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What drives us to go green: The roles of narcissism, virtue signaling and social exclusion

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ABSTRACT

Understanding individual differences in pro-environmental values is crucial amid climate change. This study explores how grandiose and vulnerable narcissism relate to such values, using survey data from 609 British participants. Our findings reveal that grandiose narcissism is positively associated with pro-environmental values and virtue signaling mediates this relationship. This suggests that individuals high in grandiose narcissism may adopt pro-environmental values primarily to enhance their self-image. Conversely, although vulnerable narcissism shows a negative direct relationship with pro-environmental values, vulnerable narcissists also engage in virtue signaling, which positively influences their adoption of pro-environmental values. This indicates that their motivation may stem from a need to protect their fragile self-esteem. Additionally, while grandiose narcissism and vulnerable narcissism differ in how they relate to social exclusion, social exclusion does not significantly predict pro-environmental values. This implies that the emotional consequences of exclusion may not support the internalization of pro-environmental values. By highlighting the distinct motivational pathways of grandiose and vulnerable narcissism, this study deepens understanding of how self-focused traits influence environmental value adoption.

1. Introduction

The current environmental crisis represents one of the most pressing global threats to humanity (Pickering & Dale, 2023). In light of the urgent need for collective action on ecological sustainability, it is crucial to deepen our understanding of how personality traits and psycho-social factors influence differences in individuals' pro-environmental values. Pro-environmental values, which emphasize a commitment toward the conservation and responsible use of natural resources, are grounded in an awareness of the consequences of environmentally harmful actions and a sense of personal commitment to minimize environmental harm (Pickering & Dale, 2023).

Research explores which personality traits influence pro-environmental values, contrasting altruistic motives with self-enhancement (Kessenheimer & Greitemeyer, 2021). While some adopt such values out of genuine concern (Griskevicius et al., 2010), others do so for reputation (Kessenheimer & Greitemeyer, 2021). We focus on the latter, examining how narcissism, particularly its sub-types, shapes these values. Though studies link narcissism broadly to environmental attitudes (e.g., Ucar et al., 2023; Zacher, 2024), differences between

grandiose (assertive, image-driven) and vulnerable (fragile, withdrawn) narcissism remain understudied (Krizan & Herlache, 2018; Sedikides, 2021).

One way through which individuals can express their grandiose narcissism is virtue signaling (Krispenz & Bertrams, 2024). Virtue signaling involves symbolic actions intended to elicit favorable judgments from the observers about an individual's moral integrity (Ok et al., 2021). Whereas grandiose narcissists may engage in pro-environmental values actions to gain social recognition and admiration (Krispenz & Bertrams, 2024), the social inhibition in vulnerable narcissists may prevent them from engaging in conspicuous signaling (Besser & Priel, 2010).

Social situational cues, such as exclusion, influence how personality traits manifest behaviorally (Tett & Guterman, 2000). Social exclusion, being ostracized or disregarded may reduce pro-environmental engagement in both grandiose narcissists (who react aggressively; Mazinani et al., 2021) and vulnerable narcissists (who show diminished empathy; Urbonaviciute & Hepper, 2020). Given that human actions drive environmental crises (Duong & Pensini, 2023), understanding individual differences, like narcissism, is critical. This study introduces a

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novel framework to examine how virtue signaling and social exclusion shape pro-environmental values in grandiose and vulnerable narcissists.

2. Narcissism and pro-environmental values

Narcissistic orientation is largely considered undesirable, whereas holding pro-environmental values is highly regarded (Naderi, 2018; Naderi & Strutton, 2015). Grandiose narcissism symbolizes inflated self-views, arrogance, boldness, and high self-esteem (Krizan & Herlache, 2018). Individuals with grandiose narcissism exhibit a heightened sense of superiority, manipulative tendencies, and overconfidence (Freis & Hansen-Brown, 2021). They consistently look for opportunities which enable them to boost their self-image (Dîrîu & Prundeanu, 2023). This indicates that their desire to gain social approval may drive them to adopt pro-environmental values as a form of self-promotion.

In contrast, vulnerable narcissism is marked by introverted tendencies, entitlement, emotional instability, and fragile self-esteem (Krizan & Herlache, 2018; Malesza & Kaczmarek, 2018). This form of narcissism is also associated with a tendency toward manipulative behavior (Tortoriello et al., 2017) and low empathy (Urbonavičiute & Hepper, 2020). As a result, they demonstrate significant negative correlations with responsibility and concern for the well-being of others (Urbonavičiute & Hepper, 2020).

Thus, grandiose narcissists' desire for self-enhancement may motivate them to adopt pro-environmental values whereas vulnerable narcissists may be less inclined to hold such values due to their self-focus and limited regard for collective welfare. Therefore, we hypothesize:

H1a. There is a positive relationship between grandiose narcissism and pro-environmental values.

H1b. There is a negative relationship between vulnerable narcissism and pro-environmental values.

2.1. Virtue signaling

A sustainable orientation enables individuals to signal their self-righteousness (Krispenz & Bertrams, 2024). Virtue signaling involves overt displays of moral behavior, often regardless of an individual's genuine belief in those values (Ok et al., 2021). Loughran et al. (2023) refer to this phenomenon as "moral grandstanding" (p. 1043) and define it as an individual's behavior that demonstrates strong moral values for the observers to form a favorable judgment of them (Ok et al., 2021).

Grandiose narcissists use virtue signaling to project a morally upright image (Krispenz & Bertrams, 2024; Yuk et al., 2021), adopting pro-environmental values to appear eco-conscious and gain approval (Naderi & Strutton, 2015). In contrast, vulnerable narcissists avoid conspicuous behavior and often display antisocial tendencies (Sedikides, 2021; Wink, 1991), lacking the desire to cultivate a powerful image. Consequently, while grandiose narcissists actively promote pro-environmental values, vulnerable narcissists, with their low social desirability, are less likely to do so (Yuk et al., 2021). Consequently, we hypothesize:

H2a. Virtue signaling mediates the relationship between grandiose narcissism and pro-environmental values.

H2b. Virtue signaling mediates the relationship between vulnerable narcissism and pro-environmental values.

2.2. Social exclusion

Social exclusion universally harms psychological well-being, but the negative effect of social exclusion may be more pronounced for narcissistic individuals due to their need for attention, exaggerated self-importance, and underlying vulnerability (Fossati et al., 2017). Grandiose narcissists react aggressively to rejection (Mazinani et al., 2021),

while vulnerable narcissists experience emotional distress (Brunell et al., 2021) and heightened reactivity to perceived exclusion (Besser & Priel, 2010).

Whereas Choy et al. (2021) suggest that social exclusion may encourage positive responses, DeWall and Baumeister (2006) find that social exclusion minimizes prosocial orientation as it impairs individuals' emotional regulation. Specifically, social exclusion can profoundly affect psychological well-being, to the extent that it reduces the intensity of emotional responses (DeWall & Baumeister, 2006). However, this field of research largely remains obscure.

We predict that, when socially excluded, grandiose narcissists will respond to threats to their inflated self-image with heightened negative emotions and less inclination toward pro-environmental values. Similarly, vulnerable narcissists may use self-protective strategies such as avoidance and withdrawal which may hinder their adoption of such values. Consequently, we hypothesize:

H3a. Social exclusion mediates the relationship between grandiose narcissism and pro-environmental values.

H3b. Social exclusion mediates the relationship between vulnerable narcissism and pro-environmental values.

Our study model is shown in Fig. 1 in the Supplement.

3. The present study

The aim of the present research was to analyze the conceptual model which hypothesized that psycho-social mechanisms affect the relationship between grandiose narcissism and pro-environmental values and vulnerable narcissism and pro-environmental values. We collected data through a self-reported survey and controlled for age, gender differences, and income.

3.1. Participants and procedure

A total of 609 British participants were recruited via the Prolific data collection platform to participate in an online survey to examine the relationship between narcissism and pro-environmental values. 274 identified as female and 333 identified as male. Participants were aged between 18 and 65+ years, with a median age range of 35 to 44 years and a median income of £45,001 to £55,000.

This study received approval from the ethics committee of a university in the UK (Ethics Approval Number: 100844). During the survey, participants completed measures of grandiose narcissism, vulnerable narcissism, virtue signaling propensity, state of social exclusion, pro-environmental values, and demographic variables that comprised age, gender, and income.

To ensure high-quality data, we included only participants from Prolific who had a prior approval rate of 100 % and took longer than 7 min to complete the survey. Before launching the full study and following the guidelines of Palan and Schitter (2018) and Peer et al. (2022), we ran a pretest with a small sample to determine a minimum completion time (7 min) which was used to filter out careless or inattentive respondents.

3.2. Instruments

3.2.1. Grandiose narcissism

Grandiose narcissism was assessed with the 16-item Narcissistic Personality Inventory (NPI-16) (Ames et al., 2006). Some examples of statements on the NPI-16 include: 'I like having authority over people', 'I am apt to show off if I get the chance', and 'I like to be the center of attention' ($\alpha = 0.83$, $M = 3.45$, $SD = 0.99$).

3.2.2. Vulnerable narcissism

Vulnerable narcissism was evaluated with the 10-item

Hypersensitive Narcissism Scale (HNS) (Hendin & Cheek, 1997). Some items on the HNS include, 'My feelings are easily hurt by ridicule or the slighting remarks of others', 'I often interpret the remarks of others in a personal way', and 'I easily become wrapped up in my own interests and forget the existence of others' ($\alpha = 0.73$, $M = 4.10$, $SD = 0.85$).

3.2.3. Virtue signaling propensity

Virtue signaling propensity was assessed with the 8-item scale used by Hasni et al. (2024) that was adapted from Wallace et al. (2020) and Grace and Griffin (2009). Some examples of statements on the virtue signaling scale include, 'I like to mention something that signals my moral character so that people know I am a good person', 'It increases my self-respect when I mention something that signals my moral character.', and 'Mentioning something that signals my moral character makes me feel good' ($\alpha = 0.94$, $M = 3.88$, $SD = 1.22$).

3.2.4. Social exclusion

State of social exclusion was assessed with the 6-item scale developed Malone et al. (2012). Some examples of statements on this scale include, 'I feel as if people do not care about me', 'I feel like an outsider', and 'I feel isolated from the rest of the world' ($\alpha = 0.94$, $M = 2.59$, $SD = 1.45$).

3.2.5. Pro-environmental values

Pro-environmental values were evaluated with the 6-item GREEN scale (Haws et al., 2014). Some examples of statements on this scale include, 'I would describe myself as environmentally responsible', 'I am willing to be inconvenienced in order to take actions that are more environmentally friendly', and 'I am concerned about wasting the resources of our planet' ($\alpha = 0.91$, $M = 4.90$, $SD = 1.14$).

4. Data analysis

Hair et al. (2009) suggest that skewness in the range of -2 to $+2$ and kurtosis in the range of -3 to $+3$ indicates reasonably normal data. A check of item Skewness indicated that all values ranged from -0.77 to 1.11 , and kurtosis values were within -1.05 to 1.45 , indicating that variables in the sample were reasonably normally distributed. Gender, income and age were included as covariates in hypothesis testing. Specifically, we evaluated if the effects of age (ordinal variable), gender (a dichotomous variable) and income (ordinal variable) significantly predicted grandiose narcissism, vulnerable narcissism, virtue signaling, social exclusion and pro-environmental values. Confirmatory factor analysis and structural model analysis was conducted using AMOS 29. We collected data on 46 observed variables measuring 5 latent variables, thus meeting the minimum subjects-to-variables ratio of 10:1 as cited by Schreiber et al. (2006) for model analysis. The indirect effects were tested with bias-corrected bootstrapping ($n = 5000$) and 95 % confidence intervals (CI).

Table 1
Descriptive statistics, correlations and reliabilities.

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8
1. Grandiose narcissism	3.45	0.99	0.83							
2. Vulnerable narcissism	4.10	0.85	0.32**	0.73						
3. Virtue signaling	3.88	1.22	0.55**	0.42**	0.94					
4. Social exclusion	2.59	1.45	-0.16*	0.52**	0.02	0.94				
5. Pro-environmental values	4.90	1.14	0.16*	-0.10*	0.15**	-0.12**	0.91			
6. Gender	1.46	0.51	-0.05	0.13**	0.02	-0.03	0.00			
7. Age	3.16	1.13	-0.29**	-0.21**	0.19**	0.00	0.02	-0.05		
8. Income	3.22	1.48	-0.07	-0.09*	-0.10*	-0.06	-0.03	-0.12**	0.24**	

Note. $N = 609$. Composite reliabilities appear in bold on the diagonal. For gender, 1 = male, 2 = female. For age, 1 = 18–30 years, 2 = 31–40 years, 3 = 41–50 years, 4 = 51–60 years, 5 = 60–75 years. For income, 1 = £20,000–£30,000, 2 = £30,001–£40,000, 3 = £40,001–£50,000, 4 = £50,001–£60,000, 5 = £60,001 and above.

* $p < .05$.

** $p < .01$.

5. Results

Table 1 presents the means, standard deviations, correlations, and reliabilities among all variables. Confirmatory factor analysis using AMOS 29 demonstrated that most items used to measure grandiose narcissism, virtue signaling, social exclusion and pro-environmental values loaded strongly and significantly on their respective factors. The higher-order model yielded satisfactory model fit (χ^2 ($df = 517$, $N = 609$) = 1223.797, $p < .001$, CFI = 0.95, TLI = 0.94, PCLOSE = 0.89, RMSEA = 0.05, SRMR = 0.06).

All average variance extracted (AVE) values were above 0.5 (range: 0.58–0.74) indicating no discriminant validity concerns (Fornell & Larcker, 1981).

Following the confirmatory factor analysis, we estimated a SEM model in which grandiose narcissism and vulnerable narcissism were the independent variables, virtue signaling and social exclusion the mediators and pro-environmental values the dependent variable. The fit indices indicated acceptable model fit (χ^2 ($df = 518$, $N = 609$) = 1227.739, $p < .001$, CFI = 0.95, TLI = 0.94, PCLOSE = 0.89, RMSEA = 0.05, SRMR = 0.056). As shown in Fig. 2, individuals with grandiose narcissism embrace pro-environmental values more strongly ($\beta = 0.14$, $p < .05$), while those with vulnerable narcissism are less inclined to adopt pro-environmental values ($\beta = -0.23$, $p < .01$). The role of virtue signaling further clarifies these relationships. Grandiose narcissists engage in virtue signaling which in turn, increases their pro-environmental values ($\beta = 0.08$, $p < .01$, 95 % CI = [0.03, 0.14]). Unexpectedly, vulnerable narcissists engage in virtue signaling which in turn, increases their pro-environmental values ($\beta = 0.05$, $p < .01$, 95 % CI = [0.02, 0.10]). However, social exclusion does not play a meaningful role in shaping these attitudes. While grandiose narcissists are less likely to feel socially excluded ($\beta = -0.37$, $p < .001$), vulnerable narcissists experience greater social exclusion ($\beta = 0.62$, $p < .001$), yet neither pathway significantly influences their environmental values.

Interestingly, age diminishes tendencies toward virtue signaling ($\beta = -0.16$, $p < .01$), grandiose narcissism ($\beta = -0.15$, $p < .01$) and vulnerable narcissism ($\beta = -0.07$, $p < .05$). Females and respondents with lower income levels report higher levels of vulnerable narcissism. Demographic factors do not significantly affect social exclusion or pro-environmental values.

6. Discussion

While research has started exploring how grandiose narcissism and vulnerable narcissism affect prosocial behavior, little is known about their influence on pro-environmental values. This study addresses that gap by examining how both narcissism types relate to virtue signaling, social exclusion, and pro-environmental values through multivariate analysis.

The association between narcissism and virtue signaling observed in this study illustrates how self-enhancement tendencies can manifest

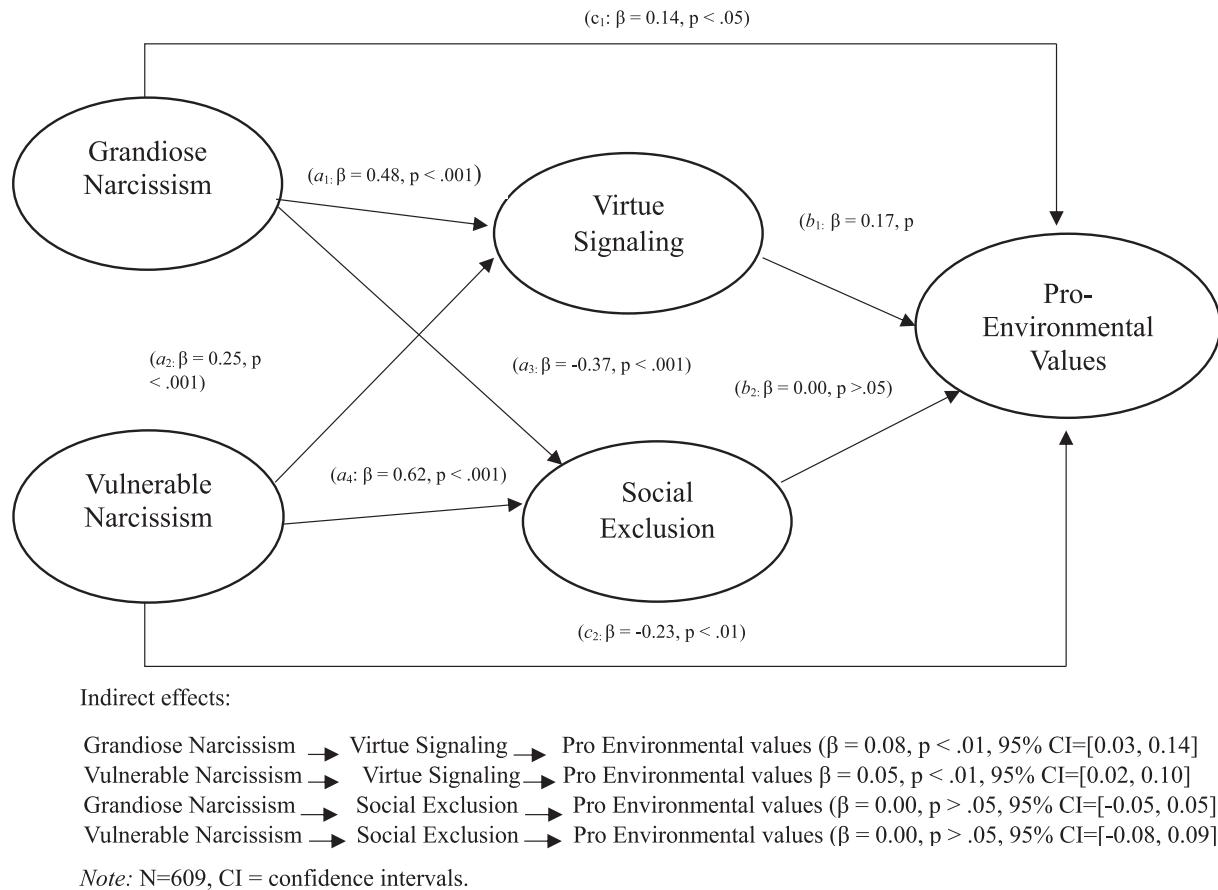


Fig. 2. Structural model results.

Note: N = 609, CI = confidence intervals.

within morally salient domains. In our model, virtue signaling is conceptualized as a form of self-presentation aimed at affirming an individual's moral identity in the eyes of others (Krispnez & Bertrams, 2024; Ok et al., 2021). This context-specific expression distinguishes virtue signaling from broader narcissistic traits and enables a more nuanced understanding of how individuals engage with socially esteemed causes, such as environmentalism. By framing virtue signaling as a motivational pathway, the present study sheds light on the distinct psychological purposes it serves across narcissistic sub-types.

As hypothesized, there is a significant direct relationship between grandiose narcissism and pro-environmental values. This finding aligns with research suggesting that narcissistic individuals may adopt socially desirable behaviors, such as pro-environmental values, to enhance their self-image and gain admiration (Dîrţu & Prundeanu, 2023; Zeigler-Hill et al., 2019). Virtue signaling mediates the relationship between grandiose narcissism and pro-environmental values suggesting that individuals high in grandiose narcissism, motivated by a need for admiration and recognition, may adopt and endorse socially valued causes such as environmentalism to enhance their public image and gain moral prestige. In this context, virtue signaling acts as a strategic tool to showcase ethical alignment, elevate their social status, and affirm their perceived superiority (Krispnez & Bertrams, 2024; Yuk et al., 2021).

In contrast, vulnerable narcissism is negatively associated with pro-environmental values. This finding aligns with prior research by Dîrţu and Prundeanu (2023) and may reflect the socially avoidant tendencies of vulnerable narcissists, who are generally less inclined to internalize values centered on collective welfare or moral responsibility. Traits such as low empathy, hypersensitivity to evaluation, and a general distrust of others may undermine their genuine identification with environmentally responsible principles (Urbonaviciute & Hepper, 2020). However,

the results also revealed an unexpected positive relationship between vulnerable narcissism and virtue signaling, which in turn positively predicted pro-environmental values. This suggests that while vulnerable narcissists may not adopt pro-environmental values out of intrinsic environmental concern, they may still express alignment with such values as a self-protective mechanism. Virtue signaling, in their case, may serve less as a means of gaining status and more to guard their fragile self-concept and elicit social reassurance. As such, their engagement with pro-environmental values may represent symbolic self-preservation rather than a reflection of deeply held moral convictions.

A central element that connects both grandiose and vulnerable narcissism is the narcissistic core which is a shared psychological structure characterized by an elevated view of oneself, a strong need for validation, and sensitivity to how one is perceived by others (Sedikides, 2021). While the outward expressions of grandiose and vulnerable narcissism differ considerably, both sub-types are fundamentally driven by self-focused motives rooted in this core (Hart et al., 2017). This shared foundation provides a meaningful explanation for the role of virtue signaling in the current study. For grandiose narcissists, this typically involves bold displays to gain admiration and for vulnerable narcissists, it may involve more cautious signaling to protect self-worth and elicit acceptance (Sedikides, 2021). Thus, the narcissistic core not only connects the two sub-types conceptually but also offers a coherent psychological basis for their shared tendency to engage in virtue signaling within moral domains.

This research found a negative direct relationship between grandiose narcissism and social exclusion and a positive relationship between vulnerable narcissism and social exclusion. The inverse association for grandiose narcissists with social exclusion may be due to their higher mental toughness, socially assertiveness, and extraverted traits, which

help maintain social inclusion despite self-centeredness (Sedikides, 2021). Additionally, their inflated self-views and reduced sensitivity to rejection lead them to downplay the psychological impact of exclusion (Brunell et al., 2021).

Conversely, vulnerable narcissism showed a positive association with social exclusion. This is consistent with existing research which highlights that vulnerable narcissists are more prone to perceived rejection and social alienation (Besser & Priel, 2010). This heightened sensitivity makes them more susceptible to the feelings of isolation and exclusion which reinforces their tendency toward social withdrawal (Brunell et al., 2021). The current findings support the theoretical distinction between the interpersonal styles of the two narcissism sub-types, wherein grandiose narcissists appear socially resilient toward exclusion, while vulnerable narcissists remain highly reactive to social adversity.

Interestingly, this study found that social exclusion neither directly impacts pro-environmental values nor mediates the relationship between narcissistic traits and the manifestation of pro-environmental values. This finding is particularly notable in light of previous literature reporting mixed evidence on the role of social exclusion in shaping prosocial orientations. While some research suggests that exclusion can motivate individuals to reaffirm social bonds through socially desirable expressions, including environmentally responsible attitudes or values (e.g., Choy et al., 2021), other studies emphasize that exclusion disrupts emotional regulation and encourages self-focused coping mechanisms which ultimately weakens the concern for others and communal goals (e.g., DeWall & Baumeister, 2006). Our findings align more closely with the latter viewpoint. The absence of a mediating effect suggests that the emotional consequences of social exclusion may not be sufficient to prompt grandiose as well as vulnerable narcissists to internalize or exhibit pro-environmental values. Grandiose narcissists often dismiss or downplay experiences of exclusion to preserve their inflated self-image (Fossati et al., 2017), while vulnerable narcissists tend to withdraw to avoid further emotional discomfort (Besser & Priel, 2010). In both cases, exclusion is unlikely to lead to stronger concern for collective issues like pro-environmental values.

Age and narcissism sub-types are negatively correlated, aligning with prior research. Grandiose narcissism declines with maturity (Foster et al., 2003), while vulnerable narcissism shows a weaker decrease, possibly due to improved emotional regulation (Miller et al., 2011). Virtue signaling also diminishes with age, likely as self-concept stabilizes and external validation becomes less critical. Aging may reduce goal-directed behavior (van Reekum et al., 2005), making older individuals less inclined to seek moral approval. The finding that females report higher vulnerable narcissism is consistent with research showing that women are more prone to hypersensitivity and validation-seeking (Grijalva et al., 2015). Lower-income individuals exhibit more vulnerable narcissism, possibly due to economic insecurity (Piff, 2014).

7. Limitations

This study offers theoretical and practical insights but has limitations that suggest directions for future research. It models psycho-social mechanisms behind narcissists' pro-environmental values, but other factors such as moral identity and dark traits may also influence these attitudes and warrant further exploration.

In this research, British participants were recruited through an online survey platform which may not fully represent other culturally diverse groups. Future research could undertake cross-cultural analysis to evaluate this theoretical model to enhance the generalizability of these findings.

8. Conclusion

This study explores how narcissistic traits impact pro-environmental values through virtue signaling and social exclusion. Grandiose

narcissism correlates positively with these values via self-enhancing virtue signaling. In contrast, vulnerable narcissism shows a positive indirect association through virtue signaling which suggests that these individuals have a more defensive and self-protective motivation. Social exclusion did not significantly predict pro-environmental values for either narcissism sub-type which suggests that being socially rejected may not lead to greater alignment with environmentally responsible values. By unpacking these psychological paths, the study highlights how different forms of narcissism influence environmental value endorsement.

CRedit authorship contribution statement

Shayan Shaikh: Methodology, Funding acquisition, Conceptualization, Writing – original draft, Investigation, Data curation. **Nicholas Ashill:** Software, Investigation, Conceptualization, Writing – review & editing, Methodology, Formal analysis.

Declaration of competing interest

We have nothing to declare.

Data availability

Data will be made available on request.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.paid.2025.113392>.

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