularly regarding interpersonal interactions.

Interestingly, the above results were present with VN and PN. Considering that IU is an important factor across internalizing problems (Carleton et al., 2012), the impact of IU may depend on covariations between internalizing problems and each subdimension of narcissism. In line with this point, our finding that IU did not moderate the association between GN and aggression may be because GN is not related to internalizing issues such as low self-esteem (Barry & Malkin, 2010; Zeigler-Hill et al., 2008). Also, GN might be more indicative of efforts to self-enhance or assert superiority rather than guarding against potential uncertainty. Thus, uncertainty may be less of a driving force toward proactive aggression for individuals with GN.

In contrast, VN and PN have positive relations with internalizing problems (Barry et al., 2015; Barry & Malkin, 2010). Further, VN is characterized by fragile self-esteem that is highly contingent on feedback from others (Zeigler-Hill et al., 2008). This self-perception may spark unfavorable social comparisons and stimulate fragile self-worth, leading to perceived utility of proactive aggression. The reason for the connection between PN and internalizing problems is less clear, as this relation may depend on the manifestation of psychopathy. Specifically, the relation between PN and internalizing problems may only be evident in individuals exhibiting secondary psychopathy, which is characterized by neuroticism and emotion dysregulation (Bronchain, Raynal, & Chabrol, 2020; Kimonis, Frick, Cauffman, Goldweber, & Skeem, 2012). However, this distinction was not tested in the present sample.

Notably, the findings of Lee-Rowland, Lui, Bortfeld, Barry, and Reiter (2020) are consistent with the interaction between PN and IU in predicting proactive aggression and may shed further theoretical light on the present findings. In that study, the interaction between narcissism and callous-unemotional (CU) traits on aggression was significant only for PN, and the highest aggression was reported by participants with high levels of PN, CU traits, and internalizing problems. Thus, besides CU traits, which are a well-established risk factor for aggression, PN may exacerbate individuals' antisocial behaviors, and this risk may be heightened in the presence of internalizing problems. Along these lines, our finding which focused on one potential aspect of internalizing problems (i.e., IU) embodied a process that may play a role in the association between narcissism, proactive aggression, and internalizing problems.

There are several limitations to note in the present study. First, because this study was cross-sectional, we cannot determine the developmental associations among the variables of interest. Also, all data were collected from self-report questionnaires. Thus, shared source variance and subjective biases of participants might have influenced the results. Similarly, self-report of the variables of interest such as narcissism and aggression might lend itself to socially desirable responding. However, existing evidence does not clearly point to an association between narcissism and socially desirable questionnaire responses (e.g., Barry, Lui, & Anderson, 2017; Raskin, Novacek, & Hogan, 1991), and the slight positive skew in proactive aggression in the present study might be expected

among a community sample of adults. Furthermore, data on VN were available for fewer participants; thus, there was less power to detect significant effects involving VN. However, the sample size was adequate based on power analysis, and the interactions of interest were still evident. In addition, we revised the IU scale to evaluate IU in social situations, but the validity of this approach, particularly for differentiating between overall IU and IU in specific social contexts, is unclear. Finally, because the participants were a non-clinical sample, there may be limited generalizability to other groups.

Within the context of these limitations, future research should investigate direct and temporal relations among narcissism, aggression, and IU. Such work may enhance recognition of a distinctive role of IU and may, in turn, inform further efforts aimed at understanding a link between narcissism and proactive aggression. In addition, behavioral measures of aggression may be helpful to further elucidate the relations among these variables. Similarly, IU also should be measured as a situational variable to help determine the extent to which difficulties tolerating uncertainty are under situational or dispositional influences.

Overall, this study suggests that the link between narcissism and proactive aggression may be affected by difficulty tolerating uncertainty. Further work is needed to address whether this relation is particularly applicable to social situations, as well as the possible benefit of intervening in distorted interpretations of ambiguous stimuli or difficulties in delay of interpersonal gratification for individuals with high levels of narcissism. Additionally, considering that our results supported the impact of IU on behavioral problems, IU may be useful as a focal point of future research on moderators of the relations between other personality dimensions and a variety of psychological difficulties. Overall, although this research is preliminary, IU may prove to be an important factor to consider in such relations and also translate well to intervention efforts to curtail aggression and other maladaptive sequelae of narcissism and related personality constructs.

Code Availability N/A

Data Availability The data and measures from this study are available from either author upon request.

Declarations

Conflicts of Interest/Competing Interests The authors have no conflicts of interest to declare.

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