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Grandiose narcissism shapes counterfactual thinking (and regret): Direct and indirect evidence

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ABSTRACT

Little is known about how individuals high in grandiose narcissism think about what could have been. Across four studies (three online surveys and one online experiment; $N = 801$), we addressed this gap by examining the relationship between grandiose narcissism, its admiration and rivalry dimensions, and counterfactual thinking and regret. Unlike anticipated, high rivalry was associated with more rather than fewer upward counterfactuals in Study 1. Yet, high rivalry predicted an increased likelihood of generating a downward (vs. upward) counterfactual in a feedback situation (Study 3). Moreover, grandiose narcissism (preliminary study) and admiration (Study 2) negatively correlated with regret. Collectively, our findings stress the importance of considering grandiose narcissism's dimensions separately and highlight a novel dispositional moderator of counterfactual thinking.

1. Introduction

“The past could always be annihilated. Regret, denial, or forgetfulness could do that. But the future was inevitable.”

- Dorian Gray in Oscar Wilde's novel ‘The Picture of Dorian Gray’.

Dorian Gray, often seen as a prototypical grandiosely narcissistic individual, seems to suggest that regret is a potent means of dealing with what has been and focusing on what is to come. To experience regret, he may envision a hypothetical state which not only could have been but which is also superior to the actual state (e.g., Gilovich & Medvec, 1995). This process of mentally simulating alternative endings to past events has been coined counterfactual thinking (Roese, 1994). Importantly, little is known about the extent to which grandiose narcissism is related to counterfactual thinking and, by extension, the experience of regret.

To address this gap, we examined the relationship between grandiose narcissism, regret, and counterfactual thinking across four studies (three online surveys and one online experiment; $N_{total} = 801$). We assessed whether grandiose narcissism (preliminary study) and the admiration and rivalry dimensions of grandiose narcissism (Studies 1–3; Back et al., 2013) are associated with different counterfactuals. Thereby, we make several contributions. For once, we were the first to investigate counterfactual thinking in the context of grandiose narcissism. Second, we extend the limited literature on dispositional moderators of the relationship between a counterfactual prompt and counterfactual thinking

(see Roese & Epstude, 2017). Third, our insights may inform the ongoing debate about why individuals high in grandiose narcissism exhibit a persistent pattern of self-defeating behavior (Wallace, 2012). If highly narcissistic individuals avoid counterfactuals serving behavior-regulation (i.e., regret-inducing counterfactuals), then this may partly explain their apparent inability to learn from their mistakes (e.g., Liu et al., 2019).

1.1. Counterfactuals and Their Function

Counterfactual thoughts describe a state of affairs which runs contrary to the facts (Roese, 1997). While they can vary in their focus (self vs. others) and structure (additive vs. subtractive), counterfactuals are commonly classified based on their *direction* (Roese & Epstude, 2017). The direction of a counterfactual indicates whether the hypothetical outcome is better (*upward* counterfactual) or worse (*downward* counterfactual) than the actual outcome.

Contingent on their direction, counterfactual thoughts have consequences for individuals' future behavior and momentary affect (Epstude & Roese, 2008; but see also Roese & Epstude, 2017). According to the functional theory of counterfactual thinking (FTCT; Epstude & Roese, 2008), upward counterfactuals serve the regulation of behavior while downward counterfactuals aid the regulation of affect (e.g., Roese, 1994). Upward counterfactuals prepare and inform future action via behavioral intentions (Roese, 1994; Smallman, 2013; Smallman & Roese, 2009), by boosting motivation (Kray et al., 2009; Markman et al.,

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1993; Morris & Moore, 2000; Roese, 1994), and by providing a blueprint for how the superior outcome can be attained (akin to implementation intentions; Gollwitzer, 1999; Gollwitzer & Sheeran, 2006; but see also Petrocelli et al., 2012). While upward counterfactuals facilitate long-term goal attainment, they adversely affect individuals' momentary affect. Concluding that one could have attained the relatively better outcome (e.g., by working harder) may elicit feelings of disappointment or regret (e.g., Gilbert et al., 2004; Howlett & Paulus, 2013; Kahneman & Miller, 1986). Downward counterfactuals allow individuals to feel good about themselves (Roese & Olson, 1995). By depicting the hypothetical alternative as inferior to the attained outcome, downward counterfactuals elicit positively-valenced emotions such as relief (Sweeny & Vohs, 2012). They also enhance individuals' affect more generally (e.g., Roese, 1994). Like upward counterfactuals, downward counterfactuals have regulatory costs. They imply that the attained outcome is relatively better than the imaged alternative. Thereby, downward counterfactuals render behavior adjustments unlikely, undermining long-term goal attainment (Epstude & Roese, 2008).

The direction of counterfactuals partly depends on individuals' goal structure. According to the FTCT, the direction of a counterfactual is congruent with the goals pursued by the individual (Epstude & Roese, 2008). In other words, individuals generate upward counterfactuals when they pursue an improvement goal and downward counterfactuals when they seek to feel good about themselves (White & Lehman, 2005). Thus, the salient goal (adjusting behavior vs. managing affect) influences the direction of the counterfactual and determines its functionality (i.e., whether it fosters goal attainment).

On average, people think about past events in ways which facilitate behavior regulation (vs. affect regulation; e.g., Alquist et al., 2015; Nasco & Marsh, 1999). Nevertheless, situational and dispositional factors may shape goal salience, affecting counterfactual direction in turn (Roese & Epstude, 2017). While situational factors like opportunity were extensively studied, dispositional differences in goal structure and their consequences for counterfactual form received almost no attention. Studies of the relationship between regulatory focus (e.g., Pennington & Roese, 2003; Pierro et al., 2008), perfectionism (Sirois et al., 2010), or optimism (e.g., Gamlin et al., 2020) and counterfactual thinking are notable exceptions. Nonetheless, other dispositional differences related to individuals' goal structure are likely to shape counterfactuals. For example, Roese and Epstude (2017) suggested that differences in counterfactual form may be linked to differences in dispositional narcissism.

1.2. Dispositional Narcissism and Counterfactual Thought

Dispositional narcissism refers to narcissism as a personality trait. Scholars generally agree that it comprises several related, hierarchically organized dimensions (Miller et al., 2021). The popular two-factor model distinguishes vulnerable and grandiose narcissism as lower-level dimensions of dispositional narcissism (Miller et al., 2021). In this manuscript, we focus on grandiose narcissism. Grandiose narcissism is characterized by the overarching goal to construct and maintain a grandiose sense of self (Back et al., 2013; Morf & Rhodewalt, 2001; but see also Grapsas et al., 2020).

To achieve their chronically salient goal of affirming and reinforcing their self-perceived grandiosity (Back et al., 2013; Baumeister & Vohs, 2001; Morf & Rhodewalt, 2001), grandiosely narcissistic individuals (i.e., individuals scoring high on grandiose narcissism) exhibit distinct behavioral patterns marked by considerable heterogeneity (e.g., Back, 2018). On the one hand, grandiosely narcissistic individuals are charming and self-assured (Back et al., 2010). They are skilled at initiating relationships, popular in zero-acquaintance situations, and seen as natural leaders (Back et al., 2010; Campbell et al., 2011; Leckelt et al., 2020; Weber et al., 2021). Yet, on the other hand, grandiosely narcissistic individuals are arrogant, entitled, and aggressive (Krizan & Herliche, 2018; Miller et al., 2011; Vazire & Funder, 2006). Their popularity

with others tends to decline over time, with their relationships being riddled with conflict and exploitative behaviors (Grijalva & Newman, 2015; Küfner et al., 2013; Leckelt et al., 2020; Paulhus, 1998).

To explain this plethora of divergent behaviors displayed by grandiosely narcissistic individuals, Back and colleagues (2013) developed the narcissistic admiration and rivalry concept (NARC). According to the NARC, the behavioral heterogeneity stems from two distinct pathways through which individuals high in grandiose narcissism seek to bolster and protect their grandiose sense of self – namely, assertive self-enhancement and antagonistic self-protection. Assertive self-enhancement, captured by the admiration dimension of grandiose narcissism, refers to proactive strategies that facilitate narcissistic goal attainment through self-promotion. For example, grandiosely narcissistic individuals highlight their competencies and accomplishments whenever possible (Marshall et al., 2015; McCain & Campbell, 2018; Paulhus et al., 2013). Antagonistic self-protection, captured by the rivalry dimension of grandiose narcissism, refers to reactive strategies that facilitate narcissistic goal attainment through self-defense. For example, grandiosely narcissistic individuals may attempt to validate their superiority by displaying aggressive behaviors when facing ego-threats (Baumeister et al., 2000; Stucke & Sporer, 2002).

Both, narcissistic admiration and narcissistic rivalry, are assumed to be continually activated in individuals high in grandiose narcissism. Yet, relative activation may differ as a function of situational cues which may have downstream consequences for behavior (e.g., Grapsas et al., 2020). That is, which dimension guides behavior depends on the extent to which the situation is congruent with grandiosely narcissistic individuals' goal to have a grandiose sense of self (Back et al., 2013; Morf & Rhodewalt, 2001). If the context reinforces or allows for grandiosity, assertive self-enhancement dominates (default option; e.g., Wetzel et al., 2016). However, if their grandiose self is under threat or constructing the self as grandiose is impossible, antagonistic self-protection prevails (e.g., Rogoza et al., 2022).

The admiration and rivalry dimension of grandiose narcissism are thought to not only motivate specific behaviors but also shape grandiosely narcissistic individuals' cognitions (Robins & Beer, 2001). Specifically, Back and colleagues (2013) proposed that individuals high in grandiose narcissism strive for narcissistic goal attainment by constructing grandiose fantasies and by devaluing others (depending on situational cues). For instance, individuals high (vs. low) in grandiose narcissism made more self-serving attributions following an intelligence test, attributing high performance to themselves and low performance to task difficulty (Stucke, 2003). Similarly, grandiosely narcissistic individuals may contemplate the past in goal-congruent ways. That is, they may generate counterfactuals whose semantic content is conducive to their overarching goal of grandiosity, preferring downward (vs. upward) counterfactuals. Downward counterfactuals depict the actual outcome as relatively better than the envisioned alternative. Thereby, they facilitate narcissistic goal attainment. In contrast, upward counterfactuals indicate that a better outcome could have been achieved. Thereby, they effectively obstruct narcissistic goal attainment.

Given that counterfactuals have different implications for the positivity of the self contingent on their form, we expected that individuals high in grandiose narcissism exhibit a preference for self-enhancing – that is, downward – counterfactuals (vs. upward counterfactuals). Whether this relationship differs between narcissistic admiration and rivalry is unclear.

1.3. Overview of the Studies

The main objective of the present research was to examine the relationship between grandiose narcissism, the direction of counterfactual thoughts (downward vs. upward), and regret. To this end, we conducted four online studies. In a preliminary study, we indirectly explored the relationship between counterfactual thinking and grandiose narcissism by linking grandiose narcissism to individuals'

tendency to experience regret. In Study 1, we looked at grandiose narcissism and how often participants generate different kinds of counterfactuals. In Study 2, we measured grandiose narcissism and participants engaged in episodic counterfactual thinking (envisioning how a past moment could have turned out differently; Brigard & Parikh, 2019). In Study 3, an online experiment, we manipulated self-threat by exposing participants to negative (vs. positive) performance feedback and assessed performance-focused counterfactual thinking as well as grandiose narcissism.

2. Preliminary Study

Counterfactuals influence individuals' affect in predictable ways. Upward counterfactuals aid behavior regulation but undermine affect regulation by eliciting feelings of regret. Importantly, as upward counterfactuals imply individual shortcoming by indicating that a better outcome could have been achieved, they thwart grandiosely narcissistic individuals' grandiose self. Hence, individuals high in grandiose narcissism may actively avoid upward counterfactuals and, by extension, experience less regret. We thus hypothesized a negative relationship between grandiose narcissism and individuals' tendency to experience regret (H1).

2.1. Method

Participants. For this preliminary study, we analyzed data collected in November 2018. A total of 186 psychology students between the ages of 18 and 22 ($M = 19.00$; $SD = 1.09$) filled out an online survey in exchange for partial course credits. No participants were excluded from the final analysis. Participants were predominately white ($n = 143$ [77%]) and female ($n = 120$ [65%]). A total of 50 participants were Hispanic (27%).

As we relied on an existing dataset, we did not perform an *a priori* power analysis. Nevertheless, our sample size approached the required sample size to detect a medium correlation ($N = 194$; Champely, 2020; Funder & Ozer, 2019).

Procedure. The online survey was programmed in Qualtrics (<https://www.qualtrics.com>). All participants gave their informed consent before entering the study. Individuals completed a measure of grandiose narcissism and reported a thought about a situation in the past which might have turned out for the better (cf., Study 2b in Roese & Summerville, 2005). Next, participants responded to several questions pertaining to the thought and related emotions. Individuals further completed a scale measuring their tendency to experience regret. After asking them to provide basic demographic information, participants were debriefed and thanked.

Dependent Measures. The survey included the Regret Elements Scale (Buchanan et al., 2016). Because the scale was not relevant for the final analysis, we do not discuss it further. The complete dataset is accessible online.

Grandiose Narcissism. We employed the popular Narcissistic Personality Inventory (NPI) to measure grandiose narcissism (Raskin & Terry, 1988). The NPI consists of 40 pairs of statements. For each pair, participants selected the statement which best reflects their everyday thoughts and behaviors ($\alpha = 0.85$). For example, individuals either chose 'Compliments embarrass me' or 'I like to be complimented'. Individuals' score reflected the number of times they opted for the statement suggesting narcissistic tendencies.¹ High scores indicate high levels of grandiose narcissism.

Global Regret. We used Roese and colleagues' (2009) global-regret scale (GRS) to measure regret tendencies. Participants indicated their agreement with nine statements on a 5-point Likert scale (ranging from

'1 = strongly disagree' to '5 = strongly agree'). Example statements are 'I'm often playing back past actions in my mind' and 'I prefer to focus on the future rather than the past' (reverse-coded). Individuals' mean score across all items ($\alpha = 0.85$) reflects their tendency to experience regret, with higher scores indicating stronger tendencies.

Analytic Strategy. Across the reported studies, we performed all statistical analysis in R (R Core Team, 2020). To test H1, we computed the correlation between individuals' scores on the NPI and GRS.

2.2. Results

Participants generally scored below the midpoint of the NPI ($M = 15.92$, $SD = 6.98$) and the GRS ($M = 3.07$, $SD = 0.77$). Supporting H1, we found a large to very large negative correlation between individuals' scores on the NPI and GRS, $r = -0.36$, 95% $CI[-0.48, -0.23]$, $p < .001$ (Funder & Ozer, 2019).

2.3. Discussion

In this preliminary study, we indirectly assessed the relationship between grandiose narcissism and counterfactual thinking by examining their tendency to experience regret. In line with the idea that grandiosely narcissistic individuals avoid upward (vs. downward) counterfactuals, individuals scoring high on grandiose narcissism tended to report weaker regret tendencies.

3. Study 1

We found indirect support for the proposition that individuals high (vs. low) in grandiose narcissism are less likely to generate upward counterfactuals. Building on this finding, the goal of Study 1 was twofold. First, we sought to assess what counterfactuals individuals tend to generate² and, second, to link counterfactual form to grandiose narcissism. As downward counterfactuals are conducive to narcissistic goal attainment and upward counterfactuals undermine it (Epstude & Roese, 2008), we hypothesized that high (vs. low) grandiose narcissism predicts the generation of more downward counterfactuals (H1a) and fewer upward counterfactuals (H1b).

3.1. Method

Participants. A total of 202 Prolific panel members (<https://www.prolific.co>) participated in this online survey study. They received £1 for their participation. We excluded participants if they had more than 50% of their data missing ($n = 2$), a response variance of zero across all items of measures relevant for testing the hypotheses ($n = 1$), or indicated that they did not respond truthfully ($n = 1$). The final sample consisted of 198 participants between the ages of 18 and 73 ($M = 30.79$, $SD = 11.20$). Roughly half of the participants identified as male ($n = 116$ [53%]). At the time of the data collection, many lived in the UK ($n = 71$ [36%]) or other mostly European countries ($n = 118$ [60%]).

Using functions from the pwr-package (Champely, 2020), we estimated the required sample size to detect a medium correlation with a power of 0.80 (required $N = 194$; Funder & Ozer, 2019). Due to potential participant exclusions, we aimed for a total sample size of 200.

Procedure. The survey was programmed in Qualtrics (<https://www.qualtrics.com>). Prior to their participation, participants were informed about their rights and gave their informed consent. They completed measures of grandiose narcissism, counterfactual form, and the

¹ We did not compute individuals' scores on the subdimensions of the NPI, as their exact number is ambiguous (Campbell & Foster, 2007).

² Note that participants did report a counterfactual thought in the preliminary study. However, its direction was constrained to being upward. Moreover, we employed a general measure of regret. Hence, individuals' score on this measure should be linked to a general measure of counterfactual form rather than to a specific counterfactual.

perceived usefulness of counterfactuals for behavior and affect regulation. After providing basic demographic information, participants were debriefed, thanked, and reimbursed.

Dependent Measures. We do not discuss the measures of perceived usefulness of different counterfactuals for affect and behavior regulation, as they were not relevant for the present investigation. The complete dataset is accessible online.

Grandiose Narcissism. We measured grandiose narcissism with the Narcissistic Admiration and Rivalry Questionnaire (NARQ; Back et al., 2013). The NARQ distinguishes the admiration dimension from the rivalry dimension. Both dimensions motivate distinct sets of self-regulatory strategies. Therefore, the NARQ constitutes a balanced measure of grandiose narcissism. It consists of 18 positively worded statements such as ‘I will someday be famous’ (admiration) and ‘I enjoy it when another person is inferior to me’ (rivalry). Individuals indicated their agreement with the statements on a 6-point Likert scale (ranging from ‘1 = completely disagree’ to ‘6 = completely agree’). Scores were averaged for each dimension (based on 9 statements each). High scores indicate higher levels of narcissistic admiration ($\alpha = 0.84$) and rivalry ($\alpha = 0.84$), respectively ($NAs = 0$).

Counterfactual Form. To measure which counterfactuals individuals tend to generate, we employed the Counterfactual Thinking for Negative Events Scale (CTNES; Rye et al., 2008). The scale consists of 16 counterfactual thoughts which may come to mind during a negative life event. Example items are “I think about how much worse things could have been” and “if only another person (or other people) would have acted differently, this situation would have never happened”. Participants indicated how often they generate each thought on a 5-point Likert scale (ranging from ‘1 = Never’ to ‘5 = Very often’). The scale is typically divided into four subscales based on the thought’s direction (upward vs. downward) and focus (self vs. other vs. none). However, because we were primarily interested in the relationship between grandiose narcissism and the direction of counterfactual thought, we classified the items solely based on the counterfactual’s direction. The subscales capture the frequency of upward (12 items; $\alpha = 0.83$) and downward (4 items; $\alpha = 0.78$). We averaged participants’ scores for each direction, with high scores reflecting high frequencies.

Analytic Strategy. We did not exclude any observations and centered all predictor variables. To test whether increases in grandiose narcissism are associated with the generation of more downward counterfactuals (H1a) and less upward counterfactuals (H1b), we fitted two linear regression models. Narcissistic admiration and rivalry predicted the frequency of downward and upward counterfactuals, respectively. We also included the interaction between narcissistic admiration and rivalry for exploratory purposes in all models.

3.2. Results

Correlations and descriptive statistics are reported in Table 1. Narcissistic admiration and rivalry strongly and positively correlated ($r = 0.40, p < .001$). The frequency of generating upward counterfactuals was positively associated with the rivalry dimension ($r = 0.41, p < .001$). The frequency of generating downward counterfactuals was positively associated with the admiration dimension ($r = 0.15, p = .041$).

Table 1
Descriptive statistics and correlations for the continuous variables (Study 1).

Variable	M (SD)	Range	1.	2.	3.	4.	5.
1. Narcissistic admiration	2.81 (0.81)	1.22 – 5.67	–	< 0.001	0.099	0.041	0.488
2. Narcissistic rivalry	2.41 (0.87)	1.00 – 5.11	0.40**	–	< 0.001	0.975	0.410
3. Upward counterfactuals	2.98 (0.75)	1.00 – 4.75	0.12	0.41**	–	0.234	0.635
4. Downward counterfactuals	3.11 (0.79)	1.00 – 5.00	0.15*	0.00	0.08	–	0.523
5. Age	30.79 (11.20)	18.00 – 73.00	-0.05	0.06	-0.03	0.05	–

Note. Correlations and p-values are shown in the bottom and upper triangle, respectively.
* $p < .05$ ** $p < .001$.

3.2.1. The Effect of Narcissistic Rivalry and Admiration on Counterfactual Frequency

We fitted two multiple regression models to test hypotheses H1a and H1b (see Table 2 for all models). Unlike predicted (H1a), narcissistic rivalry did not predict a significant increase in the frequency of generating downward counterfactuals, $b = -0.09, p = .182$. Although the effect failed to reach statistical significance, increased narcissistic admiration was associated with more downward counterfactuals, $b = 0.14, p = .059$.

Failing to support H1b, no effect of narcissistic admiration on the frequency of generating upward counterfactuals was observed, $b = -0.05, p = .433$. Interestingly, scoring higher on the rivalry dimension did not predict less but more upward counterfactuals ($b = 0.37, p < .001$). Moreover, while the joint effect of narcissistic admiration and rivalry on the frequency of generating upward counterfactuals was not significant, $b = 0.03, p = .647$, it was positive and significant for downward counterfactuals, $b = 0.16, p = .017$. This suggests that individuals scoring high in narcissistic admiration and rivalry (vs. not) were predicted to generate more downward counterfactuals.

3.3. Discussion

We examined the relationship between grandiose narcissism and counterfactual form by asking participant to indicate which counterfactuals they generate in response to a negative life event. To this end, we relied on the two-factor model of grandiose narcissism proposed by Back and colleagues (2013). Surprisingly, discordant with narcissistic goal attainment, high (vs. low) narcissistic rivalry predicted more upward counterfactuals. There was also evidence that grandiosely narcissistic individuals who score high on both, the admiration and rivalry, dimensions generate more downward counterfactuals.

4. Study 2

In Study 2, we continued to probe the relationship between grandiose narcissism, focusing on the admiration and rivalry dimensions and counterfactual form by asking participants to report an episodic

Table 2
The effect of grandiose narcissism’s dimensions on counterfactual frequency (Study 1).

Variable	Outcome					
	Downward counterfactuals			Upward counterfactuals		
	B (SE)	t (p)	95% CI	B (SE)	t (p)	95% CI
Intercept	3.07 (0.06)	52.82 (<.001)	2.96, 3.18	2.97 (0.05)	57.54 (<0.001)	2.87, 3.07
Admiration	0.14 (0.08)	1.90 (0.059)	-0.01, 0.29	-0.05 (0.07)	-0.79 (0.433)	-0.18, 0.08
Rivalry	-0.09 (0.07)	-1.34 (0.182)	-0.23, 0.04	0.37 (0.06)	5.84 (<0.001)	0.24, 0.49
Admiration × Rivalry	0.16 (0.07)	2.42 (0.017)	0.03, 0.29	0.03 (0.06)	0.46 (0.647)	-0.09, 0.14
R ² _{adjusted}	0.04			0.16		

Note.

counterfactual thought. Hence, we complement the general measure of counterfactual frequency used in Study 1 with a measure of a specific counterfactual. Given the unexpected results of Study 1, all analyses including counterfactual form as the outcome and grandiose narcissism as a predictor were strictly exploratory.

Another objective of Study 2 was to replicate the negative association between grandiose narcissism and regret (see preliminary study). We expected that grandiose narcissism and regret negatively correlate (H1).

4.1. Method

Participants. For this online survey study, we recruited 400 U.S. Americans via MTurk (<https://www.mturk.com>). We excluded participants if more than 50% of their responses on critical variables were missing (grandiose narcissism, motivational orientation, regret; $n = 20$), they failed the attention check ($n = 56$), or if they did not report a thought or reported gibberish ($n = 124$). A gibberish response is an exact duplicate of another answer, incomprehensible, or computer-generated (cf., [Roese et al., 2017](#)). All reported counterfactuals and information about how they were coded can be found online. The final sample consisted of 200 individuals between the ages of 19 and 70 ($M = 37.29$, $SD = 11.31$). A total of 94 participants were female (47%), 151 were white (76%), and 16 were Hispanic (8%).

We were unsure about the size of the effect of grandiose narcissism on counterfactual form, as counterfactual form is a categorical outcome. Therefore, we decided to recruit a relatively large sample. In hindsight, using functions from the powerMediation-package ([Qiu, 2021](#)), recruiting 400 participants would have allowed us to detect a small effect of grandiose narcissism with a power of 0.97 ([Chen et al., 2010](#)). We relied on the observed proportion of downward (vs. upward) counterfactuals as reflecting the event rate for individuals with mean grandiose narcissism scores. Implications of participant exclusions and related loss of power are being discussed.

Procedure. The survey was programmed in Qualtrics (<https://www.qualtrics.com>). Participation was voluntary and rewarded with \$0.50. Prior to the study, all participants gave their informed consent. Individuals first completed measures of grandiose narcissism and motivational orientation. After that, they reflected on a past situation which might have turned out differently and reported their counterfactual thought. They indicated whether the counterfactual focused on something better (vs. worse vs. neither), described something that should have happened (vs. not have happened), and whether it was them (vs. others) that should have acted differently. They also indicated whether the described situation can still (vs. cannot) be changed. Finally, individuals completed a measure of regret tendencies and provided basic demographic information. In the end, participants were debriefed, thanked, and reimbursed.

Dependent Measures. We assessed individuals' motivational orientation (improvement & self-enhancement) in addition to the reported variables. We intended to include motivational orientation and opportunity (i.e., whether the situation can still be changed) as covariates. As including these variables did not affect the results and for the sake of parsimony, we do not further discuss them. Information about the two measures as well as the models including motivational orientation and opportunity as covariates are available in the online supplemental material.

Grandiose Narcissism. Like in Study 1, we measured grandiose narcissism using the NARQ ([Back et al., 2013](#)). Available responses ($NAs = 1$) were averaged to obtain scores for the admiration ($\alpha = 0.89$) and rivalry ($\alpha = 0.93$) dimensions of grandiose narcissism. Due to a computer mistake, participants' responses for the seventh statement (admiration) were unavailable. High scores indicate high levels of narcissistic admiration and rivalry, respectively.

Counterfactual Form. Based on participants' classification of their reported thought, we created a categorical variable indicating whether

individuals generated an upward counterfactual (coded as 0), downward counterfactual (coded as 1), or a thought whose direction was 'neither' (coded as 2). The counterfactuals' focus and structure were not relevant for this study and are thus not further discussed.

Global Regret. We relied on the GRS to measure individuals' tendency to experience regret ($\alpha = 0.81$; [Roese et al., 2009](#)). Mean scores were computed with higher scores reflecting stronger tendencies to experience regret ($NAs = 1$).

Analytic Strategy. We used functions from the nnet-package ([Venables & Ripley, 2002](#)) for the multinomial logistic regression model. We excluded no data points and centered all predictor variables.

To explore the relationship between the dimensions of grandiose narcissism and counterfactual form, we fitted a multinomial logistic regression model. We included narcissistic admiration and rivalry as well as their interaction as predictors of counterfactual form in the model. Counterfactual form was coded as 0 = upward, 1 = downward, 2 = neither. We only interpreted the results relevant for understanding the effect of grandiose narcissism's dimensions on the likelihood of generating downward (vs. upward) counterfactuals. Nevertheless, all results are reported. To test H1, we computed the correlation between the admiration and rivalry dimensions and global regret.

4.2. Results

Correlations and descriptive statistics for the continuous variables are reported in [Table 3](#). Most participants reported an upward counterfactual ($n = 149$ [74%]; downward: $n = 29$ [15%]; neither: $n = 22$ [11%]). Roughly half of those who reported either an upward or downward counterfactual, indicated that the situation could still be changed ($n = 81$ [46%]).

Support for H1 was mixed. The correlation between rivalry and regret was not significant, $r = 0.11$, $p = .120$, 95% CI[-0.03, 0.25]. However, we found a medium negative correlation between admiration and regret, $r = -0.23$, $p < .001$, 95% CI[-0.36, -0.09] ([Funder & Ozer, 2019](#)).

To explore the effect of narcissistic admiration and rivalry on counterfactual form, we fitted a multinomial regression model (see [Table 4](#)). Increases in neither admiration ($OR = 0.83$, $p = .405$) nor rivalry ($OR = 1.42$, $p = .104$) predicted a significant increase in the likelihood of generating a downward (vs. upward) counterfactual. The interaction between narcissistic admiration and rivalry did not reach statistical significance, $OR = 0.82$, $p = .250$.

4.3. Discussion

We explored the relationship between narcissistic admiration and rivalry and counterfactual form by asking participants to generate an episodic counterfactual thought. Unlike in Study 1, no effect of the dimensions of grandiose narcissism on counterfactual form emerged. A methodological difference between Study 1 and Study 2 was that we relied on a neutral counterfactual prompt (i.e., reflect on the past). Using a neutral (vs. negatively-valenced) prompt may partly explain the null findings, as there is no need for grandiosely narcissistic individuals to protect their grandiosity. Moreover, counterfactual thinking typically arises in goal-blockage situations ([Markman et al., 1993](#)). To address this, we examined counterfactual form and grandiose narcissism in a goal-blockage situation in Study 3.

We were able to replicate the negative relationship between grandiose narcissism and regret (see preliminary study) when we considered narcissistic admiration. Yet, we did not observe a significant correlation between narcissistic rivalry and regret. Implications are discussed in the general-discussion section.

5. Study 3

Goal-blockage situations tend to elicit counterfactual thinking

Table 3
Descriptive statistics and correlations for the continuous variables (Study 2).

Variable	M (SD)	Range	1.	2.	3.	4.	5.	6.	7.
1. Narcissistic admiration	3.61 (1.15)	1.00 – 6.00	–	0.000	< 0.001	< 0.001	< 0.001	0.001	< 0.001
2. Narcissistic rivalry	2.62 (1.27)	1.00 – 5.56	0.59**	–	0.016	< 0.001	< 0.001	0.120	< 0.001
3. Self-improvement	3.71 (0.86)	1.00 – 5.00	0.46**	0.17*	–	< 0.001	< 0.001	0.008	0.033
4. Self-enhancement	3.04 (1.08)	1.00 – 5.00	0.60**	0.52**	0.42**	–	< 0.001	0.713	0.018
5. Self-verification	3.69 (0.91)	1.00 – 5.00	0.42**	0.26**	0.58**	0.58**	–	0.773	0.416
6. Regret	3.06 (0.75)	1.00 – 4.78	-0.23*	0.11	-0.19*	-0.03	0.02	–	0.343
7. Age	37.29 (11.31)	19.00 – 70.00	-0.30**	-0.41**	-0.15*	-0.17*	-0.06	-0.07	–

Note. Correlations and p-values are shown in the bottom and upper triangle, respectively.

* $p < .05$ ** $p < .001$.

Table 4
The effect of grandiose narcissism’s dimensions on counterfactual form (Study 2).

	Outcome						
	Downward (vs. upward)			Neither (vs. upward)			
	B (SE)	t (p)	95% CI	B (SE)	t (p)	95% CI	
Intercept	-1.53 (0.23)	-6.55 (<0.001)	-1.99, -1.07	-2.37 (0.35)	-6.71 (<0.001)	-3.06, -1.67	
Admiration	-0.19 (0.23)	-0.83 (0.405)	-0.63, -0.26	0.22 (0.29)	0.78 (0.435)	-0.34, 0.79	
Rivalry	0.35 (0.21)	1.63 (0.104)	-0.07, 0.77	-0.61 (0.31)	-1.97 (0.049)	-1.21, 0.00	
Admiration × Rivalry	-0.19 (0.17)	-1.15 (0.250)	-0.53, 0.14	0.33 (0.19)	1.76 (0.078)	-0.04, 0.70	
McFadden’s R ²	0.04						

Note. All predictors were centered. Log-odds are shown. Positive predictor values indicate an increased likelihood of generating a downward or ‘neither’ counterfactual relative to an upward counterfactual.

(Markman et al., 1993). Hence, we manipulated goal blockage and examined its consequences for counterfactual thinking in Study 3. How narcissistic admiration and rivalry relate to counterfactual form was difficult to pinpoint based on the earlier studies. Thus, all analyses were exploratory.

5.1. Method

Participants. A total of 401 U.S. Americans were recruited via MTurk (<https://www.mturk.com>) to participate in this online experiment. They received \$0.75 for their participation. Prior to all analyses, we excluded participants if more than 50% of their responses on the critical variables were missing (grandiose narcissism and negative affect; $n = 7$), they failed the attention check ($n = 18$), they indicated non-truthful responding ($n = 5$), they reported gibberish ($n = 148$; see Study 2 for more information), or if they misremembered the feedback’s valence ($n = 6$). The final sample consisted of 217 participants between the ages of 18 and 73 ($M = 39.26$, $SD = 12.83$). A total of 115 participants were female (53%), 170 were white (78%), and 13 were Hispanic (6%). Four participants did not provide any demographic information (2%).

We estimated the required sample size using functions from the powerMediation package (Qiu, 2021). Using the observed proportion of downward (vs. upward) counterfactuals as the event rate for individuals with mean grandiose narcissism scores and assuming a small effect (Chen et al., 2010), 214 participants were needed to achieve a power of 0.80. Anticipating data loss comparable to Study 2, we aimed for a total of 400 participants.

Procedure. The experiment was programmed in Qualtrics (<https://www.qualtrics.com>). It followed a between-subjects design with two feedback conditions (positive vs. negative). Participants were randomly assigned to one of the conditions (positive: $n = 107$ [49%]). Prior to their participation, all individuals provided their informed consent.

In a first step, state affect and grandiose narcissism were measured. Participants then learned that they would work on the Remote Associates Test (RAT; Mednick, 1962). We introduced the RAT as the ‘spontaneous-word-association task’, because information about the RAT is easily available online. Prior to the task, they indicated how well they expect to perform. Upon task completion (see below for a detailed task

description), they received bogus performance feedback (positive vs. negative). Next, participants thought about how their performance could have been different. They then classified their reported thought’s direction (better vs. worse vs. neither), structure (should have been vs. not have been), and focus (I vs. others). After that, they completed measures of their self-improvement motivation and state affect. We further included a manipulation check and information about the validity of the feedback. In the end, participants provided basic demographic information and were debriefed, thanked, and reimbursed.

Remote Associates Test. For the RAT, individuals needed to identify the word which relates to each of the three words presented on the screen. For example, the (only) right answer for the words ‘board-magic-death’ was ‘black’. We also introduced a scoring system. Participants had up to 15 s to write down the appropriate associate. They received one point for each second left on the timer and additional 15 points for providing the correct answer. We stimulated counterfactual thinking by emphasizing that participants can immediately move on to next triplet without giving an answer to maximize their time-based score. Similarly, we told participants that being concentrated and not distracted is important for high performance.

Before participants worked on 10 critical triplets, they completed a practice trial and learned the correct response. The order of the critical triplets was randomized. To ensure the credibility of the feedback, triplet composition varied by difficulty between feedback conditions. The negative-feedback condition included three easy and seven difficult triplets. The positive-feedback condition included seven easy and three difficult triplets (see online supplemental material for all triplets). The items were taken from various sources and a native English speaker validated their difficulty (e.g., McFarlin & Blascovich, 1984). The feedback appeared after a ‘calculating’-screen lasting for five seconds. In the positive-feedback condition, it stated that the participant did particularly well and that they ranked in the top 20%. In the negative-feedback condition, the feedback stated that the participant did particularly poorly and that they ranked in the bottom 20%.

Dependent Measures. Measures of self-improvement motivation and performance expectation were included in the survey but will not be further discussed. Self-improvement motivation was not relevant for the present investigation. Performance expectations were assessed prior to working on the task rather than afterwards. Completing the task likely

influenced participants' performance expectations. The complete dataset is accessible online.

Grandiose Narcissism. As in Studies 1–2, grandiose narcissism was measured with the NARQ (Back et al., 2013). Available responses (*NAs* = 0) were averaged to obtain scores for the admiration ($\alpha = 0.89$) and rivalry ($\alpha = 0.86$) dimensions of grandiose narcissism. High scores indicate high levels of narcissistic admiration and rivalry, respectively.

Counterfactual Form. Participants classified the direction of their counterfactual thought. They indicated whether their thought pertained to an outcome that was better (coded as 0), worse (coded as 1) or 'neither' (coded as 2). We did not include the counterfactuals' focus and structure in any analyses and thus do not further discuss them.

State Affect. We used the English version of the Multidimensional Mood State Questionnaire (MDMQ) to assess individuals' state affect (Steyer, Schwenkmezger, Notz, & Eid, 1997). The questionnaire consists of 30 adjectives (e.g., 'content') and participants rate the extent to which the adjective reflects their current mood state on a 6-point Likert scale (ranging from '1 = Definitely not' to '6 = Extremely'). The MDMQ can be split into two equivalent forms (A & B) of 15 items each. Form A was presented before the RAT and form B after the feedback. The items load on three distinct dimensions; good versus bad (A: $\alpha = 0.83$; B: $\alpha = 0.90$), awake versus tired (A: $\alpha = 0.87$; B: $\alpha = 0.86$), and calm versus nervous (A: $\alpha = 0.85$; B: $\alpha = 0.86$). Prior to averaging item scores for each dimension (*NAs* = 0), we recoded some items so that high scores indicated that individuals felt good, awake, or calm. To assess the feedback's effectiveness, we only focused on the good-bad dimension of the MDMQ.

Manipulation Check. To verify that they understood the feedback, participants selected the statement which best described their performance-based ranking. The statements were 'I performed better than at least 50 of the 100 people' and 'I performed worse than at least 50 of the 100 people'.

Analytic Strategy. We used functions from the *rstatix*-package (Kassambara, 2020) for the repeated-measure ANOVA and created all figures using functions from the *ggplot2*-package (Wickham, 2016). We excluded no data points and centered all predictor variables.

To verify the effectiveness of the feedback, we compared participants' affect before and after the feedback by performing a repeated-measures ANOVA. Condition (0 = positive feedback, 1 = negative feedback) was included as a between-person factor and measurement time (0 = pre-feedback, 1 = post-feedback) was included as a within-person factor.

To explore the relationship between grandiose narcissisms' dimensions and counterfactual form, we fitted a multinomial logistic regression model. Narcissistic admiration and rivalry, feedback condition, and all possible interactions were included as predictors in the model. Counterfactual form served as the outcome. Positive- and negative-feedback conditions were coded as 0 and 1, respectively. We only interpreted the likelihood of generating downward (vs. upward) counterfactuals but report all results.

5.2. Results

Correlations and descriptive statistics for the continuous variables

Table 5
Descriptive statistics and correlations for the continuous variables (Study 3).

Variable	<i>M</i> (<i>SD</i>)	Range	1.	2.	3.	4.	5.	6.
1. Narcissistic admiration	3.24 (1.12)	1.00 – 6.00	–	< 0.001	< 0.001	< 0.001	0.902	< 0.001
2. Narcissistic rivalry	2.30 (0.97)	1.00 – 5.11	0.40**	–	0.145	0.006	0.209	< 0.001
3. Positive affect (T1)	4.32 (0.99)	1.00 – 6.00	0.41**	-0.10	–	< 0.001	0.461	0.408
4. Positive affect (T2)	4.11 (1.16)	1.00 – 6.00	0.32**	-0.19*	0.71**	–	0.508	0.866
5. Improvement motivation	1.23 (1.91)	0.00 – 5.00	0.01	-0.09	-0.05	0.05	–	0.991
6. Age	39.26 (12.83)	18.00 – 73.00	-0.28**	-0.24**	0.06	0.01	0.00	–

Note. Due to four missing values, descriptive statistics and correlations for age are based on 213 data points. Correlations and p-values are shown in the bottom and upper triangle, respectively. T1 = before the feedback. T2 = after the feedback.

* $p < .05$ ** $p < .001$.

are reported in Table 5. Upward counterfactuals ($n = 186$ [85%]) were most frequently reported (downward: $n = 21$ [10%]; neither: $n = 10$ [5%]). The proportion of downward counterfactuals was somewhat larger in the positive (13%) compared to the negative (6%) feedback condition, with the proportion of upward counterfactuals being slightly larger in the negative (89%) compared to the positive (82%) feedback condition.

We performed a repeated-measures ANOVA to assess the effectiveness of the feedback (manipulation). After receiving feedback, participants in the negative-feedback condition felt worse ($M = 3.84$, $SD = 1.11$) than participants in the positive-feedback condition ($M = 4.39$, $SD = 1.16$), $F(1, 215) = 29.56$, $p < .001$, $\eta^2 = 0.02$. The main effect of condition ($F[1, 215] = 3.94$, $p = .048$, $\eta^2 = 0.02$) and measurement time ($F[1, 215] = 14.79$, $p < .001$, $\eta^2 = 0.01$) were also significant, suggesting that participants in the positive-feedback condition ($M = 4.35$, $SD = 1.10$) generally felt better than participants in the negative-feedback condition ($M = 4.08$, $SD = 1.05$) and that participants generally felt better before ($M = 4.32$, $SD = 0.99$) compared to after ($M = 4.11$, $SD = 1.16$) the feedback.

We fitted a multinomial regression model to examine the relationship between narcissistic admiration and rivalry and counterfactual form (see Table 6 for the model). Increases in narcissistic rivalry predicted an increased likelihood of generating a downward (vs. upward) counterfactual, $OR = 2.07$, $p = .029$ (also see Fig. 1). There was also some evidence that receiving negative (vs. positive) performance feedback reduces the likelihood that individuals generate a downward (vs. upward) counterfactual, $OR = 0.08$, $p = .060$. Neither the main effect of admiration ($OR = 0.70$, $p = .242$) nor any of the interactions ($OR_{admiration | negative feedback} = 3.86$, $p = .117$; $OR_{rivalry | negative feedback} = 3.67$, $p = .192$; $OR_{admiration*rivalry} = 0.95$, $p = .850$; $OR_{admiration*rivalry | negative feedback} = 0.54$, $p = .344$) were significant (see Table 6).

5.3. Discussion

We examined the relationship between narcissistic admiration and rivalry and counterfactual form in a performance context. Individuals high (vs. low) in narcissistic rivalry were more likely to generate a downward (vs. upward) counterfactual regardless of feedback valence. The implications are discussed below. Our results further suggest that downward (vs. upward) counterfactuals are less likely to be generated in negative- (vs. positive-) feedback situations.

6. General Discussion

Across three online surveys and one online experiment, we examined whether grandiose narcissism influences counterfactual form and, by extension, the tendency to experience regret. In the preliminary study, we found indirect support for our proposition that individuals high in grandiose narcissism prefer downward (vs. upward) counterfactuals. Increased grandiose narcissism (measured using the NPI; Raskin & Terry, 1988) was associated with less regret, an emotion uniquely linked to upward counterfactuals. We replicated this relationship in Study 2 when considering the admiration dimension of grandiose narcissism

Table 6
The effect of narcissistic admiration and rivalry on counterfactual form (Study 3).

	Outcome						
	Downward (vs. upward)			Neither (vs. upward)			
	B (SE)	t (p)	95% CI	B (SE)	t (p)	95% CI	
Intercept	-1.96 (0.35)	-5.64 (<0.001)	-2.64, -1.28	-2.99 (0.54)	-5.53 (<0.001)	-4.05, -1.93	
Admiration	-0.35 (0.30)	-1.17 (0.242)	-0.95, 0.24	-0.30 (0.46)	-0.65 (0.516)	-1.20, 0.60	
Rivalry	0.73 (0.33)	2.18 (0.029)	0.07, 1.38	0.14 (0.59)	0.24 (0.810)	-1.02, 1.30	
NF	-2.48 (1.32)	-1.88 (0.060)	-5.08, 0.11	-0.29 (0.82)	-0.36 (0.721)	-1.89, 1.31	
Admiration × Rivalry	-0.05 (0.25)	-0.19 (0.850)	-0.54, 0.45	0.14 (0.40)	0.34 (0.738)	-0.66, 0.93	
Admiration × NF	1.35 (0.86)	1.57 (0.117)	-0.34, 3.04	0.15 (0.75)	0.21 (0.837)	-1.31, 1.62	
Rivalry × NF	1.30 (1.00)	1.31 (0.192)	-0.65, 3.25	-0.44 (0.88)	-0.49 (0.621)	-2.17, 1.30	
Admiration × Rivalry × NF	-0.62 (0.66)	-0.95 (0.344)	-1.91, 0.67	0.31 (0.63)	0.49 (0.627)	-0.93, 1.55	
McFadden's R ²	0.12						

Note. All predictors were centered. Log-odds are shown. Positive predictor values indicate increased likelihood of generating a downward or 'neither' counterfactual relative to an upward counterfactual. NF = negative feedback.

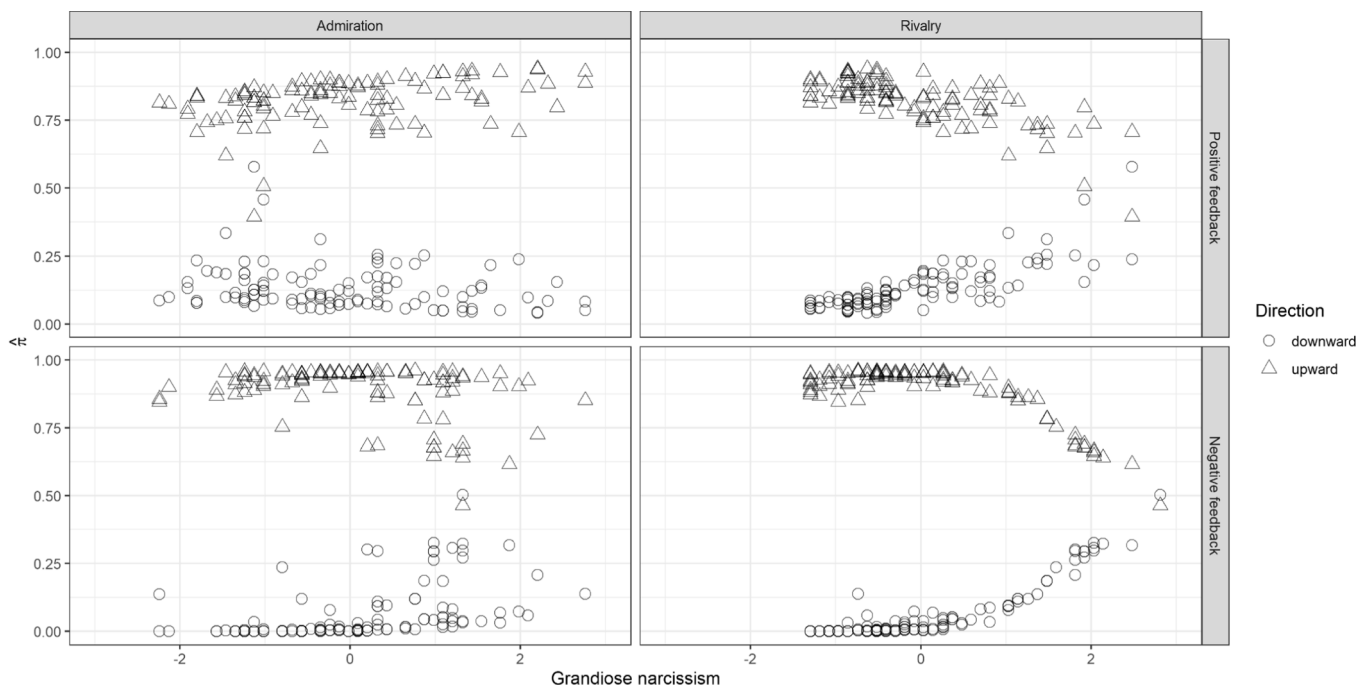


Fig. 1. The Effect of Narcissistic Admiration and Rivalry on Counterfactual Form (Study 3). Note. Plotted probabilities are based on fitted values.

(Back et al., 2013). These findings are consistent given that grandiose narcissism as measured by the NPI and narcissistic admiration as measured by the NARQ are conceptually similar (Back et al., 2013). Hence, grandiosely narcissistic individuals who score high on narcissistic admiration may generally experience less regret.

The results of Study 1 provided the first direct evidence for the proposed link between grandiose narcissism and counterfactual form. However, the observed pattern was inconsistent with our predictions. Individuals who score high (vs. low) on narcissistic rivalry indicated generating more upward and fewer downward counterfactuals. This result was surprising for two reasons: First, upward counterfactuals are incompatible with highly grandiose individuals' goal to construct and maintain a grandiose sense of self (Morf & Rhodewalt, 2001). Hence, they should generally avoid them. Second, upward counterfactuals facilitate behavior regulation. Therefore, these individuals should be effective self-regulators. Yet, grandiosely narcissistic individuals are oftentimes unable to learn from their mistakes (Liu et al., 2019).

While these results appear paradoxical considering grandiosely narcissistic individuals' chronically salient goal to construct and maintain a grandiose sense of self and their self-regulatory difficulties, they are in line with the notion that the rivalry and admiration dimensions

capture the maladaptive and adaptive tendencies of grandiose narcissism, respectively (Back et al., 2013). According to the NARC (Back et al., 2013), behaviors linked to the admiration dimension underlie the bright side of grandiose narcissism (e.g., being charming) while behaviors linked to the rivalry dimension its dark side (e.g., being aggressive). Congruent with the idea that behaviors associated with the rivalry dimension elicit responses that undermine highly narcissistic individuals' self-perceived grandiosity, our results suggest that the rivalry dimension seems to motivate cognitions that undermine narcissistic goal attainment. By depicting the attained outcome as inferior to alternative outcomes, upward counterfactuals threaten the self's grandiosity, a putatively dysfunctional consequence (Morf & Rhodewalt, 2001; Roese & Epstude, 2017). Nevertheless, we did find evidence that high narcissistic rivalry in combination with high narcissistic admiration may lead to more downward counterfactuals as predicted. Overall, the findings highlight the importance of distinguishing the dimensions of grandiose narcissism, as they have distinct nomological networks (Back et al., 2013; Miller et al., 2021).

Results from Study 3 add to the complexity by showing that not only the dimensions of grandiose narcissism need to be explicitly considered but situational factors as well when examining counterfactual thinking.

We found that individuals high (vs. low) in narcissistic rivalry were more likely to generate a downward (vs. upward) counterfactual regardless of feedback valence. This finding is consistent with the claim that contextual variables impact the relative activation of the admiration and rivalry dimensions (Back et al., 2013). Being in a performance situation in which one's performance level is unknown (i.e., the valence of the performance feedback), narcissistic rivalry may be relatively more salient. Moreover, the results speak to the idea that the (mal)adaptiveness of behavior and, by extension, cognitions hinges on the idiosyncrasies of the context (cf., Bonanno et al., 2004; Kashdan & Rottenberg, 2010). On the one hand, when negative feedback undermines the grandiosity of the self, generating downward counterfactuals to neutralize the threat may be considered an adaptive response (Grundmann et al., 2021). On the other hand, when positive feedback bolsters the grandiosity of the self, generating downward counterfactuals may be considered a maladaptive response. Performing well already boosts grandiosely narcissistic individuals' overly positive self-view. Hence, generating downward counterfactuals is not only redundant but may also undermine the regulation of future behavior (Epstude & Roese, 2008). Again, this interpretation is in line with the notion that narcissistic rivalry captures grandiosely narcissistic individuals' maladaptive tendencies (Back et al., 2013).

We failed to find an effect of grandiose narcissism's dimensions on counterfactual form when participants could generate any counterfactual related to a past event (Study 2). This null finding further stresses the importance of carefully considering how one plans to measure counterfactual thinking. Not only does the method chosen to assess counterfactual thinking (broadly [Study 1] vs. specifically [Studies 2–3]) seem to influence the outcome but also the context (episodic counterfactual thinking [Study 2] vs. performance situation [Study 3]). Nevertheless, given the considerable reduction in sample size following the data-quality checks (see Chmielewski & Kucker, 2020 for a discussion of why quality checks are important), statistical power may have been an issue. Moreover, participants may have found it difficult to come up with a suitable moment, as the counterfactual prompt differed from the context in which counterfactuals typically arise (i.e., goal-blockage situations; Markman et al., 1993). This may have resulted in unwanted variance, clouding meaningful effects.

On the whole, the results of the four studies collectively reveal a complex relationship between narcissistic admiration, narcissistic rivalry, and counterfactual form. Thereby, we add to the limited knowledge concerning individuals differences in counterfactual thinking (e.g., Gamlin et al., 2020). Nonetheless, given the relationship's complexity, additional systematic (i.e., experimental) research is needed that seeks to disentangle the interplay between grandiose narcissism, contextual factors, and counterfactual thought.

6.1. Generalizability and Limitations

We demonstrated that grandiose narcissism and its dimensions can be linked to counterfactual form and the experience of regret. Nonetheless, certain limitations should be noted. Although we recruited a demographically diverse set of participants (US college students in the preliminary study, European adults in Study 1, and US residents in Study 2 and 3), participants were mostly white. Hence, one should be careful when generalizing our results to other ethnic groups.

In addition, in two of the four studies participants were recruited via MTurk. Recently, MTurk has been criticized for yielding low-quality data (Chmielewski & Kucker, 2020). Following Chmielewski and Kucker's (2020) advice, we relied on screening questions to ensure adequate data quality. Yet, excluding participant resulted in sample sizes that were smaller than what is needed for correlations to stabilize (Schönbrodt & Perugini, 2013). Hence, we would like to explicitly encourage other researchers to attempt to replicate our findings with larger samples which do not stem from MTurk.

Moreover, the overall level of grandiose narcissism was rather low.

Dimension scores tended to fall below the scale's midpoint. We suspect that the observed effects of grandiose narcissism on counterfactual form are more pronounced for highly grandiosely narcissistic individuals. It would be interesting to conduct comparable studies with individuals who exhibit clinical levels of narcissism in the future.

6.2. Conclusion

In his novel 'The Picture of Dorian Gray', Oscar Wilde depicts Dorian Gray as a grandiosely narcissistic individual who considers regret a potent means of dealing with the past. Yet, we demonstrate that individuals who score high (vs. low) on narcissistic admiration and rivalry tend to experience less regret. Moreover, they may be unlikely to generate upward (i.e., regret-inducing) counterfactuals when there is a need to deal with the past (e.g., in the case of failure). Together, our research highlights the complexity of the relationship between grandiose narcissism, counterfactual thinking, and regret, with different facets of grandiose narcissism relating differently to counterfactual form and regret.

Author Note

No study was preregistered. Data and supplemental material are available online (https://osf.io/mfqcq/?view_only=b213ef33c0334085bd5a56ba39c0e56b). R. Smallman developed the study concept and contributed to the study design for the preliminary study. F. Grundmann and K. Epstude developed the study concept and contributed to the study design for Studies 1–3. F. Grundmann analyzed the data. The results were interpreted by K. Epstude and F. Grundmann. F. Grundmann drafted the manuscript, with K. Epstude and R. Smallman providing feedback. The authors received no financial support for the research, authorship, and/or publication of this article.

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Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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