

Exploring the Links Between Trait Anger, Self-Reported Sarcasm Use, and Narcissism

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ABSTRACT

KEYWORDS

trait anger
sarcasm use
vulnerable narcissism
grandiose narcissism

We carried out two cross-sectional studies ($N_1 = 240$; $N_2 = 334$) on a population of native Polish-speaking young adults to examine the relationships between trait anger, grandiose and vulnerable narcissism, and self-reported sarcasm use, measured with a Polish translation of the Sarcasm Self-Report Scale (SSS, Ivanko et al., 2004). We found that trait anger was significantly and positively associated with self-reported sarcasm use generally and on the face-saving subscale. Additionally, grandiose, but not vulnerable narcissism showed a pattern of positive correlations with self-reported sarcasm use, both generally as well as on the individual SSS subscales. Trait anger and grandiose narcissism were also significant predictors of self-reported sarcasm use, although the influence of narcissism weakened upon the inclusion of trait anger in the regression models, suggesting that trait anger might contribute to perceiving oneself as sarcastic among narcissistic individuals.

INTRODUCTION

Trait Anger

Trait anger refers to frequent and intense experiences of angry feelings (Spielberger, 1999). It is associated with a range of biasing reward-oriented cognitive effects. Thus, individuals high in trait anger tend to focus their attention on rewarding stimuli (e.g., pictures; Ford et al., 2010; Ford & Tamir, 2012) and assess reward-related verbal stimuli as more pleasant (Szymaniak & Zajenkowski, 2021). Trait anger is also related to following the gaze of face stimuli that shift from neutral to happy, which is taken to indicate reward sensitivity (Terburg et al., 2012), and to greater amplitude of the reward positivity (RewP) event-related potential - the electrophysiological correlate

of reward sensitivity (Tsypes et al., 2019). Additionally, high trait anger individuals tend to make overly optimistic judgements about the future (Lerner & Keltner, 2001) and overestimate their cognitive abilities. Zajenkowski and Gignac (2018) found that trait anger was positively correlated with self-assessed, but not objectively assessed intelligence. They posited that since intelligence is both beneficial and

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socially desirable, high trait anger individuals may overestimate it due to the anger-related narcissistic tendency to see oneself in an overly positive light. Therefore, experimental evidence suggests that high trait anger is related to a greater tendency to pursue rewards, even at the expense of greater risk.

On the other hand, high trait anger individuals also display various hostility-related biases. For example, they are more likely to interpret ambiguous social situations in a hostile/aggressive manner (Bodenhausen et al., 1994; Dill et al., 1997; Epps & Kendall, 1995; Hall, 2006), detect hostility where there is none, and anticipate anger/aggression from others (Wilkowski et al., 2007; Wingrove & Bond, 2005). They are also more likely to behave in a hostile manner during interpersonal conflicts (Arslan, 2010), have difficulties in navigating social problems (Robinson et al., 2013), and tend to be more verbally aggressive (Veenstra et al., 2018; Wilkowski & Robinson, 2010). Indeed, Tafra et al. (2002) found that high trait anger individuals reported engaging in verbal aggression twice as likely as low trait anger individuals. Martin et al. (2000) also found that behavioral aggression in trait anger was related to lower agreeableness.

In the context of trait anger, considering the overly optimistic perspective on the one hand and the hostility/aggression bias on the other, a particularly interesting phenomenon is sarcasm use. This is because sarcasm, as a form of nonliteral language, may be used both towards positive/affiliative as well as negative/disaffiliative goals, namely, humor and/or verbal aggression.

Sarcasm

Sarcasm is commonly defined in relation to verbal irony, either as synonymous or as sarcasm representing a “particularly nasty form of an ironic message” (Averbeck & Hample, 2008, p. 397) or “an especially negative form of irony” (Gibbs, 1994, p. 384; see also Dynel, 2017; Taylor, 2017, for a discussion). This is the theoretical approach we have taken, and in this article, we consistently use the term “sarcasm.”

Regardless of its definition, sarcasm is assumed to comprise an (a) overly untruthful (b) expression of a (usually) negative emotional attitude (Dynel, 2014, 2017). It can be used to accomplish a wide range of pragmatic goals, from humor and building in-group ties, through socially attractive self-presentation, to expression of frustration and criticism or a desire to establish oneself as socially superior or in control of one’s own emotions (see Anolli et al., 2002; Attardo, 2000; Dews et al., 1995; Kreuz, 2020). Accordingly, several studies showed that sarcastic criticism is perceived as meaner and more hurtful than direct criticism (Boylan & Katz, 2013; Colston, 1997; Leggitt & Gibbs, 2000; Roberts & Kreuz, 1994), while others - that the humorous element in sarcasm attenuates its criticism (Averbeck & Hample, 2008; Dews et al., 1995). Bowes and Katz (2011) found a similar effect of sarcasm being rated as more hurtful than direct insults, but additionally reported that sarcasm was rated as more humorous by the speaker than by the addressee.

The discrepancy in perception of sarcasm between the speaker and the addressee is also evidenced in other studies. For example, Averbeck and Hample (2008) reported that the self-assessed likeli-

hood of using sarcasm in a variety of mild conflict situations was positively correlated with verbal aggressiveness, indirect interpersonal aggressiveness, and antisocial behavior, but negatively correlated with prosocial behavior, regardless of the level of common ground or interpersonal familiarity between the speakers. On the other hand, relational aggression does not predict more frequent sarcasm use, but is related to perceiving sarcasm as less hostile (Bowes & Katz, 2011). Relatedly, a meta-analysis of studies on humor use and personality (Mendiburo-Seguel et al., 2015) also found that aggressive humor, most often associated with “sarcasm, ridicule, irony, and the use of humor as a form of manipulation, with tacit threats in the guise of ridicule” (p. 336) was negatively correlated with agreeableness, with the proposed link being a lack of concern for the addressee’s feelings.

Therefore, seeing that sarcasm use may depend on the speakers’ individual differences (see Bruntsch et al., 2016), a relationship between trait anger and sarcasm use may be expected. High trait anger individuals may use sarcasm to express anger or to position themselves as socially superior and in control of the situation. Additionally, they may also underestimate the negative influence of sarcasm of the addressees and thus use it more frequently or in a greater variety of settings. However, considering the overly optimistic as well as threat-related biases characteristic of trait anger, we were interested whether these differences would also emerge in the self-reported frequency of sarcasm use (in contrast to externally assessed frequency or the qualitative character of sarcasm produced by high trait anger individuals), in line with the assumption that sarcasm is socially attractive (see, e.g., Ask & Abidin, 2018; Dews et al., 1995; Kreuz, 2020), and thus may be desirable for high trait anger individuals. Our previous study (Szymaniak & Kałowski, 2020) found evidence of such a relationship: Trait anger was positively correlated with self-reported sarcasm use, but not with the frequency of choosing sarcasm in a response-choice vignette task, suggesting a potential role of an anger-related bias in self-perception. However, that study focused only on trait anger, whereas there other personality factors related both to anger/hostility as well as to sarcasm use may also be at play.

Therefore, in the current study, we replicated and extended the previous results by also including narcissism - conceptualized as two personality dimensions (grandiose vs. vulnerable) rather than a personality disorder (see Miller & Maples, 2011). This is because they share certain characteristics with trait anger, namely, an overly optimistic self-view, overestimation of one’s agency, and a high sense of entitlement (Gebauer et al., 2012; Miller et al., 2011). Additionally, grandiose narcissism - similarly to trait anger - may align with the pragmatic goals of using sarcasm in order to put down and criticize, elevate one’s status, display agentic control of emotions, or behave in a socially desirable manner. This way, we hoped to advance our understanding of the interplay between sarcasm and more anger- and hostility-based traits, going beyond the framework of the Big Five traits (see, e.g., Mendiburo-Seguel et al., 2015) or humor-related traits (see, e.g., Bruntsch & Ruch, 2017a).

Trait Narcissism

Narcissism understood as a personality trait rather than a psychopathological condition is described as a cognitive preoccupation with the self (Morf & Rhodewalt, 2001), or a tendency to be overly self-centered and self-claiming (Krizan & Herlache, 2018). According to Brummelman et al. (2018), narcissism is primarily associated with a sense of superiority along with diminishing the value and competence of others. Thus, it is generally related to a more positive self-image (Campbell & Foster, 2007; Jones, 2018) and better memory of positive feedback about oneself (Jones, 2018). However, individuals high in narcissism describe themselves as capable, competent, and intelligent, but not as kind or warm (e.g., Campbell et al., 2002; Zajenkowski et al., 2020). In other words, they emphasize the traits associated with agency rather than communion. On the other hand, many studies have shown the particular sensitivity of narcissistic people to negative evaluations of competence (e.g., Bushman & Baumeister, 1998; Hart et al., 2017; Stucke & Sporer, 2002).

Accordingly, two types of narcissism are currently distinguished in the literature: grandiose and vulnerable (see Miller et al., 2011; Miller et al. 2018; Wink, 1991). They share some core features, such as a sense of distinctiveness, concentration on the self, the need for external reinforcement and approval, and disregard for others. However, both are differently related to these features. Specifically, grandiose narcissism is associated with positive affect and well-being as well as aggression and rivalry/dominance, whereas vulnerable narcissism is associated with neuroticism, insecurity, and anxiety (Maciantowicz & Zajenkowski, 2018; Miller et al., 2011; Sedikides, et al., 2004, Wink, 1991). Prior studies also suggest that grandiose narcissism is linked to trait anger and hostility to a lesser extent than vulnerable narcissism (Krizan & Johar, 2015; Maciantowicz & Zajenkowski, 2018; Maciantowicz et al., 2019; Miller et al., 2011). Thus, since grandiose narcissism individuals most often try to appear superior and in control of the situation, underscore their status, or draw attention to themselves, we expected them to describe themselves as more sarcastic, since the possible pragmatic goals of sarcasm also include creating an impression of superiority, control, or intelligence/cleverness (Anolli et al., 2002; Colston, 1997; Dews et al., 1995).

The Current Study

Taking into account both theoretical and empirical grounds linking trait anger and sarcasm, our primary goal was to examine whether trait anger is positively related to self-reported sarcasm use, since sarcasm can be a socially desirable characteristic as well as a way to save face or establish oneself as dominant/in control of a given social situation. We focused on self-reported rather than externally assessed sarcasm use due to the anger-related tendency to perceive oneself in a positive light. This would also serve as a replication of our previous study (Szymaniak & Kałowski, 2020). Additionally, since an overly positive self-view is also a key characteristic of trait narcissism (Miller et al., 2011), we sought to verify whether narcissism would also be related to self-reported sarcasm use, as well as to explore these relationships in greater detail. This way, we hoped to extend our results beyond a mere replication.

STUDY 1

Study 1 was part of a larger project concerning the relationships between state and trait anger and various broad aspects of cognitive functioning and decision-making. Here, we report only the results concerning sarcasm use.

On the basis of the above, our main prediction was that trait anger would be positively related to sarcasm use (H1). Next, given the relationships between trait anger and narcissism (Krizan & Johar, 2015; Maciantowicz & Zajenkowski, 2018), we suspected that grandiose narcissism would be positively correlated with self-reported sarcasm use (H2A), as grandiose narcissism is strongly related with the overestimation of agentic traits and dominant attitude in human interactions (Campbell et al., 2002; Morf & Rhodewalt, 2001; Zajenkowski et al., 2020). In contrast, vulnerable narcissism is associated with an avoidant attitude and internalization of anger (Krizan & Johar, 2015; Maciantowicz & Zajenkowski, 2018; Miller et al., 2011; Wink, 1991). Hence, we expected that vulnerable narcissism would be negatively related to self-reported sarcasm use (H2B). Finally, based on the available literature, we expected that both trait anger and grandiose narcissism would significantly predict self-reported sarcasm use (H3) due to their shared characteristics of an overly positive self-perception and desire to dominate/control social situations. To verify our hypotheses, two cross-sectional studies were conducted. Both studies were approved by the Ethics Committee of the Faculty of Psychology of the University of Warsaw.

Participants and Procedure

Two hundred and forty volunteer participants (121 women, 119 men) were recruited via posts on publicly accessible social networking websites (mainly via Facebook student groups). Interested individuals contacted the authors using information included in the posts. Each participant who declared that they are over 18 years old and did not participate in a similar study before was welcome to participate. Participants were aged from 18 to 40 ($M = 22.35$; $SD = 3.84$). 65.4% of the sample had secondary education and/or were university students, whereas 17.5% had a Bachelor's degree, and 9.6% - a Master's degree. The remaining 7.5% of the sample had an education level below secondary. An online survey was carried out on the Qualtrics platform. Each participant gave their written informed consent after being presented with information about the general aim of the study and the possibility of withdrawing their participation at any moment without giving a reason. All the participants were Polish and spoke Polish as their first language. First, the participants were asked to provide their demographic information. Next, they were asked to fill out the measures. The measures were presented to the participants in the order indicated below, which was the same for all participants. Each participant received 40 PLN (10 USD) as remuneration for participation. A power analysis conducted using G*Power (Faul et al., 2009) revealed that the current sample size would allow detection of effect size $r = .148$, with alpha of .05 (one-tailed), given a power of .75.

Method

Sarcasm use was assessed with the first eight items from the SSS (Ivanko et al., 2004), translated into Polish for the purpose of the current study. Participants gave their answers using a 7-point scale, from 1 (*not at all*) to 7 (*extremely*). The motivation behind using only half of the SSS was that the eight items have a similar form of general questions about self-assessed sarcasm use (e.g., “How sarcastic would your friends say you are?”). In contrast, the other eight SSS items describe more specific situations and ask about the likelihood of sarcasm use. Thus, since sarcasm use was a secondary, exploratory variable in the research project which Study 1 was a part of, we decided to use the first eight items. Importantly, to validate our decision, we carried out a factor analysis using maximum likelihood with Varimax (raw) rotation, which revealed that a one-factor model fits to the eight-item data. This factor explained 56% of the variance with an Eigenvalue of 4.51. Each item loaded positively on this factor and the loadings ranged from .448 to .862. These values are considered as sufficient to acknowledge the factor as reliable (see Stevens, 1992). Additionally, the Cronbach's α value obtained in this study for the first half of the SSS was .872.

Trait anger was measured with the trait anger subscale from Aggression Questionnaire (Buss & Perry, 1992) in the Polish adaptation by Choynowski (1988). It consists of 7 items rated on a five-point scale from 1 (*extremely uncharacteristic of me*) to 5 (*extremely characteristic of me*). Example items are “When frustrated, I let my irritation show” and “I sometimes feel like a powder keg ready to explode.” We also used the trait anger subscale from the State-Trait Anger Expression Inventory-2 by Spielberger (1999) in the Polish adaptation by Bąk (2016). It consists of 10 items rated on a four-point scale, from 1 (*almost never*) to 4 (*almost always*). Example items are “When I get mad, I say nasty things,” “I have a fiery temper,” and “I fly off the handle.” In the current study, the Cronbach's α value was .858 for the STAXI-2 and .838 for the AQ.

Grandiose narcissism was measured with the Narcissistic Personality Inventory (NPI, Raskin & Hall 1979) in a Polish adaptation by Bazińska and Drat-Ruszczak (2000). The questionnaire comprises 34 items, answered on a five-point Likert scale, from 1 (*does not apply to me*) to 5 (*applies to me*). Example items are “I like to be the center of attention” and “I like to be complimented.” The Cronbach's α value for the NPI was .932 in the current study.

Vulnerable narcissism was measured with the Hypersensitive Narcissism Scale (HSNS; Hendin & Cheek 1997) in a Polish translation by Zajenkowski et al. (2020). The scale consists of 10 items rated on a five-point scale, from 1 (*strongly disagree*) to 5 (*strongly agree*). Example items from the original version are “My feelings are easily hurt by ridicule or by the slighting remarks of others” and “I dislike sharing the credit of achievement with others.” The Cronbach's α value for the HSNS was .687 in the current study.

Results

To verify H1 and H2, we conducted a bivariate correlation analysis. The results are presented in Table 1. We found that self-reported sarcasm use was statistically significantly and positively correlated with trait anger (H1). Importantly, this relationship was true for both anger measures.

Next, in line with our hypotheses, self-reported sarcasm use was also statistically significantly and positively related to grandiose narcissism (H2A), but not to vulnerable narcissism (H2B).

To verify H3, we computed hierarchical regression analyses with self-reported sarcasm use as the outcome variable and grandiose narcissism and trait anger as predictors. The correlation between vulnerable narcissism and self-reported sarcasm use was not statistically significant, so vulnerable narcissism was not included in the regression. We analyzed separate models for trait anger assessed with the STAXI-2 (Spielberger, 1999) and the AQ (Buss & Perry, 1992). In both models, grandiose narcissism significantly accounted for the variance in self-reported sarcasm use. However, the amount of variance explained by grandiose narcissism decreased when trait anger was added to the model. Both predictors were significant when entered in the same step.

Discussion

In Study 1, we confirmed our hypothesis about the positive relationship between trait anger and self-reported sarcasm use. This is in line with our past research (Szymaniak & Kałowski, 2020) and indicates that higher levels of trait anger are related to perceiving oneself as sarcastic. We additionally extended our results. As anticipated, self-reported sarcasm use was correlated with grandiose, but not vulnerable narcissism. Thus, the regression analyses suggest that individuals high in grandiose narcissism might perceive themselves as sarcastic due to their increased levels of trait anger. In Study 2, we decided to follow up on these results in more detail, focusing on the individual subscales of the SSS (described below).

STUDY 2

Accordingly, we expected that trait anger will be positively correlated with each subscale of the SSS, reflecting an overall trend towards greater sarcasm use (more frequent and/or in more contexts) by high

TABLE 1.

Correlation Matrix of all Variables in Study 1 ($N = 240$)

	1.	2.	3.	4.	5.
1. SSS	-				
2. AQ	.221***	-			
3. STAXI-2	.246***	.728***	-		
4. NPI	.211***	.126	.311***	-	
5. HSNS	.099	.397***	.429***	-.012	-
α	.87	.84	.86	.92	.69
$M (SD)$	4.29(1.29)	2.88(.91)	4.29(1.29)	3.05(.66)	3.07(.60)

Note. SSS = Sarcasm Self-Report Scale (first eight items; see the Method section of Study 1); AQ = Aggression Questionnaire; STAXI-2 = State-Trait Anger Expression Inventory-2; NPI = Narcissistic Personality Inventory; HSNS = Hypersensitive Narcissism Scale.

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

TABLE 2.Regression Analysis with Sarcasm Use as Dependent Variable, Grandiose Narcissism and Trait Anger as Predictors in Study 1 ($N = 240$)

Self-reported sarcasm use									
Model 1					Model 2				
Step	R^2	β	t	p	R^2	β	t	p	
1	.045				.045				
		NPI	.211	3.335	<.001	NPI	.211	3.335	<.001
2	.081				.083				
		NPI	.149	2.276	.024	NPI	.186	2.974	.0003
		Anger							
(STAXI-2)	.199	3.044	.003	Anger	(AQ)	.198	3.160	.002	

Note. NPI = Narcissistic Personality Inventory; HSNS = Hypersensitive Narcissism Scale; AQ = Aggression Questionnaire; STAXI-2 = State-Trait Anger Expression Inventory-2.

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

trait anger individuals (H1). Based on the results of Study 1, we hypothesized that grandiose narcissism would also be related to greater sarcasm use (H2). However, seeing as vulnerable narcissism denotes insecurity, hostility, and distrust (Miller et al., 2011), we predicted that it would be positively correlated only with face saving sarcasm, reflecting the tendency to maintain interpersonal distance and downplay compliments (H3). Based on the results of Study 1, we did not expect any other correlations for vulnerable narcissism. Finally, we sought to replicate the regression analysis from Study 1 using the full version of the SSS. We again expected that both trait anger and grandiose narcissism would predict self-reported sarcasm use (H4).

Participants and Procedure

A total of 334 participants took part in Study 2 (219 females and 115 males). Participants were recruited via publicly accessible posts on social networking websites (mainly via Facebook student groups). Interested individuals contacted the authors using information included in the posts. Each participant who declared that they are over 18 years old and did not participate in a similar study before was welcome to participate. Participants were aged from 20 to 57 ($M = 23.09$; $SD = 5.78$). 16.8% of the sample had middle school education, 43.4% had secondary education and/or were university students, 15.3% had a Bachelor's degree, and 23.7% had a Master's degree. The remaining 0.6% of the sample (2 participants) had primary education, and data was missing from the last 0.2% (3 participants). All the participants were Polish and spoke Polish as their first language. Study 2 was conducted online using the Qualtrics platform, and the procedure was identical to Study 1. A power analysis conducted using G*Power (Faul et al., 2009) revealed that the current sample size would allow detection of effect size $r = .126$, with an alpha of .05 (one-tailed), given a power of .75.

Measures

Trait anger, grandiose narcissism, and vulnerable narcissism were assessed with the same measures as were in Study 1.

Sarcasm use was assessed with the full version of the SSS (Ivanko et al., 2004) in a Polish translation created for the purpose of the study. The full version of the SSS comprises 16 items - the first eight are general questions ("How sarcastic would your friends say you are?"; "Likelihood that you would use sarcasm when insulting someone"), while the other eight are a series of short vignettes depicting specific social situations ("You and your roommate are having a serious argument about how to share the household chores...") and asking participants about their likelihood of using sarcasm.

In the original SSS study (Ivanko et al., 2004), the authors distinguished four subscales through a factor analysis: (a) general sarcasm, describing the self-perception of oneself as a sarcastic person and the "likelihood of using sarcasm in situations where it is more typically used (i.e., in a negative situation with the intent to insult)" (p. 254), (b) face-saving, or using sarcasm is to compliment other people as well as when speaking with strangers. Notably, Ivanko et al. (2004) consider this facet of sarcasm use as the most socially risky/the most prone to being misunderstood; (c) embarrassment diffusion, or using sarcasm to be modest, and (d) frustration diffusion, or using sarcasm as a form of emotional regulation. Similarly as in the original SSS study (Ivanko et al., 2004) Item 9 ("How likely are you to make sarcastic statements in these situations?: You are out for drinks with a group of friends. The person beside you tells a hilarious story about one of their colleagues from work. You begin to talk about a related experience . . .") was excluded from the analyses due to inconsistent factor loadings. The Cronbach's α values for the SSS subscales were as follows: .843 for the entire scale, .820 for general sarcasm, .721 for face saving sarcasm, .643 for embarrassment diffusion, and .603 for frustration diffusion. Thus, considering the low number of items (> 5) in the last two subscales, their reliability can nevertheless be considered satisfactory.

Results

We conducted a bivariate correlation analysis to test H1 and H2. The results are presented in Table 3. General sarcasm was positively related to trait anger, assessed with both the AQ and STAXI-2 trait anger subscales. Similarly, both subscales were positively related to face-saving sarcasm use. There were no statistically significant correlations of trait anger with embarrassment diffusion. Frustration diffusion was positively related to trait anger assessed with the AQ subscale, but this effect was under the threshold for reliably detecting effects. Grandiose narcissism was significantly and positively related only to face-saving sarcasm use. It was also positively related to embarrassment diffusion, but this effect was under the threshold for reliably detecting effects.

Next, we ran the same linear regression analyses as in Study 1 to test H4. We tested models only with face-saving sarcasm use as the outcome variable due to the fact that other factors were not significantly related to both grandiose narcissism and trait anger (see Table 4). Again, we analyzed separate models for trait anger assessed with the STAXI-2 (Spielberger, 1999) and the AQ (Buss & Perry, 1992). In both models, grandiose narcissism significantly accounted for the variance of the face-saving facet of sarcasm use. However, the amount of variance explained by grandiose narcissism decreased when trait anger was added to the model. Both predictors were significant when entered in the same step.

Discussion

Study 2 provided a more detailed picture of the association between trait anger and sarcasm use. We confirmed our predictions about a positive relation between trait anger, general sarcasm use, and face-saving sarcasm use. This suggests that high trait anger individuals might use sarcasm in order to maintain a positive image of themselves. This might be due to their narcissistic tendency to react with anger in

response to ego threat (Stucke & Sporer, 2002). Such an explanation finds confirmation in our findings. That is, we found that grandiose narcissism significantly predicted face saving sarcasm among those who scored higher on trait anger (see also Stucke & Sporer, 2002).

GENERAL DISCUSSION

In two studies, we examined the link between sarcasm use, trait anger, and two types of narcissism. The results have confirmed the positive association of trait anger with self-reported sarcasm use and have revealed a more detailed pattern of association between trait anger and the individual subscales of the SSS, reflecting different goals, purposes, and contexts of sarcasm use. Additionally, grandiose, though not vulnerable, narcissism was positively correlated with self-reported sarcasm use. Furthermore, while both trait anger and grandiose narcissism significantly accounted for the variance in self-reported sarcasm use in both studies, the influence of grandiose narcissism decreased when trait anger was included in the regression models. This suggests that narcissistic sarcasm use may be underlined by an increased tendency to experience anger.

Trait Anger and Self-Respected Sarcasm Use

We hypothesized that trait anger may be related to self-reported sarcasm use for two main reasons. First, through sarcasm, it is possible to accomplish a number of pragmatic goals (Attardo, 2000; Dews et al., 1995; Garmendia, 2018) which may be especially favored by high trait anger individuals. These are, on the one hand, verbal aggression and criticism (Colston, 1997; Leggitt & Gibbs, 2000). On the other hand, sarcasm is also perceived as humorous, attractive and socially desirable, thus putting the speaker in a positive light (Dews et al.,

TABLE 3.

Correlation Matrix of all Variables in Study 2 (N = 334)

	1.	2.	3.	4.	5.	6.	7.	8.
1. Sarcasm use (General)	-							
2. Sarcasm use (Face-saving)	.672***	-						
3. Sarcasm use (Embarrassment)	.324***	.313***	-					
4. Sarcasm use (Frustration)	.357***	.254***	.161**	-				
5. STAXI	.216***	.142**	-.036	.103	-			
6. AQ	.193***	.140*	-.038	.118*	.749***	-		
7. NPI	.068	.137*	.116*	.067	.166**	.034	-	
8. HSNS	.086	.096	.033	.094	.430***	.274***	.082	-
α	.820	.721	.643	.603	.820	.828	.900	.697
M (SD)	4.46(1.31)	3.33(1.60)	3.11(1.55)	4.05(1.51)	2.32(.59)	2.68(.89)	3.05(.58)	3.05(.62)

Note. SSS = Sarcasm Self-Report Scale (first eight items; see the Method section of Study 1); AQ = Aggression Questionnaire; STAXI-2 = State-Trait Anger Expression Inventory-2; NPI = Narcissistic Personality Inventory; HSNS = Hypersensitive Narcissism Scale.

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

TABLE 4.Regression Analysis with Sarcasm Use as Dependent Variable, Grandiose Narcissism and Trait Anger as Predictors in Study 2 ($N = 334$)

Self-reported sarcasm use									
Model 1					Model 2				
Step	R^2	β	t	p	R^2	β	t	p	
1	.019				.019				
		NPI	.137	2.512	.012	NPI	.137	2.512	.012
2	.033				.037				
		NPI	.116	2.122	.035	NPI	.132	2.445	.015
		Anger							
		(STAXI-2)	.122	2.233	.026	Anger (AQ)	.135	2.510	.013

Note. NPI = Narcissistic Personality Inventory; HSNS = Hypersensitive Narcissism Scale; AQ = Aggression Questionnaire; STAXI-2 = State-Trait Anger Expression Inventory-2.

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

1995). There is also evidence suggesting that sarcastic criticism communicates emotional composure and control (Anolli et al., 2002; Dews et al., 1995). For example, the allusional pretence theory of sarcasm (Kumon-Nakamura et al., 1995) suggests that sarcastic criticism is accomplished by the speaker indirectly alluding to a shared social norm or expectation (e.g., “How old did you say you were?” said to someone who is acting immaturely), which simultaneously places them in a position of authority/superiority.

Second, trait anger is associated with an overestimation of control and personal abilities, and an underestimation of risk. Therefore, we specifically assumed that trait anger would be correlated with self-reported sarcasm use. That is, high trait anger individuals are more likely to perceive themselves as sarcastic, since sarcasm is often seen as attractive and socially desirable (see, e.g., Kreuz, 2020). However, the actual quality and pragmatic effectiveness of their sarcasm may not necessarily correspond with this self-perception (Averbeck & Hample, 2008; Bowes & Katz, 2011), considering that sarcasm, a form of nonliteral speech, usually requires greater cognitive effort to produce (Gibbs, 2012), while high trait anger is related to greater impulsivity and lower cognitive control (see Wilkowski & Robinson, 2010, for a review).

The results confirmed our hypotheses. Trait anger was related to self-reported sarcasm use in general. However, the results on the individual subscales on the SSS (Study 2) showed a statistically significant positive correlation only with general and face-saving sarcasm use. The correlations for embarrassment diffusion and frustration diffusion were not statistically significant and on the trend level, respectively. This suggests that high trait anger individuals may perceive (or may want to perceive) themselves as fluent in sarcasm generally, but not when it comes to situations of frustration or embarrassment.

A key aspect of anger that might fuel the self-perception of oneself as sarcastic is the overly positive perception of certainty and control (Szymaniak & Kałowski, 2020). More precisely, trait anger has been shown to enhance beliefs of control over a situation and of the ability

to predict its course (e.g., Lerner & Keltner, 2000; 2001). Both beliefs may contribute to behavioral consequences, with the approach motivation including increased risk-taking (Lerner & Keltner, 2000) and attentional bias towards rewarding cues (Ford & Tamir, 2012). Hence, it is possible that such (most often illusory) appraisals encourage making sarcastic comments. However, in more specific, negative contexts of frustration or embarrassment, they may resort to more direct, literal communication.

Moreover, the correlations between trait anger and the subscales of the SSS thus complement the psycholinguistic and sociolinguistic studies on sarcasm. The motivations behind speaking sarcastically have been a point of contention since the first formal linguistic and psycholinguistic theories of sarcasm were proposed (see Gibbs & Colston, 2007, for an overview). Several frameworks have been developed, based on theoretical inference (see, e.g., Attardo, 2000; Dews et al., 1995) as well as on empirical surveys (see, e.g., Kreuz et al., 1991; Roberts & Kreuz, 1994). By showing that the different functions of sarcasm are differentially related to trait anger (as well as narcissism; see below), our results can be interpreted as confirming the linguistic accounts of the pragmatic goals of sarcasm.

Narcissism and Self-Respected Sarcasm Use

With regards to sarcasm, we expected to find a positive correlation between grandiose narcissism and self-reported sarcasm use for reasons similar to trait anger, namely, a desire to appear superior and in control, as well as to capture attention. On the other hand, we anticipated a negative correlation between self-reported sarcasm use and vulnerable narcissism, since individuals high in vulnerable narcissism may be more likely to internalize anger and avoid confrontation (Krizan & Johar, 2015; Maciantowicz & Zajenkowski, 2018; Miller et al., 2011; Wink, 1991), whereas sarcasm can be considered a more confrontational, risky form of speech (see, e.g., Colston & Lee, 2004).

The results confirmed our hypotheses. Both grandiose and vulnerable narcissism were positively correlated with trait anger. More importantly, self-reported sarcasm use was positively correlated with grandiose narcissism, but not statistically significantly correlated with vulnerable narcissism. Additionally, Study 2 revealed that grandiose narcissism was only correlated with face-saving but not with general sarcasm use. Thus, while both high trait anger and high grandiose narcissism individuals tend to describe themselves as sarcastic, they may do so for different reasons, with grandiose narcissism individuals considering sarcasm to be a form of ego-defense and maintaining a positive image.

This suggestion corresponds with the idea that sarcasm serves a wide variety of conversational and pragmatic goals and they may additionally relate to the entitlement facet of grandiose narcissism (e.g., Miller et al., 2011; Krizan & Johar, 2015). For example, Veselka et al. (2010) showed that narcissism, measured with the NPI (same as in the current study) was related to the affiliative (benign, friendly banter) and self-enhancing humor styles. The authors suggested that “narcissistic individuals may further themselves, heighten their self-esteem, and increase their popularity by building relationships with others in part through the use of affiliative styles of humor” (p. 774). However, an extension of their research (Martin et al., 2012), again using the NPI, found that the link between narcissism and self-enhancing humor style was not replicated, and that a correlation with the aggressive humor style emerged, possibly reflecting the unstable and vulnerable self-esteem of high-narcissism individuals who might engage in “ego-maintenance through aggression” (Martin et al., 2012, p. 181, see also Bruntsch & Ruch, 2017b). Together with the current results, this signals that narcissistic individuals might see sarcasm as a kind of retaliatory form of maintaining their self-esteem and grandiosity in situations where it may be threatened - new social situations and paying compliments/acknowledging the performance of others (face-saving sarcasm use). The former context may be especially significant in the context of grandiose narcissism. Dews et al. (1995) suggested the tinge hypothesis, according to which the juxtaposition between the literal and figurative meaning in a sarcastic utterance serves to tinge its pragmatic impression in a given direction. Thus, sarcastic praise (or praise by blame) may “render the compliment ambiguous by putting it in negative terms, leaving the addressee to wonder whether the speaker intended praise or put-down. Hence, a [sarcastic] compliment may elevate the speaker’s status, while a literal compliment may diminish it” (Dews et al., 1995, p. 299).

Additionally, the grandiose narcissistic positive self-view might be also connected with high approach motivation (Foster & Brennan, 2011), a crucial component of anger (e.g., Carver & Harmon-Jones, 2009; Harmon-Jones & Allen, 1998). By definition, approach motivation implies an impetus to act (Harmon-Jones, et al., 2013). In anger-related behaviors, it is mainly evoked in response to obstacles on the way to the set goal (Berkowitz, 1993). For people high in grandiose narcissism, sarcastic utterances might therefore be an attempt to “bypass” the obstacles on the way to express anger in a social context, which often imposes restrictions to behave in a restrained way.

Limitations and Further Directions

A chief limitation was that both studies were correlational in nature, which precludes reasoning about causal relationships. Furthermore, regarding self-report measures, Study 1 used only a part of the SSS. Future studies should continue to employ the scale in full, possibly also in conjunction with other self-report measures of sarcasm and/or humor use (such as the Comic Style Markers, which contains subscales of sarcasm, irony, and wit; Ruch et al., 2018).

While the participants’ self-reported sarcasm use can be considered an important individual difference in itself, especially in the context of self-perception biases inherent in trait anger and narcissism, it would also be worthwhile to employ objective measures of sarcasm use, for example, open-choice questions asking for responses to various social scenarios (see Dews et al., 1995; Katz, 2017). Experimental assessments of anger would also represent an important methodological extension. Sarcastic speakers’ intentions do not always correspond to the listener’s impression (Leggitt & Gibbs, 2000; see also Pexman & Olineck, 2002). Thus, experimental tasks would allow for manipulating certain contextual variables (e.g., using sarcasm with superiors vs. peers vs. subordinates, etc.) or depicting scenarios of achievement or competition, or ego-threat and criticism to more closely examine the dynamics of sarcasm use in high- and low anger and narcissism individuals.

Moreover, including experimental measures of objective sarcasm use in the traditional form of short vignettes of social situations would allow for exploring the potential effect of gender more accurately. This is important since the literature shows evidence of gender - and, to a lesser extent, age - differences in sarcasm use and perception (Colston & Lee, 2004; Milanowicz et al., 2017; Phillips et al., 2015) as well as in narcissism (Grijalva et al., 2015; Milovchevich et al., 2001). We did not specifically focus on gender and age in our study, and the sample in Study 2 was slightly skewed towards women. However, we carried out additional regression analyses controlling for gender and age in all models. Their results are presented in Tables A1 and A2 in the Supplementary Materials. Importantly, the same effects remained statistically significant, though the amount of variance in self-reported sarcasm use increased slightly with the inclusion of gender and age in the models.

Finally, an equally important area of study in this regard would also be sarcasm understanding. It remains to be seen how trait anger and narcissism influence the perception of sarcastic utterances as humorous and/or critical, and whether this perception is additionally changed by the context in which these utterances appear (interpersonal conflict, self-enhancement vs. ego threat). It is also probable that negatively biased interpretations of sarcastic remarks are common for high trait anger individuals due to its association with biased, hostile interpretations of ambiguous stimuli, as was described above.

Nevertheless, despite the limitations, the current study showed that trait anger is associated with higher self-reported sarcasm use and grandiose, though not vulnerable narcissism. This finding advances our understanding of the dynamics of sarcasm, trait anger, and narcissism and it ties into the most current research trends focusing on the role of individual differences in nonliteral language use (Athanasidou & Colston, 2017; Bruntsch et al., 2016) and on the approach motivation in trait anger (Veenstra et al., 2018).

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APPENDIX

TABLE A1.

Regression Analysis with Sarcasm Use as Dependent Variable, Grandiose Narcissism and Trait Anger as Predictors, Controlling for Age and Gender in Study 1 ($N = 240$)

Self-reported sarcasm use									
Model 1					Model 2				
Step	R^2	β	t	p	R^2	β	t	p	
1	.020				.020				
		-.113	-1.703	.090		-.113	-1.703	.090	
		.117	1.767	.078		.117	1.767	.078	
2	.057				.057				
		-.106	-1.629	.105		-.106	-1.629	.105	
		.071	1.063	.289		.071	1.063	.289	
		.198	3.045	.003		.198	3.045	.003	
3	.094				.101				
		-.089	-1.381	.169		-.106	-1.665	.097	
		.101	1.523	.129		.112	1.689	.093	
		.127	1.866	.063		.161	2.506	.013	
		.206	3.088	.002		.214	3.372	<.001	

Note. HSNS = Hypersensitive Narcissism Scale; NPI = Narcissistic Personality Inventory; STAXI-2 = State-Trait Anger Expression Inventory-2.

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

TABLE A2.

Regression Analysis with Sarcasm Use as Dependent Variable, Grandiose Narcissism and Trait Anger as Predictors, Controlling for Age and Gender in Study 2 ($N = 334$)

Self-reported sarcasm use									
Model 1					Model 2				
Step	R^2	β	t	p	R^2	β	t	p	
1	.013				.013				
		-.006	-.112	.911		-.006	-.112	.911	Age
		.116	2.113	.035		.116	2.113	.035	Gender
2	.027				.027				
		-.010	-.178	.859		-.010	-.178	.859	Age
		.092	1.655	.099		.092	1.655	.099	Gender
		.118	2.135	.033		.118	2.135	.033	NPI
3	.046				.051				
		-.018	-.336	.737		-.004	-.083	.934	Age
		.119	2.118	.035		.125	2.230	.026	Gender
		.089	1.595	.112		.106	1.929	.055	NPI
									Anger
		.145	2.599	.010		.160	2.919	.004	(STAXI-2) (AQ)

Note. HSNS = Hypersensitive Narcissism Scale; NPI = Narcissistic Personality Inventory; STAXI-2 = State-Trait Anger Expression Inventory-2.

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