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Narcissistic Intolerance: Verbal Hostility and Dismissiveness in Response to Subjective Disagreement

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Narcissistic Intolerance:
Verbal Hostility and Dismissiveness in Response to Subjective Disagreement

by

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DISSERTATION

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Abstract

We examine the novel proposition that disagreement on matters of opinion may threaten narcissists' self-esteem and cause them to express dismissiveness of differing opinions and hostility toward the dissenter, a phenomenon we refer to as narcissistic intolerance. In three studies, participants ostensibly read about an earlier participant's opinion on a painting (Studies 1 & 2, MTurk samples) or TV show (Study 3, undergraduate sample) that agreed or disagreed with the participant's own opinion. Participants then wrote a response to the opinion, as though they were responding on an anonymous Internet message board. We coded participants' responses, finding that participants higher in narcissism expressed significantly more intolerance in response to disagreement than agreement, compared to less narcissistic individuals. However, when narcissists' self-esteem was affirmed by writing about a personally important value, they expressed no more intolerance than non-narcissists toward the person who disagreed with them (Study 2). In addition, whereas initial disagreement expressed with civility evoked greater intolerance from narcissists, disagreement expressed with incivility evoked greater intolerance from participants regardless of their levels of narcissism (Study 3). These findings may have implications for understanding online verbal aggression such as flaming.

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Narcissistic Intolerance:

Verbal Hostility and Dismissiveness in Response to Subjective Disagreement

The Internet provides a platform for people to publicly express opinions and be readily exposed to others' opinions. The Internet has also, however, become a major platform for hostility and aggression, which is considered to be a rising "public health problem" (David-Ferdon & Hertz, 2007). One common online aggressive behaviour is "flaming," defined as "displaying hostility by insulting, swearing or using otherwise offensive language" (Moor, Heuvelman, & Verleur, 2010, p. 1536). Flaming is frequently used to express hostile disagreement with opinions in online comments (Lee, 2014; Moor et al., 2010). We examine the propensity of people to react to differing opinions, in computer-mediated communication, with dismissiveness and hostility. In particular, we test whether narcissists are more likely to display such reactions. Narcissists have a propensity for aggression (Rasmussen, 2016), including physical aggression (Baumeister, Bushman, & Campbell, 2000; Bushman & Baumeister, 1998; Bushman et al., 2009), derogation of others (Stucke & Sporer, 2002), and interpersonal conflict (Moeller, Crocker, & Bushman, 2009). They might also, then, display heightened hostility in anonymous online communication. We argue that differences of opinions may be threatening to narcissists and cause them to respond with dismissiveness and hostility, a phenomenon we refer to as narcissistic intolerance.

Narcissistic Intolerance: A Defensive Reaction to Subjective Disagreement

Narcissists¹ possess grandiose, inflated self-views that seem to require continual social validation to be maintained (Morf & Rhodewalt, 2001). They frequently exploit others and seek

¹ In the present research, we examine grandiose narcissism, rather than pathological narcissism or Narcissistic Personality Disorder. We use the term "narcissists" to denote individuals who are high in grandiose narcissism, although we treat narcissism as a continuous personality dimension on which people can range from high to low.

proof or reassurance of their importance, power, and respect, yet they lack genuine warmth or caring for others' feelings (Campbell & Foster, 2007). Narcissists desire competitive opportunities to outperform others or show off their superiority in order to receive attention and admiration. When their grandiose self-views are challenged, they react with aggression and derogate those who criticize, insult or reject them (e.g., Bushman & Baumeister, 1998). They similarly try to refute the validity of negative feedback (Kernis & Sun, 1994). Given narcissists' heightened vulnerability and sensitivity to criticism, we wondered whether they might also react to subjective disagreement as though it were insulting or critical of them and their own opinion, inciting greater hostility and dismissiveness. Flaming frequently occurs in response to merely contrary opinions expressed online. This may suggest that some people, perhaps narcissists, view contrary opinions as self-threatening.

Theorizing on social comparison may suggest some reasons why subjective disagreement might threaten some individuals' self-esteem. In his classic presentation of social comparison theory, Festinger (1954) posits that people have a basic drive to evaluate their opinions and abilities by comparing them to those of other people. Opinions perceived to be incorrect or invalid, or abilities perceived to be deficient may be troublesome to the individual. Whereas clear, objective performance indicators are sometimes available for the evaluation of abilities, such criteria may be less readily available for one to determine whether their opinions are correct or valid, especially for subjective preferences. The absence of objective standards for judging opinions or abilities drives people to compare their opinions and abilities to those of others. Opinions that are more widely shared by others may therefore be perceived to be more valid. In contrast, when one compares his or her opinions with those of others, if differences are detected (i.e., disagreement), it may cause concern that one's opinions are invalid. Such concerns may

prompt the individual to try to persuade the other to adopt his or her views. It might also lead to ostracism of those who express differing opinions to invalidate their relevance as social comparison targets. Indeed, in online communication, people sometimes express forceful disagreement through flaming, to try to persuade the other person or other people reading the comments, or to dominate the other person (Luzón, 2013). Flaming may also serve to derogate, and thus distance, the other person (Lee, 2014).

Integrating ideas about social comparison of opinions with research on attitude similarity and attraction, the competence-reinforcement model (Byrne & Clore, 1967; Gormly, Gormly, & Johnson, 1971) posits that attitudinal agreement may reinforce people's sense of competence to construe the world correctly whereas disagreement may dampen such a sense of competence. In line with this possibility, one study suggests that attitudinal disagreement can threaten self-esteem (Johnson, Gormly, & Gormly, 1973). Participants viewed a list of 15 attitudinal items and rated how much they support or oppose each item. Individuals led to believe that they shared very few attitudes with a stranger experienced a drop in state self-esteem—an indicator of exposure to ego-threat (Leary, Terry, Allen, & Tate, 2009)—compared to individuals led to believe that they shared many attitudes with a stranger. In addition, participants who experienced disagreement liked the stranger less than people who experienced agreement. Johnson et al. (1978, p. 168) manipulated disagreement using a typical approach in the attitude similarity-attraction literature (Byrne, 1997) by varying the proportion of attitudinal items (e.g., “birth control”; “whether professors are concerned about students’ needs”) that were rated similarly by the participant and the target person. Note that opinions for some of the attitudinal items may be grounded in moral values or standards (e.g., birth control). They may also be grounded in relatively rational arguments or empirical evidence. Disagreement on these items might thus

directly threaten one's sense of being moral or competent. The present research is consistent with, but also differs from, this study.

In the present studies, we focus on more purely subjective preferences that are not morally charged, to eliminate the likelihood that differing opinions might directly threaten a sense of being moral or capable. In this way, we attempt to test the effects of disagreement generally, separate from direct challenges to a sense of morality or competence. Instead of presenting a list of attitudinal targets, moreover, we focus on disagreement on opinions expressed for a single target, which is more consistent with how people typically encounter disagreement in online discussion. Notably, examining more purely subjective preferences reflects the conditions under which people should feel most reliant on others' opinions when assessing their own; that is, when non-social, objective criteria for judging the validity of the opinion are absent (Festinger, 1954).

There is also reason to believe that narcissists will be more acutely sensitive to disagreement. Narcissists seem especially dependent on interpersonal feedback to maintain their positive self-evaluations (Morf & Rhodewalt, 2001). In the case of subjective opinions, they may seek agreement from others to reassure them of the "correctness" of their views. In other words, narcissists may feel threatened by opposing views, as if those views were negative feedback that questions their competence or worth. If so, people expressing differing opinions may be perceived by narcissists to be the source of self-threat, and they may therefore react with hostility toward them. Narcissists may also dismiss the validity of the differing opinion. Therefore, we define intolerance as a defensive reaction to subjective disagreement, which consists of expressing hostility toward the dissenter and dismissiveness of the differing opinion. We next

outline several lines of research that further contribute to our specific hypotheses about the two components of intolerance: hostility and dismissiveness.

Threatened Egotism and Narcissistic Aggression

Numerous studies have shown that narcissists are acutely sensitive to ego-threat, which can provoke physical aggression toward the source of the threat (Rasmussen, 2016). One type of ego-threat that provokes narcissistic aggression is direct criticism of performance. Bushman and Baumeister (1998) had participants write an essay on abortion which they believed another participant would evaluate. In a subsequent competitive reaction time task, participants administered blasts of aversive noise to the other participant who they believed had criticized their essay. Highly narcissistic participants who received a negative evaluation reacted most aggressively, by blasting the other participant with more intense noise. Narcissists who received a positive evaluation of their essay were not more aggressive. Another threat that causes narcissistic aggression is social rejection. Twenge and Campbell (2003) found that narcissists reacted with greater aggression (i.e., administering more intense blasts of noise) toward other participants who did not choose to interact with them further after a 15 min conversation. They were not more aggressive toward other participants who accepted them.

It is worth noting that research on narcissistic aggression has focused predominantly on the effects of overt, personally-relevant feedback. Our research is therefore distinguished by focusing on subjective disagreements as a source of threat, in addition to examining the relatively novel response of expressed hostility and dismissal of differing opinions, rather than physical aggression.

Past research shows that narcissists may use aggressive language as part of their self-regulatory strategies to maintain self-esteem in the absence of ego-threat. Narcissism is

associated with hostility and verbal aggression even in the absence of ego threat (e.g., von Collani & Warner, 2004; Ongen, 2010; Raskin, Novacek, & Hogan, 1991). Recent evidence, moreover, reveals that narcissists are more likely than less narcissistic individuals to engage in arguing and swearing in their daily lives (Holtzman, Vazire, & Mehl, 2010). Narcissism is also associated with self-reported proneness to use rude language to retaliate against others (Park, Ickes, & Robinson, 2014). Notably, narcissists use offensive language more often than less narcissistic individuals because they view such language as more attention grabbing, yet they are less sensitive to the ways that offensive language can be harmful to others (Adams, Florell, Alex, Burton, & Hart, 2014). If narcissists use hostile language as their regular means to seek attention for self-esteem maintenance in daily life, they may also use hostile expressions online to protect their self-esteem. Little research to date, however, has examined whether narcissists are especially likely to express verbal hostility in response to ego-threatening provocation. We therefore expect that subjective disagreement will heighten narcissists' verbal hostility.

Threatened Egotism, Perception of Feedback, and Derogation of Evaluators

The second key component of narcissistic intolerance is dismissal of differing opinions. Some evidence is consistent with the possibility that narcissists are more likely to be dismissive of other's opinions. One recent study suggests that narcissism makes people more reluctant to take advice (Kausel, Culbertson, Leiva, Slaughter, & Jackson, 2015). When responding to general knowledge questions, participants induced to have higher state narcissism (through priming), or those higher in trait narcissism (with extraversion controlled), viewed responses provided by an earlier participant (i.e., advice) to be less accurate and useful. Results from this research suggest a link between narcissism and dismissiveness of others' knowledge, even when such knowledge is meant to help narcissists perform better. Empirical evidence is lacking,

however, on whether narcissism, as an individual difference, moderates dismissal of others' differing opinions.

Evidence that could imply narcissistic dismissal of differing opinions is rather indirect. Morf and Rhodewalt (2001) suggest that narcissists attempt to refute the validity of negative feedback in order to lessen its impact on their self-esteem. Kernis and Sun (1994) had participants prepare a short speech and led them to believe that a participant from another study evaluated its style. Highly narcissistic people who were criticized perceived the negative feedback to be a less valid indication of their ability. In contrast, they perceived positive feedback to be more diagnostic of their ability. In addition, narcissists perceived the evaluator to be less competent and attractive after negative evaluation. The tendency for narcissists to dismiss negative feedback and the credibility of the evaluator were replicated in a later study (Stucke & Sporer, 2002). Following failure feedback on an intelligence test, narcissists with low self-concept clarity viewed the test most negatively (e.g., lower rating on "I think this is a good experiment") and the evaluator of the test least competent, capable, friendly, and likable. Notably, endorsement of these comments, which are potentially harmful for the evaluator's reputation, was considered a proxy for verbal aggression (Stucke & Sporer, 2002).

Again, research to date has focused on the effect of direct evaluative feedback such as criticism and insults on narcissistic aggression and derogation of evaluators. In the current research, we empirically test whether narcissists express more hostility in response to a differing opinion and are more dismissive of that opinion, compared to less narcissistic individuals.

Expressed intolerance may entail strong disagreement, negativity toward the other person, angry utterances such as swearing, and forceful dismissal of the validity of differing opinions. For simplicity, we define narcissistic intolerance as involving verbal hostility and dismissiveness.

Note, however, that “hostility” here does not solely mean anger or strong affective motives, but may involve verbal aggression to serve psychological motives. Buss and Perry (1992) define verbal aggression in terms of openly expressing strong disagreement and being argumentative, rather than explicit intent to harm another person. This definition is pertinent to our operationalization of expressed intolerance. In conceptualizations of flaming, displaying hostility, negativity, outbursts of strong emotion and textual elements (e.g., excessive use of all-caps and exclamation points) are seen as means of expressing disagreement and sometimes attacking others’ face (Kayany, 1998; McKee, 2002; Moor et al., 2010; Turnage, 2007). We conceptualize intolerance similarly; though we describe it in terms of hostility, we see it as potentially encompassing verbal aggression, in Buss and Perry’s terms, and consistent with conceptualizations of flaming.

The Present Research

We examine the novel proposition that subjective disagreement evokes intolerance from narcissists, in terms of expressing hostility toward the dissenter and being dismissive of the differing opinion. In three studies, we exposed participants to subjective disagreement (or agreement) on matters of opinion that were not likely to reflect personally-relevant attributes or performance. Participants read about an earlier participant’s opinion of a painting or TV show that ostensibly agreed or disagreed with the participant’s own opinion. We then had participants write a response to the opinion as though they were responding on an anonymous Internet message board. We assessed intolerance by content coding participants’ written responses for indications of dismissiveness and hostility. We expected narcissists to express intolerance that is similar to “flaming,” because flaming is associated with expressing strong disagreement and being insensitive to other commenters’ feelings (Moor et al., 2010).

In Studies 1 and 2, we operationally defined subjective disagreement as differing opinions of an abstract painting between participants and a supposed, former participant. We selected a painting that each participant indicated they disliked and presented a favourable opinion of that painting by the former participant. We expected individuals high in narcissism, compared to those low in narcissism, to express more verbal hostility and dismissiveness in response to these differing opinions, even though the opinions are largely irrelevant to participants' personal competence or abilities and are even expressed in a positive tone.

In Study 3, we operationalized disagreement as differing opinions of a well-known TV show, *Friends*. Whereas the supposed, former participant disliked the show, we preselected participants who indicated they liked the show very much. Observing narcissistic intolerance in this case would increase the generalizability of our findings. In addition, Study 3 explored possible downstream consequences of online expressed intolerance. We examine whether initial disagreement conveyed in an uncivil manner evokes more hostility and dismissiveness in return, compared to more civil disagreement and agreement.

Additionally, we attempted to distinguish the role of narcissism from several other individual differences that are theoretically relevant to hostile or dismissive reactions to others' opinions. First, self-esteem, an overall evaluation of self-worth, is often moderately correlated with narcissism (Brown & Zeigler-Hill, 2004). Narcissism tends to be more predictive than self-esteem of physical aggression in response to ego-threat (Bushman & Baumeister, 1998; Baumeister, Bushman, & Campbell, 2000). It is also more predictive of derogation of a negative evaluator, although self-esteem is more predictive of derogation of the evaluative instrument (e.g., a test; Smalley & Stake, 1996). Therefore, we assessed self-esteem in all studies to test whether it would account for verbal hostility and dismissiveness rather than narcissism.

Another set of individual differences we consider are relevant to how people perceive others' opinions. Social vigilantism is defined as the "tendency of individuals to impress and propagate their 'superior' beliefs onto others to correct others' more 'ignorant' opinions" (Saucier & Webster, 2010, p. 19). Social vigilantism was found to be positively correlated with narcissism (Saucier & Webster, 2010). High levels of social vigilantism are associated with stronger resistance to persuasion (Saucier, Webster, Hoffman, & Strain, 2014) and more expressed superiority, rigidity and hostility in written responses to both similar and opposing attitudes (Saucier & Webster, 2010, Study 4). Accordingly, we measure social vigilantism to examine its contribution to intolerance and to test narcissism's independent contribution.

Reflecting a tendency opposite to that of social vigilantism, we also tested whether individual differences in open-mindedness contribute to (a lack of) intolerance and whether such effects are independent of narcissism. We measured specific facets of openness to experience that focus on how comfortable people are with different opinions and cultural values (i.e., cultural tolerance) and with aesthetic appreciation (Eun Woo, Chernyshenko, Lonley, Zhang, Chiu, & Stark, 2014). We similarly measured intellectual humility, defined as "a nonthreatening awareness of one's intellectual fallibility" which involves respecting "the viewpoints of others" (Krumrei-Mancuso & Rouse, 2015, p. 212). Intellectual humility is associated with open-minded thinking (Krumrei-Mancuso & Rouse, 2015), tendency to agree with opinions of religion regardless of whether the opinions are supportive, opposing, or balanced (Leary et al., 2017), and openness to learning opposing socio-political perspectives (Porter & Schumann, 2017). Overall, our research sought to shed light on the unique role of narcissism in predicting verbal hostility and dismissiveness following subjective disagreement.

Study 1

To test whether narcissists are more intolerant of differing opinions, we presented participants with an opinion of an abstract painting, ostensibly expressed by an earlier participant, which either agreed or disagreed with their own. In Phase 1 of the study, participants viewed 40 paintings (20 abstract and 20 representational) and rated how much they liked each painting (See Appendix A). In Phase 2 (See Appendix B), each participant was presented with one abstract painting that they had indicated strongly disliking. They then read a written assessment of the painting that expressed either liking (disagreement condition) or disliking (agreement condition) of the painting. All participants, within each condition, read the same assessment; we created generic assessments that were vague enough to apply to any of the abstract paintings. Finally, participants wrote a response to the former participant's opinion.

It is worth highlighting that the paintings we used were created by professional artists who, nevertheless, are not particularly well-known (Schepman, Rodway, Pullen, & Kirkham, 2015). It is therefore unlikely that the paintings were familiar to participants, that they had formed opinions of them prior to the study, or that they would be compelled to express liking the painting because it was famous.

We hypothesized that trait narcissism would interact with opinion condition (disagreement vs. agreement), such that narcissists responding to disagreement (but not agreement) would be more hostile and dismissive in their written responses, compared to participants low in narcissism.

Additionally, we assessed participants' impressions and liking of the earlier participant in closed-ended measures. We predicted a main effect of agreement on these measures consistent with past research on attitude-similarity and liking (Byrne, 1971). Further, consistent with our

predictions for narcissistic intolerance, we explored whether narcissism would moderate this relation. It is possible that narcissists will especially dislike another person who disagrees with them, relative to non-narcissists. It is also possible, however, that everyone (regardless of levels of narcissism) will like someone who disagrees with them less than someone who agrees with them. Narcissistic intolerance might thus only be evident in open expressions of hostility.

Method

Participants. No prior research has examined our predicted effects, and so no effect-size estimates from past research were available prior to conducting the study. We sought a sample size of at least 300 participants—a number larger than those used in published studies on narcissistic aggression in response to ego-threatening provocations (Rasmussen, 2016). This number seemed reasonable as a power analysis (G*power) indicated that a sample size of at least 264 is needed to detect a small effect size (Cohen’s $f^2 = .03$) with .80 power. Because the two-phase experimental design and dependence on open-ended responses might necessitate some attrition in addition to planned exclusion criteria, we recruited 421 adults through Amazon’s Mechanical Turk (MTurk) to participate in an online survey in exchange for \$2.50 USD. Forty-eight participants did not indicate that they strongly disliked any of the 20 abstract paintings (rating 1 or 2), and so did not qualify to enter Phase 2. Among the remaining 373 participants, 16 reported that they liked the chosen painting (in contrast to their earlier rating) in a writing prompt prior to opinion manipulation and were excluded. We further excluded one participant who expressed suspicion, six participants who gave overly consistent responses on multiple measures, and five who failed two attention check items assessed prior to the opinion manipulation (i.e., “We are making sure that our software is recording responses correctly. Please select number *four* as a response to this item”) and near the end of the experiment (i.e., “Please select number

three as a response to this item”). Our final sample for analyses thus consists of 345 participants (192 female, $M_{age} = 36$, $SD_{age} = 11.23$). Participants reported their ethnic identifications as White (75.1%), African-American (8.1%), Hispanic (8.1%), Asian (6.7%), or other (2.1%).

Measures.

Narcissism. We measured trait narcissism using the short Narcissistic Personality Inventory (NPI-16; Ames, Rose, & Anderson, 2006; See Appendix C). The NPI-16 consists of 16 items with two forced-choice response options each. One option of each pair is more narcissistic (e.g., “I am an extraordinary person”) than the other (e.g., “I am much like everyone else”). Participants choose the option that describes them best for each pair. The number of narcissistic choices serves as an index of trait narcissism, such that higher scores means higher level of narcissism ($\alpha = .84$).

Openness to experience. We administered the Tolerance and Aesthetics facets of the Openness to Experience Scale (Eun Woo et al., 2014). The 15-item cultural tolerance subscale ($\alpha = .89$) measures people’s reaction to different views, experiences, and cultural traditions with items such as, “I understand that people can have different attitudes toward certain things than I do” and “I learn a great deal from people with differing beliefs.” The 15-item aesthetics subscale measures interest in experiencing beauty ($\alpha = .92$). Sample items include, “I see the beauty in art when others do not” and “Certain poetry can move me emotionally.” Participants rated their level of agreement with each item along a 4-point Likert scale (1 = strongly disagree; 4 = strongly agree) such that higher scores represent greater cultural tolerance and openness to aesthetics, respectively (See Appendix D).

Social vigilantism. Participants completed the 14-item Social Vigilantism Scale (Saucier & Webster, 2010; See Appendix E) to assess dispositional tendencies to persuade others of one’s

own views. Participants indicated their agreement with items such as, “I feel a social obligation to voice my opinion,” and, “There are a lot of ignorant people in society” (1 = disagree very strongly; 7 = agree very strongly). Higher scores indicate a stronger tendency to impose one’s own views on others ($\alpha = .87$).

Intellectual humility. Participants completed the 22-item Comprehensive Intellectual Humility Scale (CIHS; Krumeri-Mancuso & Rouse, 2015; See Appendix F), to assess openness to adjusting one’s opinions and equanimity on realizing one may have intellectual shortcomings. Sample items include, “I can respect others, even if I disagree with them in important ways,” and, “I am willing to hear others out, even if I disagree with them.” Participants rate how well each statement describes them on a scale ranging from 1 (strongly disagree) to 5 (strongly agree). We averaged responses across all items, such that higher scores indicate greater intellectual humility ($\alpha = .89$).

Self-esteem. Participants responded to the 10-item Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965; See Appendix G) by indicating the extent to which they agreed with each statement, in general (e.g., “I take a positive attitude toward myself”; 1 = very strongly disagree, 9 = very strongly agree). Higher scores indicate higher global self-esteem² ($\alpha = .94$).

Art reception survey.³ We administered the Art Reception Survey (Hager, Hagemann, Danner, & Schankin, 2012) to assess how familiar participants were with the selected painting and how self-relevant it was to them. Two items were used to measure familiarity (i.e., “I know this painting” and “I can relate this painting to a particular artist”, $\alpha = .53$). Self-relevance was

² Due to an error in programming the online survey, the word “failure” was missing in one item of the RSES (i.e., “All in all, I am inclined to feel that I am a failure”). Mean scores and reliability of self-esteem were calculated based on the remaining nine items (Study 1 only).

³ The Art Reception Survey is mainly used to understand aesthetic appreciation experience with art as opposed to non-art stimuli (Hager et al., 2012). The selected painting varies from one participant to another, and the focus of the present research is not on comparison of aesthetic appreciation of paintings. Therefore, subscales that are less relevant to the present research (e.g., cognitive and affective responses to the paintings) are not discussed.

measured by four items ($\alpha = .85$), such as “I can associate this painting with my own personal biography” and “This painting mirrors my own personal emotional state.” Participants rated how much they agreed with each item on a scale ranging from 1 (completely disagree) to 5 (completely agree), such that higher mean scores indicate higher familiarity and self-relevance, respectively (See Appendix H).

Interest in art. We administered eight items to measure people’s interest in, and past experience with, art. Sample items include, “I enjoy visiting art galleries,” and, “I have taken art classes outside of school” (1 = not true of me; 7 = very true of me). Higher scores indicate greater interest in and experience with art ($\alpha = .84$). See Appendix I for all items.

Procedure.

The study was presented to participants as “Personality and Artwork Preferences” in the MTurk recruitment advertisement. We explicitly stated that “anyone can participate, regardless of their background and expertise in art” to avoid self-selection bias. Upon giving consent, participants started the survey by completing a set of measures assessing narcissism and theoretically relevant individual differences, except that interest in art was measured after all dependent variables. We included a few additional questionnaires that are not central to the present question and are not discussed.⁴

Painting evaluations. Participants viewed a series of 20 abstract and 20 representational paintings in random order, one at a time (Phase 1). For each painting, participants rated, “How much do you like this work of art?” (1 = not at all; 7 = extremely) and, “Did this painting require a high degree of skill to produce?” (1 = no skill at all; 7 = incredible skill). Entering Phase 2,

⁴ Prior to the manipulation of opinion, we administered the Personal Attribute Questionnaire (Spence, Helmreich & Stapp, 1973) to assess agentic and communal traits and the Objectivism Scale (Leary, Shepperd, McNeil, Jenkins, & Barnes, 1986) to assess “the tendency to base one's judgments and beliefs on empirical information and rational considerations.”

each participant was presented with one of the abstract paintings that he or she rated 1 or 2 on the liking item. The liking item was intended to reflect a more subjective judgment than ratings of the skill required to produce the painting (an arguably more objective judgment; Hawley-Dolan & Young, 2013).

Writing prompt. Prior to the manipulation, participants were asked to write why they liked or disliked the selected painting. This open-ended question helped identify inattentive participants. More importantly, this step was taken to make the cover story more believable, such that participants would be unlikely to doubt how we obtained earlier participants' written evaluation of the selected painting.

Manipulation of subjective disagreement. For the selected painting (that participants had strongly disliked), participants were presented with the supposed evaluation of a former participant, who either agreed or disagreed with their opinion of the painting. Participants in the disagreement condition were led to believe that the former participant strongly liked the painting. To do so, we informed them that the earlier participant chose 7 (very much) for the question: "How much do you like this work of art?". They then read that the earlier participant gave these reasons for his or her opinion:

"This painting is visually striking. It has bold colours and a sweeping sense of movement throughout the piece. The composition is balanced and guides your eye through the painting. It is really powerful!"

Those in the agreement condition were told that the former participant strongly disliked the painting by giving a rating of 1 for the liking item, for the following reasons:

“This painting is visually unpleasant. It has jarring colours and there is no real sense of movement in the piece. The composition is not balanced and doesn’t guide your eye through the painting. It is really dreadful!”

Dependent variables (See APPENDIX J).

Impressions. Participants indicated their impressions of the quality of the former participant’s assessment of the painting with five items ($\alpha = .88$). These items include: “How clear is the earlier participant’s assessment of the painting expressed?” (1 = not at all clear; 7 = extremely clear), “How compelling is the participant’s reasoning about the painting?” (1 = not at all compelling; 7 = extremely compelling), “Did the participant focus on important aspects of the painting?” (1 = not at all; 7 = the most important aspects), “How persuasive is the participant’s assessment of the painting?” (1 = not at all persuasive; 7 = extremely persuasive), and “How much does the participant know about art?” (1 = not much at all; 7 = extremely knowledgeable).

Perceptions of the earlier participant’s honesty were assessed by two items ($\alpha = .80$), including “How honest was the participant in his or her assessment?” (1 = not at all honest; 7 = extremely honest) and “To what extent was the participant being genuine in his or her assessment?” (1 = not at all genuine; 7 = extremely genuine).

Three items assessed perceptions of the earlier participant’s pretentiousness ($\alpha = .81$): “How pretentious is the earlier participant?” (1 = not at all pretentions; 7 = extremely pretentions), “To what extent was the participant trying to sound smart?” (1 = not at all; 7 = really trying to sound smart), and “To what extent was the participant full of hot air?” (1 = not at all; 7 = extremely full of it).

Participants rated how likable the former participant was with two items ($\alpha = .92$): “How much do you think you would like the other participant if you met him or her in person?” (1 = I

would not like them at all; 7 = I would like them a lot) and “To what extent would you be interested in spending time with the other participant?” (1 = not at all interested; 7 = very interested).

Participants also reported how much they would agree with the former participant’s opinions of other paintings (i.e., “To what extent do you think you and the earlier participant would agree in your opinions of the paintings you saw?” 1 = We would agree about very few paintings; 7 = We would agree about almost all the paintings).

Open-ended responses. Participants were asked to write a response to the former participant with the following instructions:

“If you could respond directly to the earlier participant, what would you say to him or her?

Express your thoughts as if you read the participants’ comments on an anonymous

discussion board on the internet, and you are replying to the comments.”

Three raters, blind to the purpose of the study, coded participants’ open-ended responses along two dimensions. For *hostility* (intraclass $\alpha = .85$), raters coded the extent to which the response “expresses negativity toward the participant,” according to “How negative or positive is the participant toward the former participant?” on a scale from 1 (very positive toward the other participant) to 5 (very negative toward the other participant). Expressions of negativity could include but were not limited to being insulting, judgmental, hostile, and sarcastic toward the former participant. Ratings of the three raters were averaged together; higher mean ratings indicate greater expressed hostility.

For *dismissiveness* (intraclass $\alpha = .89$), the raters coded the extent to which the participant “acknowledges the other person’s opinion or willingness to take the other person’s perspective” according to the question: “To what extent does the participant acknowledge the other’s opinion?”

on a scale from 1 (Extremely dismissive - Indicates there is no validity to the other's opinion) to 5 (Extremely accepting - Might disagree, but expresses interest in or respect for the other's opinion)." Importantly, an accepting response might contain disagreement. A *somewhat accepting* response involves acknowledging the validity of the other's opinion. An *extremely accepting* response expresses interest in and respect for the other's opinion. In contrast, *dismissive* responses acknowledge no validity of the other's opinion. Ratings of the three raters were averaged. We reverse-coded the ratings such that higher mean scores indicate greater dismissiveness.

Perceived reasonableness of own opinion. Participants then indicated the extent to which they viewed their opinion of the painting as being the most reasonable attitude to hold with two items: "How certain are you that your opinion of this painting is the most reasonable opinion to hold" (1 = not at all certain, 7 = extremely certain), and "How reasonable is it for someone to hold a different opinion than you about this painting?" (1= not at all reasonable; 7 = extremely reasonable; reversed-coded). We averaged the two items such that higher scores indicate greater belief that one's opinion of the painting is more reasonable than differing opinions ($r = .28, p < .001$).

Lastly, participants provided demographic information (See Appendix K) and were fully debriefed and thanked.

Results

Primary analysis: testing narcissistic intolerance.

Table 1 presents means, standard deviations, and zero-order correlations for the primary study variables. Overall, participants were not familiar with ($M_{familiarity} = 1.33, SD = .60$) and not heavily invested in ($M_{self-relevance} = 1.39, SD = .60$) the selected paintings. Notably, written

responses that expressed intolerance clearly reflect features of flaming, such as insults, swearing, name-calling, and use of capital letters. Comments rated high in hostility and dismissiveness include: “You are full of shit. Some kid in pre-school did this and you got conned in believing this is real art. Whatever,” “Take your liberal arts degree that mommy and daddy paid for and shove it up your bougie ass,” “ARE YOU REALLY SERIOUS?” “TO ME THE PAINTING LOOKS LIKE AN ACCIDENT INVOLVING PAINT OCCURRED IN THE ARTISTIC STUDIO,” and “I feel you’re full of crap and just trying to sound smart.” In contrast, comments rated low in hostility and dismissiveness include, “The thing I like best about art is beauty really is in the eye of the beholder,” “I appreciate your opinion, it is great. Different strokes my friend,” and “I respect your opinion even though I don’t feel the same way I can see why others may like the painting.” Because the two theoretically-defined dimensions of intolerance, hostility and dismissiveness, were highly correlated ($r = .85$), we standardized and averaged their ratings to form a single index of intolerance.⁵

To test whether narcissism moderated intolerance in response to disagreement, we regressed intolerance on opinion condition (effect coded: -1 = agreement, 1 = disagreement), narcissism (mean-centered) and their cross-product interaction term. We observed main effects of opinion condition ($b = .24$, $SE = .05$, 95% CI [.14, .34], $t = 4.74$, $p < .001$) and narcissism ($b = .69$, $SE = .27$, 95% CI [.16, 1.22], $t = 2.56$, $p = .011$). Central to our hypotheses, these main effects were qualified by a significant interaction ($\Delta R^2 = .02$, $F(1,333) = 4.93$, $p = .027$, Cohen’s $f^2 = .02$). We conducted simple slopes analyses (Aiken & West, 1991) to probe the interaction (PROCESS, Hayes, 2013; Figure 1). As predicted, participants high in narcissism (+1SD) expressed more intolerance toward the former participant compared to participants low in

⁵ When we conducted separate analyses for hostility and dismissiveness, the regression models yield parallel patterns. In particular, the interaction between narcissism and opinion condition were significant in predicting hostility and dismissiveness, respectively.

narcissism (-1SD), but only in the disagreement condition ($b = 1.29$, $SE = .41$, 95% CI [.48, 2.10], $t = 3.13$, $p = .002$), not in the agreement condition ($b = .09$, $SE = .35$, 95% CI [-.59, .78], $t = .26$, $p = .79$).

We also examined the extent to which this moderation effect was due to narcissism independent of several theoretically relevant variables. As shown in Table 1, narcissism was positively related to self-esteem and social vigilantism; negatively related to cultural tolerance, intellectual humility, and interest in art; and unrelated to openness to aesthetics. To test the unique role of narcissism, we conducted two types of analyses. First, we replaced narcissism with these individual differences, one at a time, in our regression model. No significant effects of these variables emerged, suggesting the other variables did not predict intolerance directly, nor did they moderate the effect of disagreement on intolerance. Second, we added these variables, individually, to our regression model to control them⁶. In each case, the interaction between opinion condition and narcissism, central to our hypotheses, remained significant and was virtually unchanged.

Additionally, we tested the possible role of gender. Gender was associated with narcissism such that men ($M = 2.28$, $SD = .24$) reported higher narcissism than women ($M = .19$, $SD = .19$), *Welch's t* (282.57) = 3.50, $p = .01$. Gender did not, however, moderate our results and did not affect the significance of the interaction between narcissism and agreement condition.

Supplemental analyses.

Impressions. We also regressed impressions of the earlier participant on agreement condition, narcissism, and their interaction. Condition affected participants' impressions of the

⁶ We tested higher-order models in which opinion condition (effect coded: -1 = agreement, 1 = disagreement), narcissism (mean-centered) and one control variable were entered in step 1, all cross-product two-way interactions in step 2, and the three-way interaction in step 3. No three-way interactions emerged, meeting the assumption of homogeneity of slope for each control variable to be included as a covariate.

quality of the former participant's assessment of the painting ($b = -.53, SE = .07, 95\% CI [-.66, -.40], t = -8.04, p < .001$; Table 2). Participants rated the quality of assessment significantly lower in the disagreement condition than the agreement condition. Participants also perceived the former participant to be less honest ($b = -.53, SE = .07, 95\% CI [-.66, -.40], t = -8.05, p < .001$), more pretentious ($b = .36, SE = .08, 95\% CI [.20, .52], t = 4.40, p < .001$), and less likable ($b = -.40, SE = .08, 95\% CI [-.56, -.24], t = -5.07, p < .001$) in the disagreement condition than the agreement condition. Not surprisingly, participants believed they would generally agree less with the former participant on opinions of all the paintings in the disagreement condition compared to the agreement condition ($b = -1.35, SE = .08, 95\% CI [-1.51, -1.20], t = -17.18, p < .001$). Narcissism was unrelated to impressions of the quality of assessment, honesty, likability, and estimated agreement ($.16 \leq ps \leq .86$). There was a marginal effect of narcissism on perceptions of pretentiousness ($b = .67, SE = .37, 95\% CI [-.07, 1.39], t = 1.78, p = .077$). There were no significant interactions.

Perceived reasonableness of own opinion. Finally, we also regressed perceptions of the reasonableness of one's own opinion relative to others' differing opinions on agreement condition and narcissism. Participants in the disagreement condition were less certain that their opinion was the most reasonable opinion to hold compared to participants in the agreement condition ($b = -.31, SE = .06, 95\% CI [-.43, -.20], t = -5.34, p < .001$). Narcissism was positively related to perceived reasonableness of opinions ($b = .66, SE = .27, 95\% CI [.12, 1.18], t = 2.44, p = .021$), such that narcissists, more than less narcissistic participants, viewed their opinion as most reasonable. There was, however, no significant interaction.

Discussion

Study 1 provides the first evidence of narcissistic intolerance. As predicted, narcissists reacted to seemingly trivial subjective disagreement by expressing greater hostility toward the person who disagreed with them and being more dismissive of their opinion than less narcissistic individuals. Narcissists were not more hostile or dismissive, than less narcissistic individuals, toward an earlier participant who ostensibly shared their negative opinion of an abstract painting. Notably, we did not explicitly indicate to participants that the former participant “agreed” or “disagreed” with their opinion of the selected painting. We simply exposed participants to a person who either liked or disliked an abstract painting that they disliked.

We observed narcissistic intolerance in participants’ written responses to the earlier participant. It was not, however, evident in closed-ended responses, which were instead generally consistent with the attitude-liking literature (e.g., Byrne, 1971). Participants rated the person who disagreed with them less positively than the person who agreed with them overall. This condition effect was observed not only for liking, as is typically seen in research on attitude-similarity, but extended to perceptions of pretentiousness, a rarely studied construct in that literature. There was a trend for narcissists to perceive the earlier participant as more pretentious (e.g., “full of hot air”), regardless of agreement condition. However, only for the open-ended responses did narcissism moderate the effects of subjective disagreement on verbal hostility and dismissiveness. These results may suggest that everyone privately dislikes someone who disagrees with them more than someone who agrees with them, but only narcissists openly express hostility and dismissiveness in responses to them.

Our results are consistent with the possibility that subjective disagreement threatened narcissists’ self-esteem, causing them to express greater hostility and dismissiveness. In Study 2,

we attempt to test this possibility more directly. First, however, we discuss several possible alternative explanations.

Naïve realism. Narcissistic intolerance might reflect a tendency toward naïve realism among narcissists rather than a response to threatened self-esteem. Naïve realism may reflect a tendency of people to view subjective preferences as objective or reasonable facts, and consequently assume that other reasonable people will see the same “reality” and share similar opinions (Pronin, Gilovich, & Ross, 2004). Some of the results are consistent with this possibility. Narcissists were more likely than less narcissistic individuals to view their own opinion as most reasonable and differing opinions as relatively unreasonable. If this naïve realism causes narcissistic intolerance, however, the effect should be eliminated if ratings of the reasonableness of one’s own opinions are controlled, which was not the case. Moreover, disagreement did not make highly narcissistic participants perceive more reasonableness of their own opinions relative to others’ differing opinions than less narcissistic participants. Therefore, it is unlikely that narcissistic intolerance is caused by naïve realism.

Similarly, if narcissists are more prone than less narcissistic individuals to naïve realism, with respect to abstract art, we might expect the association between liking paintings (a subjective judgment) and judgment of the skill required to produce them (an arguably more objective judgment, from participants’ perspective) to be stronger for people higher in narcissism. This correlation might reflect a greater tendency to view one’s subjective preferences as being relatively objective, in terms of reflecting veridical assessments of the “quality” of the art. However, when we calculated within-person correlations between liking and judgements of skill for all 40 paintings (and transformed them using Fisher’s Z transformation; $M = .05$, $SD = .31$), narcissism was not related to this association ($r = -.005$, ns). Controlling the within-person

correlations also did not diminish the interaction between condition and narcissism in predicting intolerance ($b = .57, p = .04$).

Meaning threat. Rather than disagreement serving to threaten narcissists' self-esteem, it might instead threaten their sense of meaning. According to the Meaning Maintenance Model (Heine, Proulx, & Vohs, 2006), people are motivated to maintain a sense of meaning by observing expected associations between stimuli and events in their environments. Challenges to expected associations can threaten meaning frameworks, and consequently motivate a compensatory search for meaning in a different domain. It is possible that abstract art threatens a sense of meaning because the style is not representational, may seem unfamiliar, difficult to relate to, or meaningless. However, previous research indicates that people experience meaning threat after exposure to absurdist art (i.e., familiar components arranged in unfamiliar ways) but not abstract art, even though it was featured with unfamiliar or meaningless elements (Proulx, Heine, & Vohs, 2010). None of the paintings used in the present study were absurdist.

Nevertheless, abstract art might threaten a sense of meaning for narcissists in particular if they generally dislike abstract art more than less narcissistic individuals. If so, then learning that an earlier participant liked an abstract painting and even thought it was powerful might violate narcissists' expectation that abstract art is worthless or displeasing. In this case, narcissistic intolerance might not be a response to disagreement per se, but to the earlier participant liking an art form that narcissists' perceive to be worthless. Our data are not, however, consistent with this possibility. During the painting evaluation phase, participants rated how much they liked each painting and how much skill they believed was required to produce it. We calculated overall liking of abstract art by averaging the liking ratings of the 20 abstract paintings for each participant ($M = 3.08, SD = 1.03$). Narcissism was not related to how much participants liked

abstract art ($r = .046, ns$). In addition, controlling the average liking of abstract paintings did not diminish the interaction between opinion condition and narcissism in predicting intolerance ($b = .67, p = .009$).

We further created an index of preference for abstract over representational art by subtracting mean liking of representational paintings from mean liking of abstract paintings for each participant. In general, participants preferred representational to abstract art ($M = -1.83, SD = 1.27$), but narcissism was not related to this preference ($r = .04, ns$). In addition, controlling this preference did not diminish the interaction between opinion condition and narcissism in predicting intolerance ($b = .61, p = .025$).

Study 2

In Study 2, we sought to replicate and extend the findings of Study 1 by seeking more direct evidence that self-esteem threat motivates narcissistic intolerance. If this is the case, then self-affirmation should reduce narcissistic intolerance. Self-affirmation theory posits that people can restore a sense of global self-integrity by affirming the self in an unrelated domain (Steele, 1988). Numerous studies demonstrate that self-affirmation, in the form of writing about a personally important value, can reduce people's tendency to defensively dismiss threatening health information, making them more receptive of such information (see Sherman & Cohen, 2006). In addition, values-affirmation increased patriots' openness to arguments criticizing U.S. policies and made pro-choice negotiators' willingness to make concessions to pro-life arguments on abortion policy when their partisan identities were salient (Cohen et al., 2007). Moreover, a field experiment revealed that values-affirmation reduces peer-reported aggressive behaviours (physical, verbal, and relational) among early adolescents who are high in narcissism, regardless of their self-esteem (Thomaes, Bushman, de Castro, Cohen, & Denissen, 2009). These findings

suggest that dismissiveness and hostility, in general, can be reactions to self-threat that values-affirmation alleviates.

Building on this past research, we expect that values-affirmation will reduce narcissistic intolerance. We predicted that there would be a three-way interaction effect among values-affirmation (affirmation vs. control), opinion condition (disagreement vs. agreement), and narcissism on intolerance (hostility and dismissiveness). We expected that, in the control condition, narcissists would respond to disagreement with more intolerance than less narcissistic individuals, replicating Study 1. In the values-affirmation condition, however, we expected no differences in expressed intolerance in response to disagreement as a function of narcissism. Such moderation would provide evidence that differing opinions are self-threatening to narcissists, causing them to react with dismissiveness and hostility.

Additionally, one limitation of Study 1 was that the closed-ended measures assessing participants' impressions of the earlier participant preceded their open-ended responses. Consequently, participants' written responses might have been influenced by the content or wording of the closed-ended measures, leading them to potentially express more negativity. In particular, some hostile responses (e.g., "You sound like a blowhard," or "That's lovely, now talk in laymen's terms and put the pretentiousness aside") contained words or meaning similar to items assessing perceptions of the former participant. To alleviate this concern in Study 2, we changed the order of the closed- and open-ended measures. Participants were asked to write a response to the earlier participant immediately after reading their assessment of the painting.

Method

Participants. An *a priori* power analysis (G*power) suggested we needed a minimum sample size of 395 to detect the three-way interaction with a small effect size obtained from

Study 1 (Cohen's $f^2 = .02$) with .80 power. Again, to allow for attrition of participants entering Phase 2, we recruited 454 participants from MTurk. They participated in exchange for \$2.50 USD per person. Sixty-five participants did not report strongly disliking any of the 20 abstract paintings and did not enter Phase 2. Of the remaining 389 participants, we excluded data from 20 who expressed liking the selected painting in their open-ended responses, and from 9 who failed two attention checks same as in Study 1. The final sample for analyses consisted of 360 participants (199 female, $M_{age} = 36.23$, $SD = 11.28$). The majority of participants identified their ethnicity as White (76%), followed by African-American (6.1%), Hispanic (6.4%), Asian (6.9%) and other ethnic categories (3.3%).

Procedure. The study was described to participants as an examination of personality and artwork preferences. Participants first completed a series of personality measures. The 16-item Narcissistic Personality Inventory (NPI-16; Ames et al., 2006) was used to measure trait narcissism. We used exactly the same set of measures as in Study 1. Reliability for all measures is reported in Table 2.

Values-affirmation manipulation. Next, participants read a list of 10 “personal characteristics and values” (e.g., “living life in the moment,” “relationship with friends and family,” and “sense of humour”) used in previous research (Cohen et al., 2007) to manipulate self-affirmation (See Appendix L). We removed the value related to “aesthetic appreciation” due to the context of our study. All participants were asked to select the value that was most important to them. After making a selection, participants randomly assigned to the values-affirmation condition were asked to explain why the value is important to them and to describe a time in their life when the value had proven particularly meaningful. Participants assigned to the control condition were instead asked to describe their morning routine in as much detail as

possible, and explain why they do things in the order they do them. Participants were given 5 minutes to write on these topics. We avoided the common control task of having participants write about why their least important value might be important to someone else because it might encourage perspective taking, which might make participants less likely to dismiss disagreeing opinions.

Manipulation of subjective disagreement. Participants then completed exactly the same painting evaluation task as in Study 1. For each of the 40 paintings, participants rated how much they liked the painting and how much skill was required to produce the painting. We randomly selected one abstract painting for each participant that they had indicated they strongly dislike. Participants randomly assigned to the disagreement condition were told that a former participant liked the selected painting very much and read a bogus assessment favoring the painting. By contrast, participants assigned to the agreement condition were told that a former participant strongly disliked the same painting and read a bogus assessment criticizing the painting.

Dependent variables.

Open-ended responses. Participants wrote a response to the former participant exactly as in Study 1, except they did so immediately after exposure to disagreement (or agreement). Again, participants followed the instruction:

“If you could respond directly to the earlier participant, what would you say to him or her? Express your thoughts as if you read the participants’ comments on an anonymous discussion board on the internet, and you are replying to the comments.”

Three research assistants blind to the design and predictions of the study coded the open-ended responses using the same coding scheme as in Study 1. Inter-rater agreement was high on ratings of hostility (intraclass $\alpha = .87$) and dismissiveness (intraclass $\alpha = .90$).

Impressions. Following the open-ended responses, participants rated their impressions of the former participant and his or her response on the same five dimensions as in Study 1: quality of assessment, honesty, pretentiousness, likability, and estimates of how much they would agree with the participant in opinions of the other paintings.

Perceived reasonableness of own opinion. We again measured how certain participants were that their opinion of the painting was the most reasonable to hold and how reasonable it was for others to hold differing opinions.

Finally, participants provided demographic information and were fully debriefed and thanked.

Results

Primary analyses: Does values-affirmation reduce narcissistic intolerance?

Descriptive statistics, reliabilities, and correlations between study variables are presented in Table 2. Hostility and dismissiveness were highly correlated ($r = .91$). We again created a composite score of intolerance by averaging standardized scores of hostility and dismissiveness. Examples of highly intolerant responses include: “You are mentally retarded. You don't see anything in this painting and if you do you are probably brain damaged. A high school student with no talent could have produced this,” “You sound like you're BSing. I've seen kindergarteners put out better work,” and, “I don't get what you're saying. You must have been tripping on an hallucinogen. I don't understand how this is art and it invokes no powerfulness in me. To me power would be a painting of a giant truck.” In contrast, responses low in intolerance read, “I respect your opinion, but it doesn't seem powerful to me. I guess we just have different tastes in art. I'm glad you enjoy the painting, though,” and, “I respect your opinion, art is very subjective. I personally don't like it but I understand why you do.”

We regressed intolerance on opinion condition (effect coded: -1 = agreement, 1 = disagreement), self-affirmation condition (effect coded: -1 = control, 1 = values-affirmation), narcissism (mean-centered), and all cross-product interactions. As predicted, there was a significant three-way interaction ($\Delta R^2 = .02$, $F(1,351) = 7.43$, $p = .007$, Cohen's $f^2 = .03$). To decompose the three-way interaction, conditional and simple slopes analyses (PROCESS, Hayes, 2013) revealed that the two-way interaction between narcissism and opinion condition varied as a function of self-affirmation. The two-way interaction between narcissism and opinion condition was only significant in the no-affirmation control condition ($b = 1.14$, $SE = .30$, 95% CI [.54, 1.74], $t = 3.75$, $p < .001$; Figure 2, top), but not in the values-affirmation condition ($b = -.11$, $SE = .34$, 95% CI [-.78, .57], $t = -.31$, $p = .75$; Figure 2, bottom). In response to disagreement, participants high in narcissism (+1SD) expressed more intolerance compared to those low in narcissism (-1SD) only in the no-affirmation control condition ($b = 1.78$, $SE = .57$, 95% CI [.66, 2.90], $t = 3.11$, $p = .002$), but not in the values-affirmation condition ($b = .05$, $SE = .59$, 95% CI [-1.10, 1.20], $t = .08$, $p = .93$), indicating that values-affirmation diminished narcissistic intolerance. In contrast, in response to agreement, narcissists expressed less intolerance than non-narcissists in the no-affirmation control condition ($b = -.87$, $SE = .21$, 95% CI [-.91, -.09], $t = -2.41$, $p = .016$), but not in the values-affirmation condition ($b = .26$, $SE = .35$, 95% CI [-.43, .96], $t = .74$, $p = .46$).

As in Study 1, we also explored the unique contribution of narcissism to intolerance, relative to other relevant individual differences. Narcissism correlated negatively with the cultural tolerance facet of openness to experience and intellectual humility; positively with social vigilantism and self-esteem; and was unrelated to the aesthetics facet of openness to experience and interest in art. Gender was significantly related to narcissism ($r = .21$, $p > .001$), such that

male participants reported higher narcissism ($M = .29$, $SD = .25$) than female participants ($M = .19$, $SD = .21$), *Welch's t*(309.24) = 3.97, $p < .001$. Using the same regression approach as in Study 1, we tested the effects of these theoretically relevant variables on intolerance. None of these variables independently moderated the effect of disagreement (vs. agreement) on intolerance. In addition, controlling them did not substantially diminish the three-way interaction between opinion condition, narcissism, and values-affirmation in predicting intolerance.

Supplemental analysis.

Quality of the assessment. We observed a similar three-way interaction on ratings of the quality of the earlier participant's assessment of the painting ($\Delta R^2 = .01$, $F(1,347) = 4.24$, $p = .040$). Across all levels of values-affirmation and narcissism, participants rated the quality of the former participant's assessment lower (all $ps < .016$) in the disagreement than the agreement condition. For participants in the disagreement condition, those in the no-affirmation condition rated the quality of the assessment lower to the extent that they were higher in narcissism (albeit marginally, $b = -1.20$, $SE = .65$, 95% CI [-2.49, .08], $t = -1.84$, $p = .067$). In contrast, in the values-affirmation condition, narcissism was not related to ratings of the quality of the assessment ($b = .03$, $SE = .53$, 95% CI [-1.01, 1.08], $t = .06$, $p = .95$). Perceived quality of the assessment was not related to narcissism in the agreement condition regardless of values affirmation (all $ps < .24$).

Honesty. For ratings of honesty, there was a main effect of opinion condition ($b = -.37$, $SE = .05$, 95% CI [-.48, -.26], $t = -6.83$, $p < .001$) such that participants in the disagreement condition perceived the former participant to be less honest in their assessment than those in the agreement condition. There were no main effects of narcissism ($b = -.22$, $SE = .23$, 95% CI [-

.68, .24], $t = -.95$, $p = .34$) or values-affirmation ($b = -.02$, $SE = .05$, 95% CI [-.13, .09], $t = -.35$, $p = .73$). There were no significant interactions.

Pretentiousness. Consistent with Study 1, the main effects of opinion condition ($b = .38$, $SE = .08$, 95% CI [.22, .54], $t = 4.62$, $p < .001$) and narcissism ($b = .96$, $SE = .35$, 95% CI [.27, 1.65], $t = 2.73$, $p = .007$) were significant for ratings of the pretentiousness of the earlier participant. There was no main effect of values-affirmation ($b = .07$, $SE = .08$, 95% CI [-.10, .23], $t = .80$, $p = .43$). No interaction effects were significant.

Likability. There was only a main effect of opinion condition on likability ($b = -.34$, $SE = .08$, 95% CI [-.49, -.19], $t = -4.38$, $p < .001$), such that participants liked the former participant less in the disagreement condition than the agreement condition. There were no main effects of narcissism ($b = .49$, $SE = .34$, 95% CI [-.17, 1.15], $t = 1.46$, $p = .15$) or values-affirmation ($b = .01$, $SE = .08$, 95% CI [-.14, .17], $t = .18$, $p = .86$). There were no significant interaction effects.

Estimated agreement. There was a significant three-way interaction between agreement condition, narcissism and values-affirmation condition on participants' estimates of how many paintings they would agree with the earlier participant on. Again, across all levels of narcissism and values-affirmation, participants estimated higher agreement with the former participant in the agreement condition than the disagreement condition (all $ps < .001$). When not affirmed, narcissism was not related to estimated agreement in either opinion condition ($ps > .13$). However, when affirmed, narcissists estimated greater agreement with the former participant than less narcissistic participants in the disagreement condition ($b = 2.64$, $SE = .71$, 95% CI [1.24, 4.04], $p < .001$), but not the agreement condition ($b = -.16$, $SE = .56$, 95% CI [-1.28, .94], $p = .77$).

Perceived reasonableness of own opinion. There were significant main effects of narcissism ($b = 1.29$, $SE = .24$, 95% CI [.82, 1.75], $t = 5.45$, $p < .001$), and opinion condition ($b = -.24$, $SE = .06$, 95% CI [-.34, -.13], $t = -4.28$, $p < .001$), but not of values affirmation ($b = .02$, $SE = .06$, 95% CI [-.09, .13], $t = .32$, $p = .75$). There were no significant interactions.

Discussion

As in Study 1, more narcissistic participants expressed more hostility and were more dismissive of an earlier participant who expressed a different opinion of a painting than them, but only when they were not self-affirmed. Unlike Study 1, participants had not completed any closed-ended questions about their perceptions of the earlier participant prior to providing a written response. Narcissistic intolerance therefore did not depend on prior exposure to items assessing dishonesty or pretentiousness, for example. Notably the tendency for narcissists to be more intolerant in response to disagreement was completely eliminated when participants first affirmed an important personal value. This pattern of results suggests that differences of opinion, on a seemingly trivial matter, threaten narcissists' self-esteem.

Results for the closed-ended responses largely replicate those of Study 1 as well. Participants in general rated the person who disagreed with them more negatively than the person who agreed with them. Unlike Study 1, narcissism, disagreement (vs. agreement), and values affirmation interacted to predict perceptions of quality of the earlier participants' assessment. When not affirmed, narcissists perceived the disagreeing participant's assessment of the painting more negatively compared to non-narcissists. This trend was eliminated by self-affirmation. The same three-way interaction effect held for estimated agreement. When affirmed, narcissists were more generous than non-narcissists in their estimates of overall agreement on all paintings with

the earlier participant when he or she disagreed with them. These results were in the same direction as hostility and dismissiveness expressed in written responses.

Naïve realism. As in Study 1, we also considered whether narcissistic intolerance might be due to a greater tendency toward naïve realism among narcissists. This possibility was not supported by results for perceived reasonableness of opinions. Values-affirmation was unrelated to perceptions that one's own opinion is the most reasonable to hold. Although narcissism was positively related to more reasonableness of own opinions relative to others' differing opinions, disagreement did not heighten this tendency more for participants high than those low in narcissism.

We also calculated within-person correlations between liking of each painting and judgments of the skill required to produce them (converted with Fisher's Z transformation, $M = .98$, $SD = .45$). Higher scores indicate a stronger association between subjective (liking) and more objective (skill) judgments. Again, narcissism did not correlate with the association between liking and judgment of skill ($r = .05$, $p = .31$). Controlling for this association, moreover did not diminish the three-way interaction for intolerance ($b = -.51$, $p = .03$).

Meaning threat or self-esteem threat? As in Study 1, we examined several aspects of our data to determine whether narcissistic intolerance might mainly be driven by meaning threat rather than self-esteem threat. If that were the case, narcissists might dislike abstract art in general (because it threatens their sense of meaning). However, in this study, participants higher in narcissism liked abstract art more ($r = .17$, $p = .002$). In addition, the three-way interaction predicting intolerance remained significant when we controlled liking of abstract art ($b = -.69$, $p = .002$). We again examined difference scores reflecting a preference for abstract art relative to representational art. Overall, participants preferred representational art to abstract art ($M = -1.86$,

$SD = 1.24$). Narcissism was, however, unrelated to this preference ($r = .07, p = .20$). Nevertheless, controlling this preference did not diminish the three-way interaction on intolerance ($b = -.64, p = .003$).

Study 3

One major goal of Study 3 was to test the generalizability of the narcissistic intolerance effect. In Studies 1 and 2, we focused on differing opinions of an unfamiliar abstract painting, which helped to reduce the personal relevance of the disagreement. In Study 3, we examine opinions that are likely more familiar and relevant to undergraduate participants. Specifically, in Study 3, subjective disagreement was operationalized as differing opinions of a TV show, *Friends*. We pre-selected participants who indicate they liked the show very much, which differs from Studies 1 and 2, for which we selected paintings that participants disliked. Thus, in Study 3, the disagreeing participant expresses dislike of the TV show, whereas in earlier studies the disagreeing participant expressed liking abstract paintings. In Study 3, we also drew on undergraduate participants, whereas Studies 1 and 2 drew on MTurk workers.

To add a degree of realism and external validity to the expressed opinions of *Friends* ostensibly written by the former participant, we drew on lay audiences' favourable and unfavourable comments about *Friends* posted to a TV show review website (<http://www.tv.com/shows/friends/reviews/>). These comments cover aspects such as humour, character development, personal relevance of the characters, and whether they recommended the show. The written appraisals of *Friends* presented to participants therefore reflect the kinds of comments actually included in online discussions.

Another goal of Study 3 was to explore possible consequences of intolerance. A qualitative study suggests that simple disagreements or dismissal of others' ideas can escalate

into “flame wars,” because flaming may be used as a competitive-dominating strategy during online discussion (Lee, 2014). Moor et al. (2010) found that perceptions that flaming is normative, in the YouTube community, are associated with having flamed at least once. This finding suggests that conforming to a verbally aggressive norm could encourage flaming. Research also suggests that swearing, a form of “aggressive emotional utterance”, is contagious from initial online comments to subsequent comments (Kwon & Cho, 2017, p. 88; Kwon & Gruzd, 2017). Consistent with the possibility of aggressive reciprocity in online discussion, we tested whether intolerant disagreement breeds further intolerance. To do so, we added a condition in which the initial disagreement, by the supposed earlier participant, was conveyed in a dismissive and mildly hostile manner. We expected that participants, regardless of their levels of narcissism, would respond to uncivil expressions with greater hostility and dismissiveness themselves.

In addition, we sought to distinguish the role of narcissism in motivating intolerance from subclinical, “everyday” sadism, an individual difference in deriving enjoyment from being cruel to others (Buckels, Jones, & Paulhus, 2013). Everyday sadism is associated with unprovoked physical aggression, such that sadists in one study were willing to endure a boring, time-consuming task to earn the opportunity to administer blasts of noise to others in a subsequent task (Buckels, et al., 2013). A study of online commenting activities revealed that sadism predicts “trolling,” “the practice of behaving in a deceptive, destructive, or disruptive manner in a social setting on the Internet with no apparent instrumental purpose” (Buckels, Trapnell, & Paulhus, 2014, p. 97). Trolling is distinct from flaming (which is more intentionally used to express disagreement or win arguments; Moor et al., 2010; Luzon, 2013), but may nevertheless reflect aggression (Peterson & Densley, 2017). Sadism and narcissism both belong to a set of

socially deleterious personality traits dubbed the Dark Tetrad (Paulhus, 2014). They are moderately correlated with each other and conceptualized as overlapping yet distinct constructs (Međedović & Petrović, 2015). There has been a demand in the literature to empirically test the unique relations between these noxious traits and anti-social behaviours (Međedović & Petrović, 2015; Paulhus, 2014). Accordingly, we include a measure of everyday sadism to distinguish its role in intolerant reactions from that of narcissism.

Method

Participants. Two-hundred and eighteen undergraduates enrolled in an introductory psychology class participated in exchange for partial course credit. Because this study employed a student sample rather than an MTurk sample, our stop rule was to recruit as many participants as possible before the end of one academic term. A total of 31 participants were excluded from analyses: 2 indicated suspicion⁷, 10 failed the attention check questions described in earlier studies, 4 gave overly consistent responses, and 15 indicated on a question at the end of the study that we should exclude their data (8 of which also failed the attention check questions). The final sample for analysis consists of 187 students (161 female, $M_{age} = 19$, $SD_{age} = 1.97$). Participants reported their ethnicity as White (71.7%), Black (4.3%), Hispanic (1.1%), Asian (10.7%), and Other (12.3%).

Materials and procedure. All participants completed a mass-testing package at the beginning of the academic semester, in which we included a series of questions to assess students' opinions of several music artists and TV shows (e.g., How much do you like *Friends/Game of Thrones/True Detective*? 1 = I hate this show; 7 = I love this show; See Appendix M). To maximize the number of eligible participants, we planned to select one musician or TV show for

⁷ Of the two participants who were suspicious, one suspected that we created the earlier participant's opinions of *Friends*; the other suspected that we intended to examine the relation between "acceptance of other perspectives" and narcissism.

which a large number of students indicated strongly liking, as opposed to neutral opinions or strongly disliking for reasons of testing generalizability. *Friends* was the only target that satisfied the criterion. Students who indicated that they liked *Friends* very much (i.e., chose 6 or 7; $N = 545$) were eligible to voluntarily register for participation. The study was presented to participants as an online study of “Personality and Preferences for TV Shows”. Participants completed measures and the manipulation in the following order.

Pre-measures. Participants completed the Narcissistic Personality Inventory (NPI-16; Ames et al., 2006; $\alpha = .85$) and Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965; $\alpha = .95$) as in Studies 1 and 2. Participant rated their preference for *Friends* on the same scale as in the mass-testing questionnaire, followed by a writing prompt asking them to report why they liked or disliked the TV show.

Manipulation of subjective disagreement. We randomly assigned participants to one of three conditions (See Appendix N). In the civil disagreement condition, participants were told that the earlier participant strongly disliked the show, *Friends*, giving the following reasons:

“Friends was never a good series for me. The jokes are rarely funny. The episodes are dull and predictable. The characters are flat and have no development throughout the show. I don’t relate to them and don’t really want to have friends like this. I just get bored by this show. It is overrated and I do not recommend it.”

In the uncivil disagreement condition, participants were also told that the earlier participant strongly disliked *Friends*, for the same reasons, but with added expressions reflecting dismissiveness and mild hostility:

“Friends was never a good series. I can’t understand why anyone would like it! How did it last 10 seasons!?!? The jokes are rarely funny. The episodes are dull and predictable. The

characters are flat and have no development throughout the show. I don't relate to them and don't really want to have friends like this. I just get bored by this show. It is overrated and I do not recommend it."

Those in the agreement condition, instead, were told that the earlier participant liked *Friends* very much, for the following, parallel reasons:

"Friends is a great series for me. The jokes are funny. The episodes are interesting and creative. The characters are vivid and develop throughout the show. I can relate to them and want to have friends like this. I never got bored by this show. It is one of the best and I highly recommend it."

Dependent variables (See Appendix O).

Open-ended responses. Following the manipulation, participants were invited to write a reply to the former participant's opinions given the following instructions:

"If you were to respond directly to the earlier participant, what would you say to him or her? Express your thoughts as if you read the participants' comments on an anonymous discussion board on the internet, and you are replying to the comments."

Three raters blind to the purpose of the study coded levels of hostility (intraclass $\alpha = .86$) and dismissiveness (intraclass $\alpha = .91$) in participants' written responses.

Intolerance. We also created a 13-item closed-ended measure of intolerance to assess appraisals of the earlier participant and his or her opinion that reflect dismissiveness and hostility. Sample items include, "The earlier participants' opinion is worthless," "The earlier participant is an idiot," "I would like to know more about this person's thoughts on this show (reversed-coded)," and "If I read this opinion online, I would downvote it." Participants rated the extent to

which they agree with each statement on a scale ranging from 1 (disagree strongly) to 7 (agree strongly). Higher mean scores indicate greater intolerance ($\alpha = .91$).

Perceived reasonableness of own opinion. Participants rated “How certain are you that your opinion of *Friends* is the most reasonable opinion to hold?” (1 = not at all certain; 7 = extremely certain) and “How reasonable is it for someone to hold a different opinion than you about *Friends*?” (1 = not reasonable at all; 7 = extremely reasonable; reversed-coded). We averaged the two items such that higher mean scores represent greater perceived reasonableness of one’s own opinion relative to others’ differing opinions ($r = .30, p < .001$).

Additional measures of individual differences.

Everyday sadism. The 18-item Comprehensive Assessment of Sadistic Tendencies (CAST; Buckels & Paulhus, 2013; Buckels et al., 2014) was administered. Participants rated their level of agreement (1 = strongly disagree; 7 = strongly agree) with statements such as “I enjoy physically hurting people,” “When making fun of someone, it is especially amusing if they realize what I’m doing,” and “I enjoy playing the villain in games and torturing other characters.” We calculated means scores for the three distinct subscales: physical sadism ($\alpha = .75$), verbal sadism ($\alpha = .82$), and vicarious sadism ($\alpha = .76$). See Appendix P for all items.

Open-mindedness. As in previous studies, we measured intellectual humility using the Comprehensive Intellectual Humility Scale (CIHS; Krumrei-Mancuso & Rouse, 2015; $\alpha = .88$) and cultural tolerance using the subscale from the Openness to Experience Scale (Eun Woo et al., 2014; $\alpha = .83$).⁸

⁸ We also administered the Narcissistic Admiration and Rivalry Questionnaire (Back et al., 2013; Appendix Q) at this point in the study. We discuss this measure of grandiose narcissism in more detail in the General Discussion.

Results

Table 3 presents descriptive statistics and correlations between study variables. We combined ratings of hostility and dismissiveness ($r = .88$) to form a single index of intolerance. Highly intolerant written responses include: “I think they are crazy for not liking the show... they are probably not even really paying attention to the show,” “You are entitled to your opinion... You’re just wrong,” “wow you’re crazy, Friends is a great show,” and “This person thought way too hard about this question, and it seems like they even took it personally as if anyone who likes friends is an idiot. They need to calm down, it's just a show.” By contrast, more accepting and friendly (i.e., low intolerance) responses include: “I don't understand how you came to such conclusions, however, I respect them given that everyone has different taste and humour is very subjective,” “I disagree but respect your opinion. I think that Friends is funny, because the characters already have such defined personalities from the beginning and as a viewer we watch them grow up,” and “I respect your opinion, it isn't for everyone.”

Narcissistic intolerance. We predicted that narcissism would interact with opinion condition (agreement, civil disagreement, uncivil disagreement) to predict intolerance expressed in written responses. We regressed intolerance on condition (agreement = 0, 0; civil disagreement = 1, 0; uncivil disagreement = 0, 1), narcissism (centered), and their cross-product interaction terms. There were significant condition effects, such that intolerance was higher in the civil disagreement condition ($b = 1.26$, $SE = .10$, 95% CI [1.05, 1.47], $t = 12.03$, $p < .001$) and the uncivil disagreement condition ($b = 1.38$, $SE = .13$, 95% CI [1.13, 1.63], $t = 10.94$, $p < .001$) than the agreement condition.

As predicted, there was a significant interaction between narcissism and opinion conditions ($\Delta R^2 = .02$, $F(2, 178) = 4.93$, $p = .042$, Cohen's $f^2 = .04$). The two-way interaction

focused specifically on the agreement and civil disagreement conditions was significant ($b = 2.23$, $SE = .89$, 95% CI [.48, 3.98], $t = 2.52$, $p = .013$), but the two-way interaction focused on the agreement and uncivil disagreement conditions was not ($b = .94$, $SE = .85$, 95% CI [-.74, 2.61], $t = 1.10$, $p = .27$). Following Aiken and West (1991), we conducted simple slope analyses to interpret the interaction (PROCESS; Hayes, 2013; Figure 3). Replicating results of Studies 1 and 2, narcissism was significantly associated with intolerance in the disagreement condition ($b = 1.77$, $SE = .75$, 95% CI [.30, 3.24], $t = 2.37$, $p = .019$), but not the agreement condition ($b = -.46$, $SE = .48$, 95% CI [-1.41, .48], $t = -.97$, $p = .33$). Narcissism was also unrelated to intolerance expressed in the uncivil disagreement condition ($b = .47$, $SE = .70$, 95% CI [-.91, 1.85], $t = .68$, $p = .50$).

To distinguish the unique role of narcissism from sadism, we conducted three separate regression analyses in which we replaced narcissism with physical, verbal, and vicarious sadism respectively. No form of sadism predicted verbal intolerance directly, nor did they moderate the effect of disagreement on intolerance. Next, we ran our main analyses for narcissism with the three forms of sadism (individually) controlled. Controlling these variables did not diminish the two-way interaction between narcissism and opinion conditions.⁹

Through a series parallel regression analyses, we also found no effects of self-esteem, intellectual humility, cultural tolerance, or gender, respectively, in predicting intolerance, nor did they moderate the narcissistic intolerance effect. Because the significance levels of the interactions between narcissism and opinion conditions remain virtually the same with or without controlling these variables, we report regression analyses without controlling them.

⁹ It is worth noting that all three indexes of sadism were heavily skewed. Transformation did not make the distribution normal, thus we used the raw mean scores on each subscale in the regression analyses. Although the assumption of normality might have been violated, the null results of sadism are consistent with conceptual distinctions between narcissism and sadism as well as between flaming and trolling.

Closed-ended intolerance. We regressed closed-ended intolerance scores on narcissism (centered), opinion condition (agreement = 0, 0; civil disagreement = 1, 0; uncivil disagreement = 0, 1), and the cross-product interaction terms. There was a significant condition effect, indicating that participants reported greater intolerance in both the civil disagreement condition ($b = 1.28, SE = .16, 95\% CI [.97, 1.59], t = 8.11, p < .001$) and the uncivil disagreement condition ($b = 1.35, SE = .16, 95\% CI [-.65, 3.62], t = 8.65, p < .001$) than the agreement condition. However, there was no significant increase in explained variance by adding the two interaction terms ($\Delta R^2 = .02, F(2,178) = 1.69, p = .19$; Figure 4). Specifically, neither the interaction focused on the agreement and civil disagreement ($b = 1.49, SE = 1.08, 95\% CI [-.65, 3.62], t = 1.37, p = .17$) nor the interaction focused on the agreement and uncivil disagreement ($b = -.39, SE = .86, 95\% CI [-2.09, 1.32], t = -.45, p = .65$) were significant.

Perceived reasonableness of own opinion. Using parallel regression analyses, we found no significant effect of condition or narcissism on perceived reasonableness of opinions ($R^2 = .04$, Omnibus $F(5, 178) = 1.11, p = .36$).

Discussion

Study 3 replicates and extends evidence of narcissistic intolerance to subjective disagreement on opinions of a TV show in an undergraduate sample. Study 3 also shows that intolerance occurs in response to negative opinions (challenging one's own positive views), in addition to positive opinions (as observed in Studies 1 and 2). Notably, narcissism moderated the effect of disagreement on expressed hostility and dismissiveness, even when everyday sadism was controlled. Indeed, everyday sadism appears to be unrelated to intolerance expressed in response to subjective disagreement. These results suggest a clear distinction between grandiose narcissism and everyday sadism in their contributions to different forms of online aggression.

Subjective disagreement, which may be acutely threatening to narcissists' self-esteem, elicited the most hostility and dismissiveness, similar to findings for physical aggression supporting threatened egotism theory (Bushman & Baumeister, 1998). Such reactive aggression is distinct from proactive aggression such as trolling, which is associated with sadism (Buckels et al., 2013; 2014).

Notably, our findings suggest that expressed intolerance may cause detrimental downstream consequences. When initial disagreement was conveyed in an uncivil manner, it evoked comparable hostility and dismissiveness from participants, regardless of their levels of narcissism. These results extend evidence from studies of cyber-violence that demonstrate that online aggressive discourse can be contagious. The same may be true for intolerance of differing opinions.

Narcissists appear equally intolerant after either civil or uncivil disagreement. Notably, this pattern of results is consistent with the Traits AS Situational Sensitivities (TASS) model (Marshall & Brown, 2006). The TASS model posits that individual differences predispose behaviours in response to situational provocation. Individuals who possess traits associated with a high propensity for aggression (e.g., narcissism) may need relatively less provocation to react (over-) aggressively (Marshall & Brown, 2006; Chemers, 2008). However, such propensity does not mean that highly narcissistic individuals will always behave more aggressively than less narcissistic individuals in response to strong provocation.

Finally, using a closed-ended measure of intolerance, our results again suggest that narcissistic intolerance in response to attitudinal disagreement predominantly resides in verbal expression, but not in privately held perceptions.

General Discussion

Summary of Primary Findings: Narcissistic Intolerance

The goal of the present research was to test whether narcissists are more hostile and dismissive toward differing opinions expressed online, a phenomenon we refer to as narcissistic intolerance. Across three studies, we found evidence of such intolerance. When exposed to the differing opinions of an earlier participant toward an abstract painting (Studies 1 and 2) or a TV show (Study 3), narcissists expressed more verbal hostility toward the earlier participant and were more dismissive of the differing opinion, than less narcissistic participants. In contrast, narcissists were not more hostile toward or dismissive of an earlier participant who agreed with them. Disagreement on matters of opinion may have threatened narcissists' self-esteem, because this pattern of narcissistic intolerance was completely eliminated by self-affirmation (Study 2). Narcissistic intolerance was observed in both MTurk adult samples (Studies 1 & 2) and an undergraduate sample (Study 3). The results of Study 3 also suggest possible downstream consequences of intolerance, as initial uncivil disagreement evoked hostility and dismissiveness from all participants, regardless of their level of narcissism. This pattern of results suggests that intolerance may breed further intolerance. Overall, our primary findings suggest that narcissists exhibit the most intolerance of differing opinions. This intolerance is similar to flaming in anonymous, computer-mediated communication, which may breed further hostile and dismissive discourse.

Extending the Threatened-Egotism Model of Narcissistic Aggression

The threatened-egotism account of narcissistic aggression postulates that narcissists behave aggressively as a means of restoring self-esteem when their highly favorable self-views are “impugned” or “discredited” by others (Baumeister et al., 2000; Bushman & Baumeister,

1998). Notably, the present research converges with and meaningfully extends this model. Prior research has mainly evoked narcissistic aggression through negative feedback that directly challenges participants' competence or important personal attributes. Such overt, ego-threatening feedback (typically involving criticism, insults, or social rejection) may underestimate how easily narcissists may be threatened and react with hostility (i.e., they may have a low provocation threshold). Our studies focused on seemingly trivial subjective disagreements, but nevertheless found evidence of narcissistic hostility and dismissiveness. These findings suggest that narcissists may inadvertently "invite" threats to their self-esteem because they are hypersensitive to social feedback (i.e., others' differing opinions) that is not inherently intended to threaten them (Twenge & Campbell, 2003).

In Studies 1 and 2, disagreement involved only positive opinions expressed toward an unfamiliar abstract painting. Narcissists, however, seemed threatened by such benign differing opinions and responded with hostility and dismissiveness. An alternative explanation, however, might be that some participants detected discrepancies between the generic assessment ostensibly written by an earlier participant and the painting presented to them. To manipulate disagreement (vs. agreement), we provided the same generic assessment to all abstract paintings, regardless of which specific painting was selected. However, some aspects of the generic assessment (e.g., "there is no real sense of movement") might describe some paintings more accurately than others from participants' perspectives. In that case, expressed intolerance might be partially due to participants believing that the earlier participant made an incompetent assessment of the painting, rather than the disagreement being ego-threatening. If so, it is unclear why narcissists would be especially likely to notice such discrepancies. In addition, this explanation does not seem to hold for the results of Study 3. In Study 3, the differing opinion

focused on one opinion target—the TV show *Friends*—for all participants.¹⁰ In this case, the opinions presented were equally applicable to *Friends* for all participants, and were derived from online comments actually directed toward the show. In addition, Study 3 replicated the finding of narcissistic intolerance in response to negative opinions of the show, rather than positive opinions.

Another contribution of the current research is in studying narcissists' verbal aggression. Although there is ample evidence that narcissists can become more physically aggressive in response to ego-threat (Rasmussen, 2016), little is known about whether threatened egotism can explain verbally expressed hostility and aggression. Our research helps fill this gap. Highly narcissistic participants responded to differing opinions by openly expressing greater negativity toward the person who disagreed and more forceful dismissal of the validity of the differing view than less narcissistic individuals. Intolerance in these studies included hostile expressions, such as profanity, insults, use of all-caps and exclamation marks to express strong emotion. Our findings are consistent with recent findings of narcissists' habitual use of strong language (e.g., disagreeable, offensive, aggressive, and anger words) to seek attention to validate their grandiose sense of self (Adams et al., 2014; DeWall, Buffardi, Bonser, & Campbell, 2011; Holtzman et al., 2010;).

When narcissists' self-views are threatened, verbal aggression may reflect an acute motivation to protect their self-esteem as well as a chronic need to seek attention and admiration. Thus, evidence of narcissistic intolerance may support the knowledge structure model of human aggression (Bushman & Anderson, 2001). That is, aggressive behaviours may form through a personal history of exposure to provocations, for which one may develop a set of knowledge of

¹⁰ Also in Studies 1 and 2, very few participants mentioned that some aspect(s) of the assessment did not seem to apply to the painting presented to them. There were no obvious patterns to suggest that narcissists reported more discrepancy or that detected discrepancy varied by condition.

how to respond (i.e., scripts). Because narcissists are highly attuned to threats to self-esteem, they may develop scripts for response to such threats. Differing opinions are pervasive on the Internet. To the extent that narcissists are threatened by differing opinions, as our evidence suggests, it may be that intolerance conveyed through flaming reflects a common script for narcissists when they are confronted with subjective disagreement in online communication.

Narcissists' Dynamic Self-Esteem Regulation

The current research also sheds further light on narcissists' dynamic self-esteem regulation (Morf & Rhodewalt, 2001). Many people are not concerned with the consensual validation of the appropriateness or correctness of their personal preferences (Suls, Martin, & Wheeler, 2000). This, however, may not be the case for narcissists. We found that narcissists were particularly threatened by differing subjective preferences and responded with heightened intolerance. In Study 2, moreover, narcissists expressed less intolerance than non-narcissists toward a person who *agreed* with their preferences, but only when they were not self-affirmed. When affirmed, narcissists expressed no more or less intolerance than non narcissists toward the person who *agreed*. These findings may imply that, driven by a zealous search for validation to justify positive yet shaken self-views, narcissists may unduly engage in social comparison of trivial matters of opinions. Past research suggests that narcissists exploit (downward) social comparison (Bogart, Benotsch, & Pavlovic, 2004; Krizan & Bushman, 2011) and comparative thinking styles with a focus on differences (Ohmann & Burgmer, 2016) as means of self-enhancement to assert uniqueness and superiority. Our findings may highlight contrasting conditions under which social comparison of opinions is favorable (i.e., agreement) versus unfavorable (i.e., disagreement) for narcissists' self-esteem regulation. In Study 2, narcissists appeared to be especially charitable toward someone who agreed with them. The fact that values-

affirmation eliminated this tendency may suggest that it serves a self-enhancement function much like intolerance expressed toward differing opinions. It is worth noting too, that narcissistic intolerance may be counterproductive. By lashing out against those who disagree with them, narcissists may initiate a flaming norm, which encourages further hostility and dismissiveness (Study 3). As verbal hostility escalates during online discourse, narcissists may face harsher, more direct criticism or insults that threaten their self-esteem further.

Supplementary Findings and Extending the Attitude Similarity Paradigm

We found consistent main effects of disagreement on a set of participants' private responses. Convergent with the attitude similarity literature (e.g., Byrne, 1997), dissimilarity in attitudes toward a single abstract painting (i.e., subjective disagreement) led to less social attraction (e.g., likability) and intellectual attraction (e.g., impression of the quality of assessment) to the earlier participant. Notably, our research extends similarity-attraction effects to measures rarely examined in this literature. People rated the person who disagreed with them to be more pretentious (Studies 1 and 2) and indicated greater intolerance toward them in their private responses (as opposed to openly expressed intolerance; Study 3). These main effects of disagreement may reflect perceived similarity to the earlier participant—an important mediator in similarity-attraction effects (Montoya, Horton, & Kirchner, 2008). In the present research, participants' estimates of how many paintings they and the earlier participant would agree on were considerably greater in the agreement condition than the disagreement condition. This may reflect a general perception of similarity to the earlier participant.

Implications on the Differences between Open-ended and Closed-ended Measures

The contrasting results for the closed-ended and open-ended responses may have theoretical implications. Although the two types of measures correlated highly, disagreement led

participants in general, regardless of narcissism, to like the earlier participant less and to view themselves as less similar to the earlier participant. These main effects, moreover, were not alleviated by values-affirmation (Study 2, except for ratings of the quality of the earlier participant's assessment and estimated agreement). These findings imply that dissimilarity makes others less attractive to people in general, perhaps because they expect to have little in common with those who disagree with them. But only narcissists appear to experience attitudinal dissimilarity as a threat to self-esteem, which elicits open hostility that is attenuated by values-affirmation. Even the closed-ended intolerance items showed a main effect of disagreement that was not moderated by narcissism. This discrepancy between privately reported and openly expressed intolerance, however, might support the possibility that narcissists engage in "active failure avoidance" (Morf & Rhodewalt, 2001, p. 190). That is, narcissists seem to use extreme self-promotion as a means of protecting their self-esteem instead of avoiding or withdrawing from situations that may engender negative outcomes. Such relentless self-promotion involves taking credit for positive outcomes and discounting negative outcomes, even in offensive and aggressive ways (Morf & Rhodewalt, 2001). In the current research, passively and privately derogating the person who disagreed may seem insufficient to narcissists for their self-esteem regulation. To protect their self-esteem from disagreement, they may feel compelled to actively lash out at the dissenter to discredit his or her opinion and reputation.

Practical Implications: Diminishing Flaming

In this digital era, anonymous communication on the Internet is common given the popularity of such platforms as Reddit, Twitter, and Quora. Narcissists may prefer the ease and freedom of anonymous self-expression online (Keipi, Oksanen, & Räsänen, 2014). Thus, the context of the present research may closely resemble settings that narcissists experience in daily

computer-mediated communication. Our results may thus be applicable to real-world, online verbal aggression in the form of flaming. The findings of Study 3 may suggest that moderators of online forums should promptly terminate intolerant expressions, even in the discussion of subjective matters of opinions, because intolerance may simply breed further hostility and dismissiveness, potentially shutting down civil discussion.

It is noteworthy that we identified grandiose narcissism as an important personality trait contributing to the propensity for online verbal aggression. In a world filled with differing opinions, our research resonates with the recommendation that reducing narcissism is equally, if not more, important than reducing situational provocations of aggression (Twenge & Campbell, 2003). This notion is supported by the apparent ease with which narcissists seem to take offence at subjective disagreements. Our results also extend research on the practical effect of values-affirmation on reducing aggression (Thomaes et al., 2009) to online verbal aggression. Further research could examine ways to introduce forms of self-affirmation into ongoing online discussions in order to reduce narcissistic intolerance.

Open Questions, Limitations, and Future Directions

Mechanisms.

There are at least two possibilities for why narcissists express greater intolerance to differing opinions than non-narcissists. One possibility is that subjective disagreement threatens everyone, regardless of their level of narcissism, but only narcissists openly express verbal aggression. The other possibility is that narcissists are more threatened by disagreement than less narcissistic individuals, and this high degree of threat incites intolerance. We suspect the latter possibility is correct, which may be consistent with the initial tests of threatened-egotism (Bushman & Baumeister, 1998). In those studies, narcissism was positively associated with

perceived threat in response to negative feedback, and higher perceived threat was associated with greater physical aggression. We admit that the design of the present studies does not allow us to clearly distinguish between these two possibilities, however. Future research could attempt to measure perceived threat following subjective disagreement (versus agreement) in order to clarify the psychological processes that encourage narcissistic intolerance.

Future research could also examine whether narcissistic intolerance is an anger-fueled response to attitudinal disagreement. Grandiose narcissism is associated with anger following failure feedback (Rhodewalt & Morf, 1998) and social rejection (Twenge & Campbell, 2003), although this effect is not entirely consistent in past research (Hart, Adams, Burton, & Tortoriello, 2017). It may be that disagreement on matters of opinions angers narcissists, which leads them to express greater intolerance. Anger and internalization of angry feelings, however, are more evident in the association between vulnerable narcissism, rather than grandiose narcissism, and aggression (Krizan & Johar, 2015). To clarify the mechanism and generalizability of our narcissistic intolerance findings, future research could examine how vulnerable as well as grandiose narcissists react to subjective disagreement and the role of anger in their reactions.

Potential boundary conditions: confidentiality and consensus information.

We considered additional boundary conditions that might affect the expression of narcissistic intolerance in our studies. First, in all of our studies, we instructed participants to reply to the earlier participant as though they were replying on an anonymous digital discussion board. It is possible that narcissists assumed their written responses would remain private and would not be seen by the earlier participant. This may have encouraged hostility, because narcissists might have viewed it as inconsequential. We therefore wondered whether informing

participants that their written responses would be sent to the earlier participant would suppress intolerance.

Second, our operationalization of disagreement may have made participants use another individual's personal preference as a reference point for social comparison. When evaluating whether their personal preferences are appropriate for social approval and rewards, people may also consult normative preferences as a reference point (Suls et al., 2000). That is, we wondered whether subjective disagreement might make narcissists worry that their opinions are not widely shared, which might contribute to narcissistic intolerance. We further wondered whether explicitly informing participants that their opinions either are or are not widely shared might moderate narcissistic intolerance. With respect to narcissists, two possibilities seemed possible. Learning that the majority of people share their preference (high consensus) might suppress their intolerance, because it may imply social approval and alleviate the threat of their being in the minority. On the other hand, high consensus information might embolden narcissists, making them even more intolerant. Similarly, learning that the majority of people do not share their preference (low consensus) might decrease narcissistic intolerance by making them less likely to assert their marginal opinion aggressively. On the other hand, low consensus might be especially threatening to narcissists and lead them to lash out with greater intolerance.

We attempted to address these issues (the effects of consensus information and confidentiality) in an additional data set. Prior to manipulations, grandiose narcissism was measured by NPI-16 (Ames et al., 2006) and the Narcissistic Admiration and Rivalry Questionnaire (NARQ; Back et al., 2013). All participants ($N = 356$) were exposed to subjective disagreement about an abstract painting. We created a non-confidential condition, in which participants were explicitly told that we would send their written responses to the earlier

participant. We also introduced consensus information prior to the disagreement. In the high consensus condition, participants were told that “Of all participants who have rated this painting in our earlier surveys, 87.65% *disliked* this painting.” In the low consensus condition, participants were told that 87.65% of all participants *liked* the selected painting. Participants in the control condition received no additional manipulation (See Appendix R). Overall, we found no effects of these manipulations on expressed intolerance in response to disagreement. NPI was positively associated with intolerance, although it did not reach significance ($r = .08, p = .13$). Narcissistic rivalry was more strongly related to intolerance ($r = .23, p < .001$) than admiration ($r = .11, p = .04$). There were no interaction effects between narcissism and manipulations of confidentiality and consensus information.

Although caution needs to be taken when interpreting null results, the finding that narcissists did not express less intolerance in the non-confidential condition than the control condition appears to be consistent with earlier research. For example, narcissists derogated the personality of individuals who out-performed them (i.e., who threatened their self-esteem) even with the expectation that their negative evaluation would be shown to those individuals (Morf & Rhodewalt, 1993). Our findings from this additional study may support the notion that, driven by the need to re-establish self-esteem, narcissists express intolerance with little concern for others’ feelings.

The finding that consensus information did not moderate narcissistic intolerance suggests that the threat posed by a differing opinion does not primarily reflect concern about being in the minority with their opinions. Interestingly, narcissists were equally intolerant whether their opinion was presented as being in the majority or minority. The threat posed by subjective disagreement may, rather, simply reflect indignation at the fact another person could hold a

different preference. Future research should further examine the nature of the threat posed by subjective disagreement.

Additional considerations.

The role of narcissistic rivalry. In our studies, we mainly used the NPI-16, a measure of grandiose narcissism with an emphasis on agentic domains (Ames et al., 2006). In Study 3 and the additional data set just described¹¹, however, we included the Narcissistic Admiration and Rivalry Questionnaire (NARQ; Back et al., 2013), to explore whether intolerance was equally attributable to the self-enhancing, “bright side” (i.e., admiration) or the antagonistic, “dark side” (i.e., rivalry) of grandiose narcissism. We found mixed results. In Study 3, we replicated the interaction between the NPI and disagreement in predicting intolerance. Admiration, however, was not associated with intolerance ($r = .11, ns$) and did not moderate the effect of opinion disagreement on intolerance. Rivalry was associated with intolerance overall ($r = .20, p = .007$; across agreement, civil disagreement, and uncivil disagreement conditions) but did not moderate the relation between disagreement and intolerance. In the additional data set (collapsed across the four conditions), rivalry was more strongly associated with intolerance than admiration or the NPI. (This study included only the disagreement condition.) Because admiration and NPI were highly correlated ($r = .74, p < .001$), we used them to form a composite score of admiration, which was associated with intolerance overall ($r = .11, p = .048$), but rivalry was still more strongly associated with intolerance. A recent study found that narcissistic rivalry is associated with decreased state self-esteem after negative social feedback more strongly and consistently than the NPI and admiration, which may explain why hostile and aggressive retaliation is central to the conceptualization of narcissistic rivalry (Geukes et al., 2016). Our results may also suggest

¹¹ In Study 3, we administered the NARQ after measures of dependent variables. In the additional study, NARQ was measured before manipulation of disagreement (vs. agreement).

that rivalry also plays a larger role in narcissistic intolerance, but are not entirely clear. Future research could strive to further clarify the roles of narcissistic admiration and rivalry in narcissistic intolerance.

Limitation due to use of writing prompt. In our studies, we asked participants to write about why they liked or disliked the painting or TV show prior to the manipulation of disagreement (vs. agreement). We included these writing prompts to make the cover story more believable. However, elaborating on reasons for liking or disliking the painting or TV show might have strengthened participants' attitudes toward these items or increased commitment to them, making participants more reactive to disagreement. Although such processes may have contributed to our finding, there is reason to doubt this possibility. In Studies 1 and 2, participants in the disagreement condition reported being less certain about the reasonableness of their opinions than participants in the agreement condition, suggesting that the writing prompt did not strengthen their preferences. Therefore, it seems unlikely that narcissistic intolerance (and the elimination of intolerance due to self-affirmation) in response to disagreement depends on having participants write about reasons of their preferences. Nevertheless, future research could test whether narcissistic intolerance also occurs when people do not articulate reasons for their preferences.

Important attitudes and theoretically relevant individual differences. Last but not least, we distinguished the role of narcissism in intolerance from a variety of potentially relevant individual differences in responses to differences in matters of opinion. Previous research on these individual differences (e.g., social vigilantism, intellectual humility, and openness) has typically focused on personally important attitudes or beliefs (e.g., differing political views and religious beliefs), but has not considered nor tested the possibility that differing views may be

threatening to some people (e.g., Leary et al., 2017; Saucier & Webster, 2010; Saucier et al., 2014). Future research could examine whether narcissism contributes to intolerance, above and beyond these theoretically relevant individual differences, in response to disagreement on more personally relevant and important attitudes, or attitudes that may more clearly reflect moral values or competence.

Concluding Remarks

The present research aimed to broaden an understanding of narcissists' self-esteem regulation (Morf & Rhodewalt, 2001) in a digital environment filled with differing opinions. Disagreement on trivial matters of opinion appears to threaten narcissists' self-esteem, causing them to express hostility and dismissiveness. Such intolerance may be a means of protecting their challenged, shaky self-views but at the cost of initiating a hostile and dismissive norm in online discourse. Our research is consistent with but meaningfully extends research on threatened egotism, attitude similarity, and flaming. Our first step in demonstrating defensive, narcissistic intolerance invites future research on potential mechanisms and boundary conditions of narcissistic aggression.

References

- Adams, J. M., Florell, D., Alex Burton, K., & Hart, W. (2014). Why do narcissists disregard social-etiquette norms? A test of two explanations for why narcissism relates to offensive-language use. *Personality and Individual Differences, 58*, 26-30.
<http://doi.org/10.1016/j.paid.2013.09.027>
- Alonzo, M., & Aiken, M. (2004). Flaming in electronic communication. *Decision Support Systems, 36*(3), 205-213. [http://doi.org/10.1016/S0167-9236\(02\)00190-2](http://doi.org/10.1016/S0167-9236(02)00190-2)
- Ames, D. R., Rose, P., & Anderson, C. P. (2006). The NPI-16 as a short measure of narcissism. *Journal of Research in Personality, 40*(4), 440-450. <http://doi.org/10.1016/j.jrp.2005.03.002>
- Back, M. D., Küfner, A. C. P., Dufner, M., Gerlach, T. M., Rauthmann, J. F., & Denissen, J. J. A. (2013). Narcissistic admiration and rivalry: Disentangling the bright and dark sides of narcissism. *Journal of Personality and Social Psychology, 105*(6), 1013-1037.
<http://doi.org/10.1037/a0034431>
- Baumeister, R. F., Bushman, B. J., & Campbell, W. K. (2000). Self-Esteem, narcissism, and aggression: Does violence result from low self-esteem or from threatened egotism? *Current Directions in Psychological Science, 9*(1), 26-29. <http://doi.org/10.1111/1467-8721.00053>
- Bogart, L. M., Benotsch, E. G., & Pavlovic, J. D. (2004). Feeling superior but threatened: The relation of narcissism to social comparison. *Basic and Applied Social Psychology, 26*(1), 1-11. <http://doi.org/10.1207/s15324834basp2601>
- Buckels, E. E., Jones, D. N., & Paulhus, D. L. (2013). Behavioral confirmation of everyday sadism. *Psychological Science, 24*(11), 2201-2209.
<http://doi.org/10.1177/0956797613490749>
- Bushman, B. J., & Anderson, C. A. (2001). Is it time to pull the plug on the hostile versus

instrumental aggression dichotomy? *Psychological Review*, 108(1), 273-279.

<http://doi.org/10.1037/0033-295X.108.1.273>

Bushman, B. J., & Baumeister, R. F. (1998). Threatened egotism, narcissism, self-esteem, and direct and displaced aggression: does self-love or self-hate lead to violence? *Journal of Personality and Social Psychology*, 75(1), 219-229. <http://doi.org/10.1037/0022-3514.75.1.219>

Bushman, B. J., Baumeister, R. F., Thomaes, S., Ryu, E., Begeer, S., & West, S. G. (2009). Looking again, and harder, for a link between low self-esteem and aggression. *Journal of Personality*, 77(2), 427-446. <http://doi.org/10.1111/j.1467-6494.2008.00553.x>

Byrne, D. (1971). *The attraction paradigm*. New York: Academic Press.

Byrne, D. (1997). An overview (and underview) of research and theory within the attraction paradigm. *Journal of Social and Personal Relationships*, 14(3), 417-431.

Byrne, D., & Clore, G. (1967). Effectance Arousal and Attraction. *Journal of Personality and Social Psychology*, 6(4), 1-18. <http://doi.org/10.1037/h0024829>

Campbell, W. K., & Foster, J. D. (2007). The narcissistic self: Background, an extended agency model, and ongoing controversies. In C. Sedikides & S. Spencer (Eds.), *Frontiers in social psychology: The self* (pp. 115-138). Philadelphia, PA: Psychology Press.

Chemers, M. M. (2012). Leadership as dynamic social process. In F. Rhodewalt (Ed.), *Personality and social behavior* (pp. 197-222). New York: Psychology Press.

Cohen, G. L., Sherman, D. K., Bastardi, A., Hsu, L., McGoey, M., & Ross, L. (2007). Bridging the partisan divide: Self-affirmation reduces ideological closed-mindedness and inflexibility in negotiation. *Journal of Personality and Social Psychology*, 93(3), 415-430. <http://doi.org/10.1037/0022-3514.93.3.415>

- David-Ferdon, C., & Hertz, M. F. (2007). Electronic media, violence, and adolescents: an emerging public health problem. *Journal of Adolescent Health, 41*(6), S1-S5.
<http://doi.org/10.1016/j.jadohealth.2007.08.020>
- DeWall, C. N., Buffardi, L. E., Bonser, I., & Campbell, W. K. (2011). Narcissism and implicit attention seeking: Evidence from linguistic analyses of social networking and online presentation. *Personality and Individual Differences, 51*(1), 57-62.
<https://doi.org/10.1016/j.paid.2011.03.011>
- Dickinson, K. A., & Pincus, A. L. (2003). Vulnerable Narcissism Interpersonal Analysis of Grandiose and Vulnerable Narcissism. *Journal of Personality Disorders, 17*(3), 188-207.
<http://doi.org/10.1521/pedi.17.3.188.22146>
- Eun Woo, S., Chernyshenko, O. S., Longley, A., Zhang, Z., Chiu, C., & Stark, S. E. (2014). Openness to experience: its lower level structure, measurement, and cross-cultural equivalence. *Journal of Personality Assessment, 96*(1), 29-45.
<http://doi.org/10.1080/00223891.2013.806328>
- Festinger, L. (1954). A theory of social comparison processes. *Human relations, 7*(2), 117-140.
- Geukes, K., Nestler, S., Hutteman, R., Dufner, M., Küfner, A, C, P., Egloff, B., & Back, M. D. (2016). Puffed-up but shaky selves: State self-esteem level and variability in narcissists. *Journal of Personality and Social Psychology, 112*(5), 769-786.
<http://doi.org/10.1037/pspp0000093>
- Gormly, J., Gormly, A., & Johnson, C. (1971). Interpersonal attraction: Competence motivation and reinforcement theory. *Journal of Personality and Social Psychology, 19*(3), 375-380.
<http://doi.org/10.1037/h0031455>
- Hager, M., Hagemann, D., Danner, D., & Schankin, A. (2012). Assessing aesthetic appreciation of visual artworks—The construction of the Art Reception Survey (ARS). *Psychology of*

- Aesthetics, Creativity, and the Arts*, 6(4), 320-333. <http://doi.org/10.1037/a0028776>
- Hart, W., Adams, J., Burton, K. A., & Tortoriello, G. K. (2017). Narcissism and self-presentation: Profiling grandiose and vulnerable Narcissists' self-presentation tactic use. *Personality and Individual Differences*, 104, 48-57. <http://doi.org/10.1016/j.paid.2016.06.062>
- Hart, W., Adams, J. M., & Tortoriello, G. (2017). Narcissistic responses to provocation: An examination of the rage and threatened-egotism accounts. *Personality and Individual Differences*, 106, 152-156. <http://doi.org/10.1016/j.paid.2016.10.049>
- Hawley-Dolan, A., & Young, L. (2013). Whose mind matters more—the agent or the artist? An investigation of ethical and aesthetic evaluations. *Plos One*, 8(9), e70759. <http://doi.org/10.1371/journal.pone.0070759>
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford Press.
- Heine, S. J., Proulx, T., & Vohs, K. D. (2006). The meaning maintenance model: On the coherence of social motivations. *Personality and Social Psychology Review*, 10(2), 88-110. http://doi.org/10.1207/s15327957pspr1002_1
- Holtzman, N. S., Vazire, S., & Mehl, M. R. (2010). Sounds like a narcissist: Behavioral manifestations of narcissism in everyday life. *Journal of Research in Personality*, 44(4), 478-484. <http://doi.org/10.1016/j.jrp.2010.06.001>
- Johnson, C. D., Gormly, J., & Gormly, A. (1973). Disagreements and self-esteem: Support for the competence-reinforcement model of attraction. *Journal of Research in Personality*, 7(2), 165-172. [http://doi.org/10.1016/0092-6566\(73\)90049-4](http://doi.org/10.1016/0092-6566(73)90049-4)
- Kausel, E. E., Culbertson, S. S., Leiva, P. I., Slaughter, J. E., & Jackson, A. T. (2015). Too arrogant for their own good? Why and when narcissists dismiss advice. *Organizational*

Behavior and Human Decision Processes, 131, 33-50.

<http://doi.org/10.1016/j.obhdp.2015.07.006>

Kayany, J. M. (1998). Contexts of uninhibited online behavior: Flaming in social newsgroups on Usenet. *Journal of the Association for Information Science and Technology*, 49(12), 1135-1141.

Keipi, T., Oksanen, A., & Räsänen, P. (2014). Who prefers anonymous self-expression online? A survey-based study of Finns aged 15-30 years. *Information, Communication & Society*, 4462(March 2015), 1-16. <http://doi.org/10.1080/1369118X.2014.991342>

Krizan, Z., & Bushman, B. J. (2011). Better than my loved ones: Social comparison tendencies among narcissists. *Personality and Individual Differences*, 50(2), 212-216.
<http://doi.org/10.1016/j.paid.2010.09.031>

Krizan, Z., & Johar, O. (2015). Narcissistic rage revisited. *Journal of personality and social psychology*, 108(5), 784. <http://doi.org/10.1037%2Fpspp0000013>

Krumrei-Mancuso, E. J., & Rouse, S. V. (2015). The development and validation of the comprehensive intellectual humility scale. *Journal of Personality Assessment*, 6(2), 1-13.
<http://doi.org/10.1080/00223891.2015.1068174>

Kwon, K. H., & Gruzd, A. (2017). Is Aggression Contagious Online ? A Case of Swearing on Donald Trump ' s Campaign Videos on YouTube. *Proceedings of the 50th Hawaii International Conference on System Sciences*, 1-10.

Leary, M. R., Terry, M. L., Batts Allen, A., & Tate, E. B. (2009). The concept of ego threat in social and personality psychology: is ego threat a viable scientific construct? *Personality and Social Psychology Review : An Official Journal of the Society for Personality and Social Psychology, Inc*, 13(3), 151-164. <http://doi.org/10.1177/1088868309342595>

- Lee, H. (2014). for Dealing With Strategies Flaming in an Online Forum. *The Sociological Quarterly*, 46(2), 385-403.
- Luzón, M. J. (2013). "This is an erroneous argument": Conflict in academic blog discussions. *Discourse, Context and Media*, 2(2), 111-119. <http://doi.org/10.1016/j.dcm.2013.04.005>
- McKee, H. (2002). "Your views showed true ingnorance!!!": (Mis)Communication in an online interracial discussion forum. *Computers and Composition*, 19(4), 411-434. [http://doi.org/10.1016/S8755-4615\(02\)00143-3](http://doi.org/10.1016/S8755-4615(02)00143-3)
- Mededović, J., & Petrović, B. (2015). The dark tetrad. *Journal of Individual Differences*, 36(4), 228-236. <http://doi.org/10.1027/1614-0001/a000179>
- Moeller, S., Crocker, J., & Bushman, B. (2010). Creating hostility and conflict: Effects of entitlement and self-image goals. *Journal of Experimental Social Psychology*, 36(3), 490-499. <http://doi.org/10.1124/dmd.107.016501.CYP3A4-Mediated>
- Montoya, R. M., Horton, R. S., & Kirchner, J. (2008). Is actual similarity necessary for attraction? A meta-analysis of actual and perceived similarity. *Journal of Social and Personal Relationships*, 25(6), 889-922. <http://doi.org/10.1177/0265407508096700>
- Moor, P. J., Heuvelman, A., & Verleur, R. (2010). Flaming on YouTube. *Computers in Human Behavior*, 26(6), 1536-1546. <http://doi.org/10.1016/j.chb.2010.05.023>
- Morf, C. C., & Rhodewalt, F. (1993). Narcissism and self-evaluation maintenance: Explorations in object relations. *Personality and Social Psychology Bulletin*, 19(6), 668-676.
- Morf, C. C., & Rhodewalt, F. (2001). Unraveling the Paradoxes of Narcissism: A Dynamic Self-Regulatory Processing Model. *Psychological Inquiry*, 12(4), 177-196. <http://doi.org/10.1207/S15327965PLI1204>
- Ohmann, K., & Burgmer, P. (2016). Nothing compares to me: How narcissism shapes

- comparative thinking. *Personality and Individual Differences*, 98, 162-170.
<http://doi.org/10.1016/j.paid.2016.03.069>
- Öngen, D. E. (2010). Relationships between narcissism and aggression among non-referred Turkish university students. *Procedia - Social and Behavioral Sciences*, 5(2), 410-415.
<http://doi.org/10.1016/j.sbspro.2010.07.114>
- Park, A., Ickes, W., & L. Robinson, R. (2014). More f#!%ing rudeness: reliable personality predictors of verbal rudeness and other ugly confrontational behaviors. *Journal of Aggression, Conflict and Peace Research*, 6(1), 26–43. <http://doi.org/10.1108/JACPR-04-2013-0009>
- Paulhus, D. L. (2014). Toward a taxonomy of dark personalities. *Current Directions in Psychological Science*, 23(6), 421-426. <http://doi.org/10.1177/0963721414547737>
- Peterson, J., & Densley, J. (2017). Cyber violence: What do we know and where do we go from here? *Aggression and Violent Behavior*, 34, 193-200.
<http://doi.org/10.1016/j.avb.2017.01.012>
- Pronin, E., Gilovich, T., & Ross, L. (2004). Objectivity in the dye of the beholder: Divergent perceptions of bias in self versus others. *Psychological Review*, 111(3), 781-799.
<http://doi.org/10.1037/0033-295X.111.3.781>
- Porter, T., & Schumann, K. (2017). Intellectual humility and openness to the opposing view. *Self and Identity*, 1-24. <http://dx.doi.org/10.1080/15298868.2017.1361861>
- Proulx, T., Heine, S. J., & Vohs, K. D. (2010). When is the unfamiliar the uncanny? Meaning affirmation after exposure to absurdist literature, humor, and art. *Personality and Social Psychology Bulletin*, 36(6), 817-829. <http://doi.org/10.1177/0146167210369896>
- Raskin, R., Novacek, J., & Hogan, R. (1991). Narcissistic self-esteem management. *Journal of*

Personality and Social Psychology, 60(6), 911-918. [http://doi.org/10.1037/0022-](http://doi.org/10.1037/0022-3514.60.6.911)

3514.60.6.911

Rasmussen, K. (2016). Entitled vengeance: A meta-analysis relating narcissism to provoked aggression. *Aggressive Behavior*, 42(4), 362-379. <http://doi.org/10.1002/ab.21632>

Rhodewalt, F., & Morf, C. C. (1998). On self-aggrandizement and anger: a temporal analysis of narcissism and affective reactions to success and failure. *Journal of Personality and Social Psychology*, 74(3), 672-685. <http://doi.org/10.1037/0022-3514.74.3.672>

Saucier, D. A., Webster, R. J., Hoffman, B. H., & Strain, M. L. (2014). Social vigilantism and reported use of strategies to resist persuasion. *Personality and Individual Differences*, 70(February 2016), 120-125. <http://doi.org/10.1016/j.paid.2014.06.031>

Saucier, D. A., & Webster, R. J. (2010). Social vigilantism: measuring individual differences in belief superiority and resistance to persuasion. *Personality and Social Psychology Bulletin*, 36(1), 19-32. <http://doi.org/10.1177/0146167209346170>

Schepman, A., Rodway, P., Pullen, S. J., & Kirkham, J. (2015). Shared liking and association valence for representational art but not abstract art. *Journal of Vision*, 15(5), 1-10. <http://doi.org/10.1167/15.5.11>

Smalley, R. L., & Stake, J. E. (1996). Evaluating sources of ego-threatening feedback: Self-esteem and narcissism effects. *Journal of Research in Personality*, 30(4), 483-495. <http://doi.org/10.1006/jrpe.1996.0035>

Stucke, T. S., & Sporer, S. L. (2002). When a grandiose self-image is threatened: Narcissism and self-concept clarity as predictors of negative emotions and aggression following ego-threat. *Journal of personality*, 70(4), 509-532.

Suls, J., Martin, R., & Wheeler, L. (2000). Three kinds of opinion comparison: The triadic model.

Personality & Social Psychology Review, 4(3), 219-237.

<http://doi.org/10.1207/S15327957PSPR0403>

Thomaes, S., Bushman, B. J., Castro, B. O. D., Cohen, G. L., & Denissen, J. J. (2009). Reducing narcissistic aggression by buttressing self-esteem: An experimental field study. *Psychological Science*, 20(12), 1536-1542. <http://doi.org/10.1111/j.1467-9280.2009.02478.x>

Turnage, A. K. (2007). Email flaming behaviors and organizational conflict. *Journal of Computer-Mediated Communication*, 13(1), 43-59.

Twenge, J. M., & Campbell, W. K. (2003). "Isn't it fun to get the respect that we're going to deserve?" Narcissism, social rejection, and aggression. *Personality and Social Psychology Bulletin*, 29(2), 261-272. <http://doi.org/10.1177/0146167202239051>

von Collani, G., & Werner, R. (2005). Self-related and motivational constructs as determinants of aggression. An analysis and validation of a German version of the Buss-Perry Aggression Questionnaire. *Personality and Individual Differences*, 38(7), 1631-1643.

Table 1.

Zero-order correlations, means (M) and standard deviations (SD) for the main study variables in Study 1.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Narcissism	--													
2. Intolerance	.11*	--												
3. Quality of Assessment	-.03	-.47**	--											
4. Honesty	-.03	-.47**	.64**	--										
5. Pretentiousness	.07	.44**	-.35**	-.50**	--									
6. Likability	.03	-.47**	.46**	.51**	-.49**	--								
7. Estimated Agreement	.11*	-.37**	.46**	.46**	-.35**	.54**	--							
8. Reasonableness of Opinions	.15**	-.02	.03	-.01	.02	.13*	.34**	--						
9. Self-Esteem	.18**	.00	.06	.09	-.08	.10	.06	.01	--					
10. Social Vigilantism	.36**	.03	.04	.07	.01	.09	.09	.22**	.00	--				
11. Intellectual Humility	-.32**	-.06	.04	.10	-.12*	.06	-.12*	-.26**	.21**	-.31**	--			
12. Cultural Tolerance	-.18**	-.07	.06	.08	-.03	.15**	-.02	-.19**	.03	-.06	.50**	--		
13. Openness to Aesthetics	.03	-.09	.08	.10	-.06	.16**	.01	-.03	.07	.22**	.21**	.44**	--	
14. Interest in Art	.13*	.03	.00	.04	-.04	.14**	.07	.06	-.01	.22**	.09	.31**	.69**	--
15. Gender	.19**	.06	-.11*	.00	.08	-.07	.05	.10	-.01	.13*	-.10	-.16**	-.17**	-.09
<i>M</i>	.23	.00	5.15	5.57	3.70	4.12	3.74	3.26	6.76	4.99	3.73	3.06	3.09	3.99
<i>SD</i>	.22	.96	1.31	1.31	1.54	1.49	1.97	1.23	1.72	1.33	.53	.48	.51	1.43

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

Table 2.

Zero-order correlations, means (*M*) and standard deviations (*SD*) for the main study variables in Study 2.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Narcissism	--													
2. Intolerance	.10 †	--												
3. Quality of Assessment	-.06	-.59**	--											
4. Honesty	-.05	-.42**	.63**	--										
5. Pretentiousness	.14**	.42**	-.37**	-.46**	--									
6. Likability	.08	-.46**	.54**	.37**	-.42**	--								
7. Estimated Agreement	.09	-.43**	.54**	.40**	-.28**	.50**	--							
8. Reasonableness of Opinions	.27**	.10	-.01	-.05	.11*	.04	.23**	--						
9. Self-Esteem	.12*	-.03	.05	.13*	-.11*	.04	.03	.06	--					
10. Social Vigilantism	.51**	.16**	-.07	-.04	.24**	.01	-.01	.23**	.01	--				
11. Intellectual Humility	-.33**	-.10	.13*	.20**	-.20**	.13*	.02	-.28**	.24**	-.27**	--			
12. Cultural Tolerance	-.13*	-.11*	.13*	.14*	-.17**	.18**	.05	-.23**	.15**	-.05	.52**	--		
13. Openness to Aesthetics	.01	-.10	.22**	.18**	-.18**	.31**	.12*	-.04	.13*	.05	.25**	.48**	--	
14. Interest in Art	.07	-.15**	.22**	.14**	-.12*	.32**	.18**	.08	.05	.10	.07	.25**	.70**	--
15. Gender	.21**	.09	-.14**	-.09	.09	-.02	.02	.13*	-.06	.17**	-.09	-.11*	-.13*	-.09
<i>M</i>	.24	.00	5.85	5.85	3.51	4.30	3.94	3.21	6.93	4.97	3.76	3.11	3.08	3.94
<i>SD</i>	.23	.98	1.08	1.07	1.60	1.52	1.90	1.10	1.63	1.34	.52	.45	.50	1.44
<i>Reliability</i>	.85	NA ¹	.85	.83	.82	.90	NA ²	.17 ^{NA3}	.95	.87	.89	.88	.92	.85

Note. † $p = .068$; * $p < .05$; ** $p < .001$. NA¹: Inter-rater agreement on ratings of hostility (Intraclass $\alpha = .87$) and dismissiveness (Intraclass $\alpha = .90$). NA²: Estimated agreement was measured by a single item. NA³: Reliability is represented by the correlation between the two items assessing reasonableness of opinions ($r = .17$, $p = .001$).

Table 3.

Zero-order correlations, means (M) and standard deviations (SD) for the main study variables in Study 3.

	1	2	3	4	5	6	7	8	9	10
1. Narcissism	--									
2. Intolerance	.21**	--								
3. Closed-ended Intolerance	.23**	.67**	--							
4. Reasonableness of Opinions	.12	.07	.27**	--						
5. Self-Esteem	.19**	-.07	-.07	.19**	--					
6. Intellectual Humility	-.25**	-.13	-.33**	-.09	.06	--				
7. Cultural Tolerance	-.08	-.01	-.13	.04	.07	.447**	--			
8. Physical Sadism	.28**	.24**	.22**	.07	.05	.307**	.27**	--		
9. Verbal Sadism	.27**	.13	.10	-.02	-.01	.289**	.31**	.70**	--	
10. Vicarious Sadism	.14	.20**	.18*	.02	.07	.204**	.23**	.69**	.57**	--
11. Gender	.11	.01	.04	.13	.10	-0.10	-.11	.21**	.36**	.52**
<i>M</i>	.25	.00	3.00	3.51	6.19	3.72	3.30	1.49	2.25	2.10
<i>SD</i>	.17	.97	1.13	1.15	1.43	.50	.37	.73	1.14	.83

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

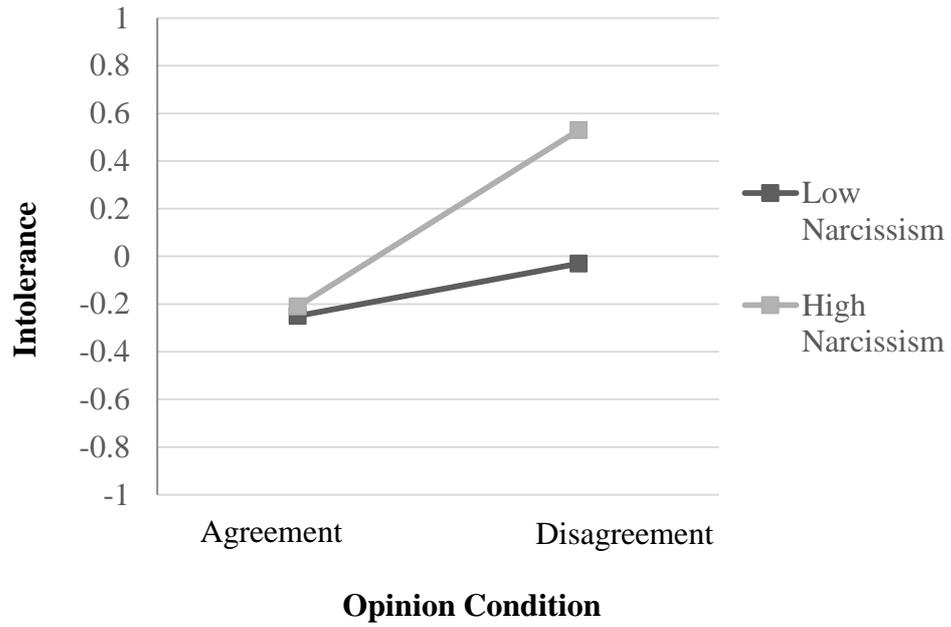


Figure 1. Two-way interaction between narcissism and opinion condition (subjective disagreement vs. agreement) predicting intolerance expressed in open-ended response (Study1).

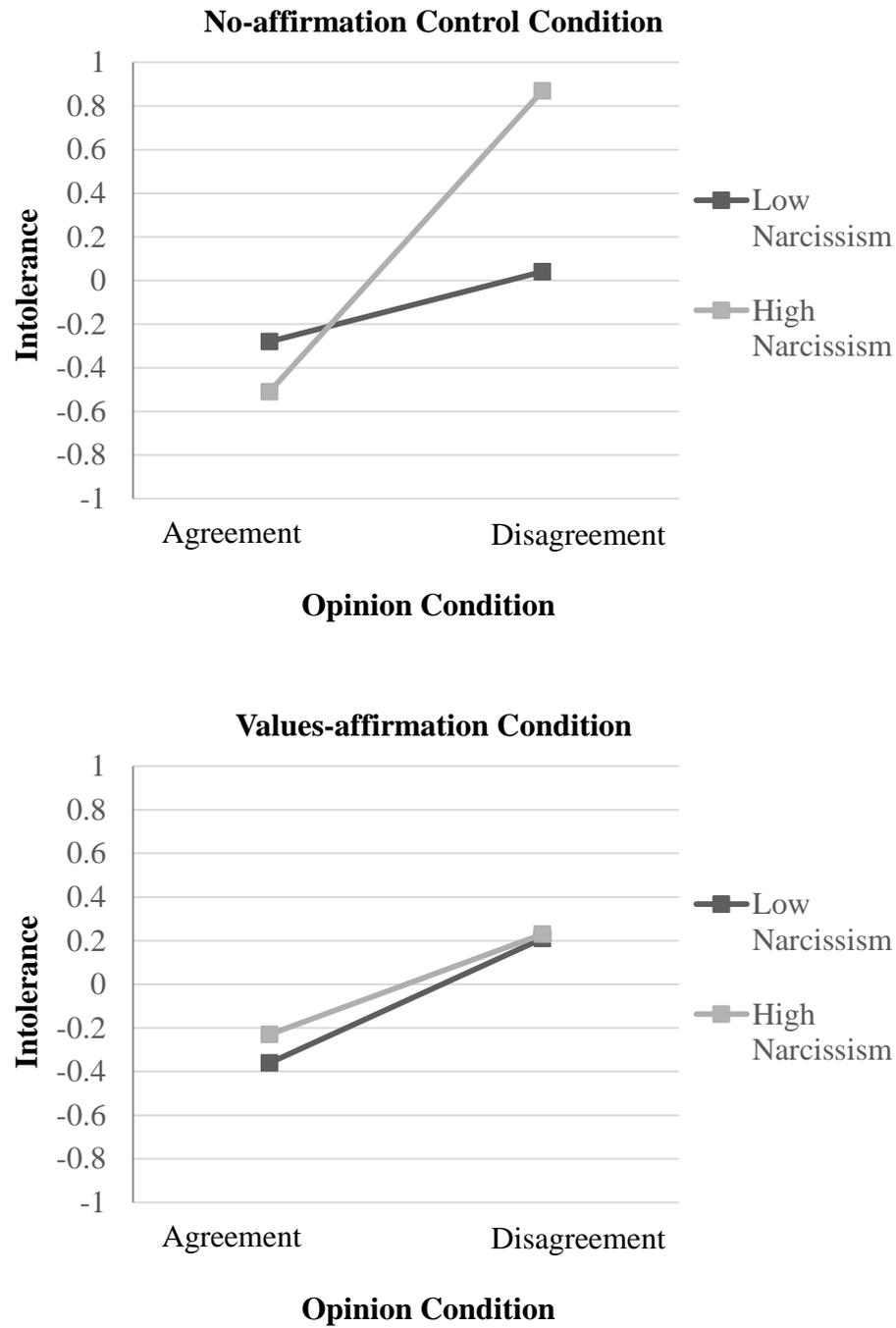


Figure 2. Three-way interaction among narcissism, opinion condition, and values-affirmation condition (no-affirmation control [top] vs. values-affirmation [bottom]) predicting verbal intolerance in the open-ended responses (Study 2).

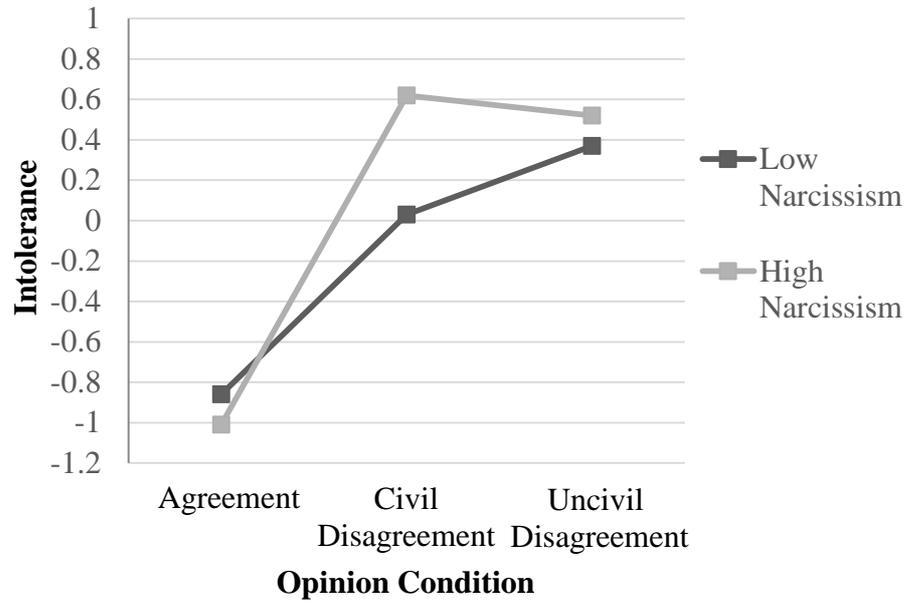


Figure 3. Two-way interactions among narcissism and opinion condition predicting intolerance expressed in the open-ended responses (Study 3).

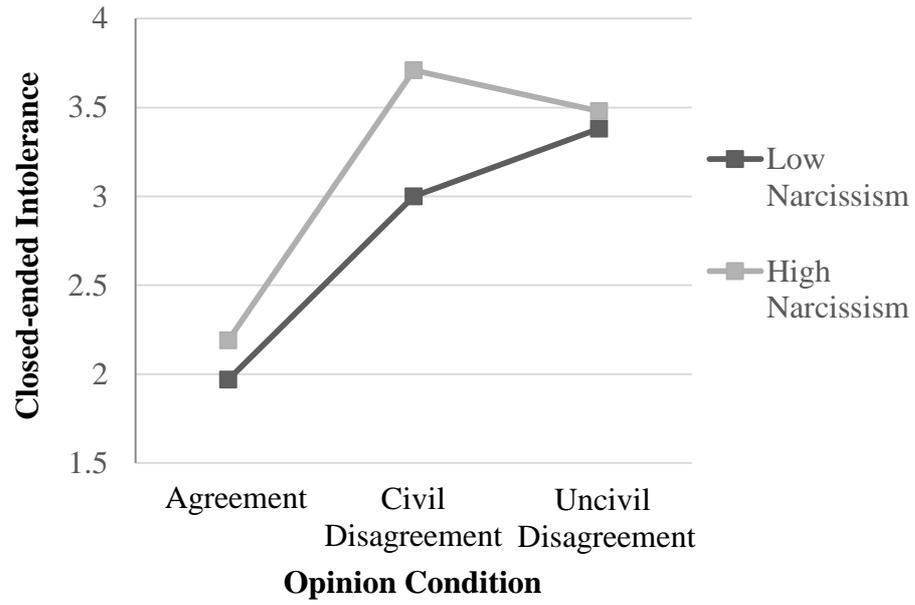


Figure 4. Main effects of narcissism and opinion condition predicting closed-ended intolerance (Study 3).

APPENDIX A
Painting Evaluation Task Phase 1: 40 Artworks
(Used in Study 1 and Study 2)

In the next phase of the study, you will view and briefly evaluate 40 paintings. It might be difficult to get a clear sense of the scale and full visual impact of these works (relative to what you might experience at a gallery, for example), but do your best to record your honest response to each work. You do not need to dwell long on each painting. Simply view each painting until you are comfortable assessing how much you like it, and the extent to which you believe the work required fine skill to produce.

For each painting, participants rated the following three questions:

1. How much do you *like* this painting? (1 = not at all; 7 = very much)
2. Did this painting require a high degree of skill to produce? (1 = No skill at all; 7 = Incredible skill)

List of Artworks (Schepman, Rodway, Pullen, & Kirkham, 2015)

- Representational and abstract artworks are included.
- All the artworks are real, non-famous, which allow participants to feel comfortable to express their preference and judgment.

A. Representational artworks

- 1: [Rod Chase: Twilight in Central Park.](http://www.piersidegallery.com/artists/chase/chase-2008b-twilight-in-central-park-art-rod-chase.jpg)
- 2: Kevin Heaney: Houses Granite Montana <http://fineartamerica.com/featured/houses-granite-montana-kevin-heaney.html>
- 3: Nancy Howe: Strange Night <http://www.fine-art.com/art-133456/nancy-howe/strange-night>
- 4: Ian Sheldon: Peeling Wallpaper <http://www.fine-art.com/art-93431/ian-sheldon/peeling-wallpaper>
- 5: John Berninger: Coaldale Colliery <http://dart.fine-art.com/art-158513/john-berninger/coaldale-colliery>
- 6: David Wade: Streamside <http://dart.fine-art.com/art-29992/david-wade/streamside>
- 7: Bruce Greene: Under the Indian Blanket <http://www.fine-art.com/art-138220/bruce-greene/under-the-indian-blanket>
- 8: Mark Peterson: '55 T-Bird <http://www.fine-art.com/art-133493/mark-peterson/%2755-t-bird>
- 9: Jess Nelson: 60's Dallas <http://dart.fine-art.com/Squery.asp?FromListLinks=Y&intUserID=29542>
- 10: Jay Kemp: Return to Sender <http://www.fine-art.com/art-99020/jay-kemp/return-to-sender-%28a/p%29>
- 11: Sergio Zampieri: Autumn Light http://www.absolutearts.com/cgi-bin/portfolio/art/your-art.cgi?login=sergiozampieri&title=Autumn_light-1289849983t.jpg
- 12: Albert Edelfelt: Boys Playing on the Shore http://en.wikipedia.org/wiki/Albert_Edelfelt#mediaviewer/File:Albert_Edelfelt_-_Boys_Playing_on_the_Shore_-_Google_Art_Project.jpg
- 13: Luigi Benedicenti: Sweet Reflections <http://www.eexploria.com/wp-content/uploads/2011/09/luigi-benedicenti-paintingS.jpg>
- 14: Jean Smith: Laughter #4 <http://jeansmithartist.com/wp-content/gallery/laughter-project/laughter4.jpg>
- 15: Paul Dixon: Ups and Downs <http://affordablebritishart.co.uk/details.php?pid=4611>
- 16: Edyta Albin: Dandy Lion <http://edytaalbin.wix.com/edytaalbin#!flowers> URL shows multiple images: Dandy Lion depicts dandelion seed heads with and without seeds with green background.

17: Robin Weiss: Racing Time <http://www.dailypainters.com/paintings/136476/Racing-Time-Figurative-oil-painting-girl-running/Robin-Weiss>

18: Time Tadder: Tyr Swimmers
<http://oneeyeland.com/image.php?imgid=12420&pgrid=5619&portfolio=12420>

19: Andrew Macara: The Footbrige <http://fineartamerica.com/products/the-footbridge-andrew-macara-acrylic-print.html>

20: Stacey Thomas: Island Cruise <http://fineartamerica.com/featured/island-cruise-stacey-thomas.html>

B. Abstract artworks

21: Pol Ledent: Abstract 882140 http://c300221.r21.cf1.rackcdn.com/abstract-882140-1335238270_b.jpg

22: Boi K' Boi: Mah Abstract Colors Niamh http://c300221.r21.cf1.rackcdn.com/mah-abstract-colors-niamh-1342576271_b.jpg

23: Bok K' Boi: Be Lighting <http://www.saatchiart.com/art/New-Media-Be-Lighting/268230/1457342/view>

24: Howard Brink: Expression 26 http://www.fine-art.com/members/43489/imagesBig/EXPRESSION_26.jpg

25: Eric Peterson: Abstract 5ab31 http://www.fine-art.com/members/42354/images/abstract_5ab31.jpg

26: Cathy Dupertuis: Color Burst <http://dart.fine-art.com/artListinginfo.asp?i=151794&nav=dg>

27: Patrick Gysemberg: Tribute to Missie <http://dart.fine-art.com/art-63689/patrick-gysemberg/tribute-to-missie>

28: Gaby Silva Bavio: Green Abstract <http://dart.fine-art.com/art-149883/gaby-silva-bavio/green-abstract>

29: Stephanie Kordan Dardashti: Desire Red <http://dart.fine-art.com/art-72046/stephanie-kordan-dardashti/desire-red>

30: Tony Broadbent: In a Minute <http://www.theglobalartcompany.com/products/in-a-minute>

31: Mauren Greenwood: Indulgence <http://www.mpgart.co.uk/abstrIN.htm>

32: Michel Keck: Reloaded <http://fineartamerica.com/products/reloaded-michel-keck-art-print.html>

33: Michel Keck: Famous Last Words <http://fineartamerica.com/featured/famous-last-words-michel-keck.html>

34: Brice Marden: Cold Mountain http://abstract-art.com/abstraction/13_more_artists/ma86b_marden.html

35: Arie Koning: The Source http://ariekoning.nl/paintingbig_nl.htm?nr=27

36: Linda Nesbit-Floria: Boho Tye Dye <http://dart.fine-art.com/art-159288/linda-nesbit-floria/boho-tye-dye>

37: Fons Heijnsbroek: Close/open <http://img.exto.nl/1006-o-14024640.jpg>

38: Ingrid Claessen: No title
http://www.ingridclaessen.nl/kunstwerk/13144196_geen+titel.html#.VK5WMtkysow

39: Ingrid Claessen: Nature Green Yellow White
http://www.ingridclaessen.nl/kunstwerk/13179584_natuur+groen+geel+wit.html#.VK5WXtkysow

40: Ingrid Claessen: No4 http://www.ingridclaessen.nl/kunstwerk/14892783_no4-100x100cm2011.html#.VK5W4Nkysow

APPENDIX B
Painting Evaluation Task Phase 2
Manipulation of Disagreement (vs. Agreement)
(Used in Study 1 and Study 2)

We have presented the same paintings you just evaluated to many other participants in earlier studies. We are interested in examining how different personality traits affect how people communicate their opinions of art. In the next part of the study, we will show you one of the paintings you just rated and ask you to explain, as best you can, why you like or dislike the painting. You will then see an earlier participant's evaluation of the same painting along with his or her description of what they like or dislike in it. In addition to your own explanation, we are interested in how clear and compelling you find the other participant's opinion of the painting. Keep in mind that the earlier participant was instructed in the same way as you when he or she assessed the painting.

[Image selected by Qualtrics; a painting will be selected for which the participant indicated (extreme disliking)]

Reasons of liking or disliking

An artwork can be considered to be a communication between the minds of the artist and the viewer. An artwork reflects the process by which it was made and triggers reactions from the viewer. In the box below, describe as best you can the reasons why you like or dislike this painting.

Disagreement condition: An earlier participant indicated that he or she likes this painting very much (that is, he or she chose 7(very much) for the question: "How much do you **like** this work of art?").

The earlier participant gave these reasons for his or her opinion:

This painting is visually striking. It has bold colours and a sweeping sense of movement throughout the piece. The composition is balanced and guides your eye through the painting. It is really powerful!

Agreement condition: An earlier participant indicated that he or she does not like this painting at all (that is, he or she chose 1(not at all) for the question: "How much do you **like** this work of art?").

The earlier participant gave these reasons for his or her opinion:

This painting is visually unpleasant. It has jarring colours and there is no real sense of movement in the piece. The composition is not balanced and doesn't guide your eye through the painting. It is really dreadful!

APPENDIX C
Narcissistic Personality Inventory (NPI-16)
(Used in all three studies)

Read each pair of statements below and place an "X" by the one that comes closest to describing your feelings and beliefs about yourself. You may feel that neither statement describes you well, but pick the one that comes closest. **Please complete all pairs.**

1. ___ I really like to be the center of attention
 ___ It makes me uncomfortable to be the center of attention
2. ___ I am no better or no worse than most people
 ___ I think I am a special person
3. ___ Everybody likes to hear my stories
 ___ Sometimes I tell good stories
4. ___ I usually get the respect that I deserve
 ___ I insist upon getting the respect that is due me
5. ___ I don't mind following orders
 ___ I like having authority over people
6. ___ I am going to be a great person
 ___ I hope I am going to be successful
7. ___ People sometimes believe what I tell them
 ___ I can make anybody believe anything I want them to
8. ___ I expect a great deal from other people
 ___ I like to do things for other people
9. ___ I like to be the center of attention
 ___ I prefer to blend in with the crowd
10. ___ I am much like everybody else
 ___ I am an extraordinary person
11. ___ I always know what I am doing
 ___ Sometimes I am not sure of what I am doing
12. ___ I don't like it when I find myself manipulating people
 ___ I find it easy to manipulate people
13. ___ Being an authority doesn't mean that much to me
 ___ People always seem to recognize my authority
14. ___ I know that I am good because everybody keeps telling me
 so
 ___ When people compliment me I sometimes get embarrassed

15. ___ I try not to be a show off
___ I am apt to show off if I get the chance
16. ___ I am more capable than other people
___ There is a lot that I can learn from other people

APPENDIX D

Openness to Experience: Aesthetics and Tolerance Subscales

Rate the extent to which you agree or disagree with each of the following statements using the scale provided.

(1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree)

Aesthetics Subscale (Used in Study 1 and Study 2)

1. I think viewing art is a waste of time. (R)
2. Art bores me. (R)
3. I don't find Classical Ballet interesting. (R)
4. I don't find literature especially interesting. (R)
5. I have a passion for art.
6. I enjoy art exhibitions.
7. I see the beauty in art when others do not.
8. I have been touched emotionally by a great musical performance.
9. If I see artwork I like in a gallery, I will visit it more than once to fully appreciate it.
10. Music inspires and motivates me.
11. Certain poetry can move me emotionally.
12. I appreciate the paintings of well-known artists.
13. I enjoy watching art-house films.
14. I never read poetry. (R)
15. I rarely visit art galleries, I don't find them that interesting. (R)

Cultural Tolerance Subscale (Used in all three studies)

1. Immigrants really irritate me. (R)
2. I think it is rude when others speak in a language I can't understand. (R)
3. I prefer to visit countries where they speak my language. (R)
4. I like to hear different people's views on political issues.
5. I understand that people can have different attitudes toward certain things than I do.
6. Like most people I am open to listening to what others have to say.
7. I enjoy experiencing the rituals associated with different religions.
8. I learn a great deal from people with differing beliefs.
9. I enjoy (racial) diversity in the community.
10. I consider myself non-judgmental when it comes to people with different customs.
11. I welcome all immigrants.
12. I change the channel on the TV when they show cultural programs. (R)
13. I prefer the company of my own nationality. (R)
14. I feel that an opportunity to learn about the cultures of others is something to be treasured.
15. Immigrants should leave their own customs behind. (R)

APPENDIX E
Social Vigilantism
(Used in Study 1 and Study 2)

Rate the extent to which you agree or disagree with each of the following statements using the scale provided.

(1 = disagree very strongly; 9 = agree very strongly)

1. I feel as if it is my duty to enlighten other people.
2. I feel that my ideas should be used to educate others.
3. I feel a social obligation to voice my opinion.
4. I need to win any argument about how people should live their lives.
5. Those people who are more intelligent and informed have a responsibility to educate the people around them who are less intelligent and informed.
6. I like to imagine myself in a position of authority so that I could make the important decisions around here.
7. I try to get people to listen to me, because what I have to say makes a lot of sense.
8. Some people just believe stupid things.
9. There are a lot of ignorant people in society.
10. I think that some people need to be told that their point of view is wrong.
11. If everyone saw things the way that I do, the world would be a better place.
12. It frustrates me that many people fail to consider the finer points of an issue when they take a side.
13. I often feel that other people do not base their opinions on good evidence.
14. I frequently consider writing a "letter to the editor."

APPENDIX F
Comprehensive Intellectual Humility Scale
(Used in all three studies)

Rate the extent to which you agree or disagree with each of the following statements.

(1 = strongly disagree; 5 = strongly agree)

- I feel small when others disagree with me on topics that are close to my heart.
- When someone contradicts my most important beliefs, it feels like a personal attack.
- When someone disagrees with ideas that are important to me, it feels as though I'm being attacked.
- I tend to feel threatened when others disagree with me on topics that are close to my heart.
- When someone disagrees with ideas that are important to me, it makes me feel insignificant.
- I am open to revising my important beliefs in the face of new information.
- I am willing to change my position on an important issue in the face of good reasons.
- I am willing to change my opinions on the basis of compelling reason.
- I have at times changed opinions that were important to me, when someone showed me I was wrong.
- I'm willing to change my mind once it's made up about an important topic.
- I can respect others, even if I disagree with them in important ways.
- I can have great respect for someone, even when we don't see eye-to-eye on important topics.
- Even when I disagree with others, I can recognize that they have sound points.
- I am willing to hear others out, even if I disagree with them.
- I welcome different ways of thinking about important topics.
- I respect that there are ways of making important decisions that are different from the way I make decisions.
- My ideas are usually better than other people's ideas.
- For the most part, others have more to learn from me than I have to learn from them.
- When I am really confident in a belief, there is very little chance that belief is wrong.
- On important topics, I am not likely to be swayed by the viewpoints of others.
- I'd rather rely on my own knowledge about most topics than turn to others for expertise.
- Listening to perspectives of others seldom changes my important opinions.

APPENDIX G
Rosenberg Self-Esteem Scale
(Used in all three studies)

Listed below are a number of statements about how people feel about themselves. Please read each statement and decide whether you agree or disagree that the statement describes you, and to what extent. Please use the scale below and select the number that best represents how you feel in general.

Very Strongly Disagree	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neutral	Slightly Agree	Moderately Agree	Strongly Agree	Very Strongly Agree
1	2	3	4	5	6	7	8	9

1. I feel that I am a person of worth, at least on an equal basis with others.
2. I feel that I have a number of good qualities.
3. All in all, I am inclined to feel that I am a failure.
4. I am able to do things as well as most other people.
5. I feel I do not have much to be proud of.
6. I take a positive attitude toward myself.
7. On the whole, I am satisfied with myself.
8. I wish I could have more respect for myself.
9. I certainly feel useless at times.
10. At times I think I am no good at all.

APPENDIX H
Art Reception Survey
(Used in Study 1 and Study 2)

Using the ratings scales provided, indicate how much you agree with each of these assessments of the painting. (1 = completely disagree; 5 = completely agree)

Self-reference (Used to calculate self-relevance):

This painting makes me think about my own life history.
 I can associate this painting with my own personal biography.
 Personal memories of mine are linked to this painting.
 This painting mirrors my own personal emotional state.

Expertise:

I can relate this painting to its art historical context.

I can relate this painting to a particular artist. (Used to calculate familiarity)

I know this painting. (Used to calculate familiarity)

I have an idea what the artist is trying to convey with this painting.
 With regard to its content this painting remains inaccessible to me.

Artistic quality:

This painting is unique.
 This painting features a high level of creativity.
 The composition of this painting is of high quality.
 The artist's manner of painting is fascinating.
 The painting is very innovative.

Positive attraction:

The painting is pleasant.
 The painting is beautiful.
 I would consider to invest a large sum of money to buy this piece of art.
 This painting thrills me.
 I feel inspired by this painting.

Cognitive stimulation:

This painting makes me curious.
 This painting is thought-provoking.
 It is exciting to think about this painting.
 It is fun to deal with this painting.
 I would like to learn more about the background of this painting.

Negative emotionality:

This painting makes me feel afraid.
 This painting makes me sad.
 This painting makes me feel troubled.
 This painting makes me feel lonesome.
 This painting disgusts me.

APPENDIX I
Interest in Art
(Used in Study 1 and Study 2)

Rate the extent to which each of the following statements describes you (1 = not true of me; 7 = very true of me).

1. I am interested in art.
2. I enjoy visiting art galleries.
3. I like to read about art.
4. I like to watch documentaries or YouTube videos about art.
5. I took art as an elective in high school.
6. I took one or more art classes at college or university.
7. I majored in art, or art history, at college or university.
8. I have taken art classes outside of school.

APPENDIX J

Dependent Measures in Studies 1 and 2

Impression:

Quality of assessment:

How clear is the earlier participant's assessment of the painting expressed? (1 = not at all clear; 7 = extremely clear)

How compelling is the participant's reasoning about the painting? (1 = not at all compelling; 7 = extremely compelling)

Did the participant focus on important aspects of the painting? (1 = not at all; 7 = the most important aspects)

How persuasive is the participant's assessment of the painting? (1 = not at all persuasive; 7 = extremely persuasive)

How much does the participant know about art? (1 = not much at all; 7 = extremely knowledgeable)

Honesty:

How honest was the participant in his or her assessment? (1 = not at all honest; 7 = extremely honest)

To what extent was the participant being genuine in his or her assessment? (1 = not at all genuine; 7 = extremely genuine)

Pretentiousness:

How pretentious is the earlier participant? (1 = not at all pretentions; 7 = extremely pretentions)

To what extent was the participant trying to sound smart? (1 = not at all; 7 = really trying to sound smart)

To what extent was the participant full of hot air? (1 = not at all; 7 = extremely full of it)

Likability:

How much do you think you would like the other participant if you met him or her in person? (1 = I would not like them at all; 7 = I would like them a lot)

To what extent would you be interested in spending time with the other participant? (1 = not at all interested; 7 = very interested)

Estimated agreement:

To what extent do you think you and the earlier participant would agree in your opinions of the paintings you saw? (1 = we would agree about very few paintings; 7 = we would agree about almost all of the paintings)

Open-ended responses (In Study 2, open-ended responses were assessed before closed-ended questions.)

If you could respond directly to the earlier participant, what would you say to him or her? Express your thoughts as if you read the participants' comments on an anonymous discussion board on the internet, and you are replying to the comments.

Perceived reasonableness of opinions

How certain are you that your opinion of this painting is the most reasonable opinion to hold? (1 = not at all certain; 7 = extremely certain)

How reasonable is it for someone to hold a different opinion than you about this painting? (1 = not at all reasonable; 7 = extremely reasonable)

APPENDIX K
Demographic Information
(Used in all three studies)

This information is helpful to ensure we have a representative sample of participants in our study.

How do you identify your gender? Female _____ Male _____ Other _____ Please specify (optional)

Age: _____

Please indicate your ethnic origin by choosing one of the categories listed below. Ethnic origin refers to the ethnic or cultural group(s) to which your recent ancestors belonged. Ethnic origin pertains to ancestral identity or background and should not be confused with citizenship or nationality. If you have multiple ethnic origins, then please select the one you most strongly identify with. If this is not possible, then leave this question blank.

- _____ White Caucasian
 _____ East Asian (e.g., China, Hong Kong, Korea, Japan)
 _____ South Asian (e.g., India, Pakistan, Bangladesh)
 _____ African
 _____ Latin, Central, and South American
 _____ Caribbean
 _____ Aboriginal
 _____ Other -- please specify: _____

What do you think was the purpose of this study?

APPENDIX L
Values-affirmation Manipulation
(Used in Study 2)

Ranking of Personal Characteristics and Values

Below is a list of values, some of which may be important to you, some of which may be unimportant. Please circle the value that is most important to you in how you live your life. More than value listed may be important to you, but please select the one that you feel is the most important to you.

Living life in the moment	Politics
Relationships with friends and family	Loyalty and integrity
Religious values	Sense of humour
Contributions to society	Democracy and equal rights
Creativity	Intellectual curiosity

Values-affirmation Condition Essay Instruction:

Considering the value you selected, please write about 1) why the value is important to you and 2) describe a time in your life when it has proven meaningful.

No-affirmation/Control Condition Essay Instruction:

Think of your usual morning routine for this year. Think about what you normally do on a typical weekday morning, even if your routine changes somewhat from day to day. This should be what you do on an average day. You might consider how you get ready for classes, what you eat, whether you watch TV, or how you decide what to wear.

In the space provided below, please describe your usual morning routine, why you do things in the order you do them, and any other information that seems relevant. Please describe your morning routine in as much detail as possible.

(All participants received the following instructions.)

You will be given 5 minutes to write. We strongly encourage you to stay focused on the page and spend sufficient time on this writing exercise.

APPENDIX M

Mass-testing Questionnaire: Personal Preferences (For the purpose of pre-selecting participants for Study 3)

Please list your 3 **favourite movies**: 1 _____ 2 _____ 3 _____

Please list your 3 **favourite TV shows**: 1 _____ 2 _____ 3 _____

Please list your 3 **favourite music artists**: 1 _____ 2 _____ 3 _____

Please list 3 movies that you strongly dislike: 1 _____ 2 _____ 3 _____

Please list 3 TV shows that you strongly dislike: 1 _____ 2 _____ 3 _____

Please list 3 music artists that you strongly dislike: 1 _____ 2 _____ 3 _____

Using the following scale, indicate the extent to which you like each of the following TV shows.

1	2	3	4	5	6	7	8
I hate this show	I really dislike this show	I dislike this show	I don't like or dislike this show	I like this show	I really like this show	I love this show	I don't know the show

E.g., How much do you **like** The Walking Dead?

TV shows included: Game of Thrones, Gilmore Girls, Stranger Things, Orange is the New Black, Better Call Saul, True Detective, House of Cards, Westworld, Breaking Bad, Friends, Unbreakable Kimmy Schmidt, Bloodline, Sense8, Black Mirror, and Elementary.

Using the following scale, indicate the extent to which you like each of the following music artists.

1	2	3	4	5	6	7	8
I hate this artist	I really dislike this artist	I dislike this artist	I don't like or dislike this artist	I like this artist	I really like this artist	I love this artist	I don't know the artist

Music artists included: Justin Bieber, Kanye West, Meghan Trainor, Kendrick Lamar, Beyonce, The Weeknd, Drake, Bruno Mars, Justin Timberlake, Rihanna, Twenty One Pilots, Black Beatles, Taylor Swift, Adele, Lady Gaga, Katy Perry, and Eminem.

APPENDIX N

Manipulation of Disagreement (vs. Agreement) in Study 3 Rating and writing prompt prior to manipulation:

How much do you like Friends?

1	2	3	4	5	6	7
I hate this show	I really dislike this show	I dislike this show	I don't like or dislike this show	I like this show	I really like this show	I love this show

In the box below, describe as best you can the reasons why you like or dislike Friends.

Manipulation:

Agreement Condition

An earlier participant indicated that he or she **likes** Friends very much. That is, **he or she chose 7 (I love this show)** for the question: "How much do you like Friends?" on the following scale:

1	2	3	4	5	6	7
I hate this show	I really dislike this show	I dislike this show	I don't like or dislike this show	I like this show	I really like this show	I love this show

The earlier participant gave these reasons for his or her opinion:

Friends is a great series for me. The jokes are funny. The episodes are interesting and creative. The characters are vivid and develop throughout the show. I can relate to them and want to have friends like this. I never got bored by this show. It is one of the best and I highly recommend it.

Civil Disagreement Condition

An earlier participant indicated that he or she **dislikes** Friends very much. That is, **he or she chose 1 (I hate this show)** for the question: "How much do you like Friends?" on the following scale:

1	2	3	4	5	6	7
I hate this show	I really dislike this show	I dislike this show	I don't like or dislike this show	I like this show	I really like this show	I love this show

The earlier participant gave these reasons for his or her opinion:

Friends was never a good series for me. The jokes are rarely funny. The episodes are dull and predictable. The characters are flat and have no development throughout the show. I don't relate to them and don't really want to have friends like this. I just get bored by this show. It is overrated and I do not recommend it.

Uncivil Disagreement Condition

An earlier participant indicated that he or she **dislikes** Friends very much. That is, **he or she chose 1 (I hate this show)** for the question: "How much do you like Friends?" on the following scale:

1	2	3	4	5	6	7
I hate this show	I really dislike this show	I dislike this show	I don't like or dislike this show	I like this show	I really like this show	I love this show

	show		dislike this show		show	
--	------	--	----------------------	--	------	--

The earlier participant gave these reasons for his or her opinion:

Friends was never a good series. I can't understand why anyone would like it! How did it last 10 seasons!?!? The jokes are rarely funny. The episodes are dull and predictable. The characters are flat and have no development throughout the show. I don't relate to them and don't really want to have friends like this. I just get bored by this show. It is overrated and I do not recommend it.

APPENDIX O

Dependent Measures in Study 3

Open-ended Responses

If you were to respond directly to the earlier participant, what would you say to him or her?

Express your thoughts as if you read the participants' comments on an anonymous discussion board on the internet, and you are replying to the comments.

Closed-ended measure of intolerance:

Using the following scale, rate the extent to which you agree or disagree with each of the statements.

1	2	3	4	5	6	7
Disagree strongly			Neither disagree nor agree			Agree strongly

1. The earlier participants' opinion is

worthless.

2. I can appreciate the earlier participants' perspective.
3. The earlier participant made me consider different aspects of the show.
4. I would like to know more about this person's thoughts on this show.
5. If I read this opinion online, I would downvote it.
6. No one would listen to this person's opinions.
7. The earlier participant is irritating.
8. The earlier participant has no idea what he's talking about.
9. This person's opinion is well-informed.
10. The earlier participant is trying to impress people with his opinion.
11. The earlier participant is full of hot air.
12. The earlier participant is an idiot.
13. I would hate to have to listen to any more of this person's thoughts.

Perceived reasonableness of own opinion:

1. How certain are you that your opinion of Friends is the most reasonable opinion to hold?

1	2	3	4	5	6	7
Not at all certain						Extremely certain

2. How reasonable is it for someone to hold a different opinion than you about Friends?

1	2	3	4	5	6	7
Not at all reasonable						Extremely reasonable

APPENDIX P
Comprehensive Assessment of Sadistic Tendencies (CAST)

Please rate your agreement or disagreement with each item using the following scale.
7-point scales with anchors: 1 = Strongly Disagree to 7 = Strongly Agree

Direct - Verbal

1. I was purposely mean to some people in high school.
2. I enjoy making jokes at the expense of others.
3. I have purposely tricked someone and laughed when they looked foolish.
4. When making fun of someone, it is especially amusing if they realize what I'm doing.
5. Perhaps I shouldn't have, but I never got tired of mocking certain classmates.
6. I would never purposely humiliate someone. (R)

Direct - Physical

1. I enjoy physically hurting people.
2. I enjoy tormenting people.
3. I have the right to push certain people around.
4. I have dominated others using fear.
5. I enjoy hurting my partner during sex (or pretending to).

Vicarious

1. In video games, I like the realistic blood spurts.
2. I love to watch YouTube clips of people fighting.
3. I enjoy watching cage fighting (or MMA), where there is no escape.
4. I sometimes replay my favorite scenes from gory slasher films.
5. There's way too much violence in sports. (R)
6. I enjoy playing the villain in games and torturing other characters.
7. In professional car-racing, it's the accidents that I enjoy most.

(Fillers intermixed to offset negativity.)

I'm considered to be a kind person.

By staying strong, one can better help others.

I'd do anything - even break the law - for those I love.

I go out of my way to help family members.

I have ambitions to make the world a better place.

My goal is to be a missionary and help others.

I give money to poor people on the street.

I'm worried that we have already seriously damaged the Earth.

I want to spend my life helping sick children.

I have had some really good friends.

I am a religious person.

Appendix Q
Narcissistic Admiration and Rivalry Questionnaire
(Used in Study 3 and the additional data set)

Please indicate how much the following statements apply to you using a response format ranging from “1 = not agree at all” to “6 = agree completely”.

	not agree at all					agree com- pletely
1. I am great.	1	2	3	4	5	6
2. I will someday be famous.	1	2	3	4	5	6
3. I show others how special I am.	1	2	3	4	5	6
4. I react annoyed if another person steals the show from me.	1	2	3	4	5	6
5. I enjoy my successes very much.	1	2	3	4	5	6
6. I secretly take pleasure in the failure of my rivals.	1	2	3	4	5	6
7. Most of the time I am able to draw people’s attention to myself in conversations.	1	2	3	4	5	6
8. I deserve to be seen as a great personality.	1	2	3	4	5	6
9. I want my rivals to fail.	1	2	3	4	5	6
10. I enjoy it when another person is inferior to me.	1	2	3	4	5	6
11. I often get annoyed when I am criticized.	1	2	3	4	5	6
12. I can barely stand it if another person is at the center of events.	1	2	3	4	5	6
13. Most people won’t achieve anything.	1	2	3	4	5	6
14. Other people are worth nothing.	1	2	3	4	5	6
15. Being a very special person gives me a lot of strength.	1	2	3	4	5	6
16. I manage to be the center of attention with my outstanding contributions.	1	2	3	4	5	6
17. Most people are somehow losers.	1	2	3	4	5	6
18. Mostly, I am very adept at dealing with other people.	1	2	3	4	5	6

Appendix R Manipulation of Boundary Conditions in Additional Data Set

No consensus information, non-confidential condition:

Disagreement: An earlier participant indicated that he or she likes this painting very much (that is, he or she chose 7(very much) for the question: “How much do you like this work of art?”).

The earlier participant gave these reasons for his or her opinion:

This painting is visually striking. It has bold colours and a sweeping sense of movement throughout the piece. The composition is balanced and guides your eye through the painting. It is really powerful!

Closed-ended responses: If you were to respond directly to the earlier participant, what would you say to him or her?

Express your thoughts as if you read the participants’ comments on an anonymous discussion board on the internet, and you are replying to the comments.

Note: We will send your comments to the earlier participant who wrote the above assessments of this painting as part of our ongoing study. Any identifying information in your response will first be removed to preserve your anonymity, but the earlier participant will otherwise read exactly what you write to them.

High consensus condition: Of all participants who have rated this painting in our earlier surveys, 87.65% **disliked** this painting.

Then:

Disagreement: An earlier participant indicated that he or she likes this painting very much (that is, he or she chose 7(very much) for the question: “How much do you like this work of art?”).

The earlier participant gave these reasons for his or her opinion:

This painting is visually striking. It has bold colours and a sweeping sense of movement throughout the piece. The composition is balanced and guides your eye through the painting. It is really powerful!

Closed-ended responses: If you were to respond directly to the earlier participant, what would you say to him or her?

Express your thoughts as if you read the participants’ comments on an anonymous discussion board on the internet, and you are replying to the comments.

Low consensus condition: Of all participants who have rated this painting in our earlier surveys, 87.65% **liked** this painting.

Then:

Disagreement: An earlier participant indicated that he or she likes this painting very much (that is, he or she chose 7(very much) for the question: “How much do you like this work of art?”).

The earlier participant gave these reasons for his or her opinion:

This painting is visually striking. It has bold colours and a sweeping sense of movement throughout the piece. The composition is balanced and guides your eye through the painting. It is really powerful!

Closed-ended responses: If you were to respond directly to the earlier participant, what would you say to him or her?

Express your thoughts as if you read the participants' comments on an anonymous discussion board on the internet, and you are replying to the comments.

No consensus information, confidential condition (control):

Disagreement: An earlier participant indicated that he or she likes this painting very much (that is, he or she chose 7(very much) for the question: "How much do you like this work of art?").

The earlier participant gave these reasons for his or her opinion:

This painting is visually striking. It has bold colours and a sweeping sense of movement throughout the piece. The composition is balanced and guides your eye through the painting. It is really powerful!

Closed-ended responses: If you were to respond directly to the earlier participant, what would you say to him or her?

Express your thoughts as if you read the participants' comments on an anonymous discussion board on the internet, and you are replying to the comments.

Closed-ended Responses (Same as Studies 1 and 2)

Attention Check for Social Validation Manipulation (only applied to high and low social validation conditions)

Earlier in the study, you were told the percentage of earlier participants who disliked the painting. What is the percentage of participants who disliked the painting? Write the number in the text box below.
