Induced narcissism increases self-assessed intelligence: implications for academic goal-pursuit, expected academic achievement, and psychological well-being

Marcin Zajenkowski [a,*], Constantine Sedikides [b], Gilles E. Gignac [c], Jeremiasz Górniak [a], Oliwia Maciantowicz [a]

[a] *University of Warsaw, Poland*
[b] *University of Southampton, United Kingdom*
[c] *University of Western Australia*

A R T I C L E   I N F O

A B S T R A C T

We examine the causal direction of the relation between (grandiose agentic) narcissism and self-assessed intelligence (SAI). We manipulated narcissism with a validated procedure. In Studies 1–2, high (vs low) narcissism increased SAI. In Study 2, SAI mediated the effect of narcissism on academic goal-pursuit, expected academic achievement, and psychological wellbeing. The findings have implications for the nature of SAI and for gender differences on narcissism and SAI.

1. Introduction

Narcissism is characterized by egocentric exceptionalism and social selfishness: high narcissists feel superior, special, and entitled often at the expense of others (Sedikides, 2021). The most extensively investigated form of this trait is grandiose agentic narcissism. These individuals value, and self-enhance (i.e., inflate their self-views) on, the agentic domain. Intelligence is an agentic attribute par excellence (Zajenkowski & Dufner, 2020). Although narcissism and objective intelligence are unrelated (Zajenkowski et al., 2020), narcissists hold unrealistically positive self-views about their own intelligence (Howard & Cogswell, 2018; Zajenkowski, Czarna, Szymaniak, & Dufner, 2020).

Intelligence might be central to the narcissistic self-concept because it is associated, and is seen as being associated, with other agentic traits. For example, intelligence is linked to status and success on several life domains (i.e., educational, professional, income; Canter, 1956; Gottfredson, 1997; Grapsas et al., 2020).

Narcissism can be conceptualized, not only as trait, but also as a state (Leunissen et al., 2017; Sedikides, 2021). In prior work, manipulating self-assessed intelligence (SAI)—inducing comparatively inflated perceptions of one's intelligence—led to higher narcissism (Zajenkowski & Gignac, 2021). SAI was manipulated via positive (i.e., above average IQ), relative to negative (i.e., below average IQ), feedback. SAI increased

narcissism, operationalized as narcissistic admiration (i.e., charmingness, grandiose fantasies, uniqueness; Back, Kufner, Dufner, & Rauthmann, 2013). The reverse causal direction, however, is unexamined. We asked whether a temporary infusion of narcissism would elevate SAI. When people feel narcissistic, do they also feel more intelligent?

As we mentioned above, intelligence is central to the narcissistic self-concept. According to the "self-centrality breeds self-enhancement" principle (Gebauer et al., 2013), people regard themselves as superior on central or personally valued attributes. Based on this principle, we hypothesized that higher (vs lower) narcissism would increase SAI (Hypothesis 1).

SAI is positively associated with academic goal-pursuit, expected academic achievement (henceforth: academic achievement), and psychological wellbeing (PWB; Chamorro-Premuzic & Furnham, 2006; Howard & Cogswell, 2018; Sedikides, 2021). As such, we hypothesized that SAI would mediate the effect of narcissism on these three outcomes (Hypothesis 2). Our investigation, then, addresses the downstream consequences of narcissism-induced SAI.

To overview, we aimed to clarify the constructs of narcissism and SAI, their relation, and whether SAI transmits the effect of narcissism on outcomes in the academic and well-being domains. We conducted a validational pilot study and two studies. In Study 1, we tested whether experimentally induced narcissism increases SAI. In Study 2, we

---

examined whether SAI transmits the effect of narcissism on academic goal pursuit, academic achievement, and PWB.

All studies were approved by Institutional Review Boards, and we obtained consent forms. We report how we determined our sample size, all manipulations, and all measures and data exclusions, and we follow JARS (Kazak, 2018). Data and codes are available at osf.io/m3zfj. Study 1 was not preregistered, but Study 2 was (https://osf.io/ap498). We determined sample size before any data analysis.

1.1. Pilot study

In the Pilot Study, we aimed to validate the narcissism manipulation.

2. Method

2.1. Participants

We assumed a medium effect size (Cohen's $d = 0.5$) based on past research (Leunissen et al., 2017). Using R package 'pwr,' we estimated the required sample at 128 participants ($\alpha = 0.05$; 1-$\beta = 0.85$). We tested 144 Polish participants on Qualtrics. We recruited them (and in all studies) via snowball sampling or online through social network websites. We excluded three for failure to complete the manipulation. Of the remaining 141 participants, 121 were women, 20 were men, and three indicated "other" (age in years: *Range* = 18–70, *M* = 35.90, *SD* = 13.45). Most participants (51 %) were undergraduates, with the rest being either university (44 %) or secondary school (5 %) graduates. Our sample size allowed detection of Cohen's $d = 0.33$ ($\alpha = 0.05$; 1-$\beta = 0.85$), and so was sensitive enough to detect effects of our narcissism manipulation.

2.2. Procedure and measures

We induced narcissism after Leunissen, Sedikides, and Wildschut (2017). We randomly assigned participants to the narcissism ($n = 78$) or control ($n = 63$) condition. In the narcissism condition, they recalled an event in which they felt admired by others, and reported how this event made them feel special and entitled to attention from others. In the control condition, they recalled an event that made them feel no better or worse than others. In both conditions, participants were instructed to write at least 50 characters, but no more than 300.

Subsequently, we administered the manipulation check, the Admiration scale of the Narcissistic Admiration and Rivalry Questionnaire (Back et al., 2013; for the Polish adaptation, see Rogoza, Wyszyńska, Maćkiewicz, & Cieciuch, 2016). The scale comprises three subscales of three items each (1 = *disagree completely*, 6 = *agree completely*): grandiose fantasies (e.g., "I am great"), striving for uniqueness (e.g., "Being a very special person gives me a lot of strength"), charmingness (e.g., "I manage to be the center of attention with my outstanding contributions"). Participants indicated how they felt in the situation they had just described (Zajenkowski & Gignac, 2021). We averaged responses to create a state narcissism index (*M* = 3.38, *SD* = 1.06, ω = 0.89).

3. Results and discussion

We identified no outliers based on the outlier inter-quartile range rule with a 3.0 multiplier (Hoaglin & Iglewicz, 1987). Participants in the narcissism condition (*M* = 3.69, *SD* = 0.91) reported higher narcissism than controls (*M* = 3.01, *SD* = 1.12), Welch's $t(118.26) = 3.87, p < .001$, $d = 0.66$; 95 %CI [0.33, 1.00]). The manipulation was effective.

3.1. Study 1

In Study 1, we evaluated the hypothesis that narcissism elevates SAI.

4. Method

4.1. Participants

We assumed a small to medium effect size (Cohen's $d = 0.3$) based on relevant prior research (Zajenkowski & Gignac, 2021). Using R package 'pwr,' we estimated the required sample at 250 participants ($\alpha = 0.05$; 1 − β = 0.80). We tested 322 Polish participants on Qualtrics. We excluded 45 for failure to complete the manipulation. Of the remaining 277, 148 were women, 124 men, and 5 reported "other." Their age ranged from 18 to 70 years (*M* = 28.46, *SD* = 10.51). Participants were undergraduates (26 %) and university (27 %) or secondary school (47 %) graduates. Our current sample size allowed us to detect a Cohen's $d = 0.24$ ($\alpha = 0.05$; 1 − β = 0.80), and thus was sensitive to detect effects similar to those reported by Zajenkowski and Gignac (2021).

4.2. Procedure and measures

We randomly assigned participants to the narcissism ($n = 156$) or control ($n = 121$) condition. We induced narcissism with the manipulation validated in the Pilot Study, and assessed narcissism with the state narcissism index (*M* = 3.34, *SD* = 1.02, ω = 0.87). We measured SAI after Zajenkowski et al. (2020). Participants read:

> Intelligence is an important characteristic that influences many areas of life. Research indicates that higher intelligence is associated with educational and professional success, higher income, and higher status. People differ in their intelligence and may have low, medium, or high level of intelligence.

Next, participants engaged in a comparative estimation of their intelligence: "Using the following scale, please indicate where you can be placed compared to other people" (1 = *very low*, 25 = *very high*).

5. Results and discussion

We found no outliers. Attesting to the effectiveness of the manipulation, participants in the narcissism condition (*M* = 3.61, *SD* = 0.89) reported higher narcissism than controls (*M* = 3.00, *SD* = 1.09), Welch's $t(227.90) = 5.00, p < .001$, $d = 0.62$, 95 %CI [0.38, 0.86]. Importantly, and consistent with Hypothesis 1, participants in the narcissism condition (*M* = 18.27, *SD* = 3.00) reported higher SAI than those in the control condition (*M* = 17.43, *SD* = 3.25), Welch's $t(247.34) = 2.20, p =.029$, $d = 0.27$, 95 %CI [0.03, 0.51]). In prior research, men scored higher on SAI than women (Szymanowicz & Furnham, 2011). We replicated this finding: Men (*M* = 18.31, *SD* = 2.76) reported higher SAI than women (*M* = 17.47, *SD* = 3.36), $t(269,85) = 2.24, p < 0.05$, $d = 0.27$. This was the only significant gender difference.

5.1. Study 2

In preregistered Study 2, we tested the replicability of Study 1 findings. In addition, we evaluated Hypothesis 2, namely that SAI mediates the effect of narcissism on academic goal pursuit, academic achievement, and PWB.

6. Method

6.1. Participants

We assumed a similar effect size (Cohen's $d = 0.27$) for the SAI manipulation as in Study 1. Using R package 'pwr,' we estimated the required sample at 320 participants ($\alpha = 0.05$; 1 − β = 0.85; one-tailed). We ran 399 participants (in anticipation of attrition) on Qualtrics. We recruited only undergraduate students, given our focus on academic achievement. The students were enrolled at various Polish universities.

We excluded 26 participants for failing the manipulation and two for not completing the measures. Of the remaining 371 participants, 281 were women, 85 were men, and four indicated "other." They ranged in age from 18 to 37 years ($M = 21.67$, $SD = 2.41$). The power analysis indicated that this sample size was sufficient to detect an effect of SAI similar to Study 1's (Cohen's $d = 0.26$). Additionally, we calculated power for the mediational models after Schoenemann, Boulton, and Short (2017). Our sample had a power of 0.66 for the model involving academic goal-pursuit, and a power of 0.99 for the models involving academic achievement and PWB.

6.2. Procedure and measures

We induced narcissism as before. We randomly assigned participants to the narcissism ($n = 193$) or control ($n = 178$) condition. Next, we measured state narcissism ($M = 3.71$, $SD = 0.95$, $\omega = 0.85$) and SAI ($M = 17.34$, $SD = 2.90$), as in Study 1.

Subsequently, we administered measures of academic goal-pursuit, academic achievement, and PWB. Each participant received randomly either the academic goal-pursuit and academic achievement measures first, or the PWB measure first. We assessed academic goal-pursuit with a 5-item scale (e.g., "I am motivated to pursue my academic goals"; $M = 4.38$, $SD = 0.94$, $\omega = 0.85$; Milyavskaya, Ianakieva, Foxen-Craft, Colantuoni, & Koestner, 2012). We assessed academic achievement with a 3-item scale (e.g., "I think I will do very well on my exams"; $M = 4.01$, $SD = 1.00$, $\omega = 0.90$; McGregor & Elliot, 2005). Finally, we assessed PWB with the 10-item Brief Inventory of Thriving (BIT; e.g., "My life is going well"; $M = 4.24$, $SD = 0.83$, $\omega = 0.87$; Su, Tay, & Diener, 2014). The BIT was developed with a holistic view of positive functioning and hence incorporates a variety of pertinent constructs such as meaning, belonging, optimism, and life satisfaction. Response options for all scales ranged from 1 (*strongly disagree*) to 6 (*strongly agree*).

7. Results and discussion

We identified no outliers. Participants in the narcissism condition ($M = 4.04$, $SD = 0.84$) reported higher narcissism than controls ($M = 3.34$, $SD = 0.92$), Welch's $t(358.49) = 7.60$, $p <.001$, $d= 0.79$, 95 %CI [0.58, 1.00]. The narcissism manipulation was successful.

In replication of Study 1, the main effect of narcissism on SAI was significant. Participants in the narcissism condition ($M = 17.65$, $SD = 2.88$) reported higher SAI than controls ($M = 17.06$, $SD = 2.90$), Welch's $t(366.25) = 1.99$, $p =.048$, $d = 0.21$, 95 %CI [0.01, 0.41]. However, the main effect of narcissism on academic goal-pursuit was not significant, Welch's $t(368.83) = 0.56$, $p =.574$, $d= 0.06$, 95 %CI [−0.15, 0.26], neither was it on expected academic performance, Welch's $t(362.89) = 1.22$, $p =.223$, $d = 0.13$, 95 %CI [−0.08, 0.33]. The main effect on PWB was marginal, Welch's $t(365.21) = 1.86$, $p =.063$, $d = 0.19$, 95 %CI [−0.39, 0.01].[1] As in Study 1, men reported ($M = 18.15$, $SD = 2.75$) higher SAI than women ($M = 17.09$, $SD = 2.89$), $t(144.62) = 3.07$, $p = .003$, $d = 0.37$. This was the only significant gender difference.

Next, we tested three mediation models, whereby we decomposed the total effect between narcissism and academic goal pursuit, narcissism and academic achievement, and narcissism and PWB (all significant; $p < 0.05$) into direct and indirect effects with SAI as the mediator. As can be seen in Fig. 1, all three models yielded statistically significant and positive indirect effects (i.e., a*b), implying mediation.

Additionally, whereas the direct effect of the model with academic goal-pursuit as the primary endogenous variable was not significant, $\beta = 0.10$, $p =.153$, 95 %CI: [−0.03, 0.21], the direct effects of the remaining two models were significant.

8. General discussion

Grandiose agentic narcissists personally value, and self-enhance (Gebauer et al., 2013) on, a key agentic attribute, intelligence. But does a transient infusion of narcissism elevate SAI? In two studies, we found that it does. Having grandiose fantasies, believing that one is special and unique, and feeling momentarily as the center of attention makes one think they are more intelligent than others.

SAI is a predictor of academic performance (e.g., academic goal-pursuit and achievement) and PWB (Howard & Cogswell, 2018). For example, SAI predicts academic grades above and beyond objectively measured intelligence (Chamorro-Premuzic & Furnham, 2006). We found, in Study 2, that SAI transmits the effect of narcissism on academic goal-pursuit, academic achievement, and PWB. We observed this effect for state narcissism (i.e., manipulation check) independent of experimental condition. To the extent that narcissists show relatively high academic performance or PWB, this is due—at least in part—to their elevated SAI. Indeed, SAI predicted academic grades above objectively measured IQ (Chamorro-Premuzic & Furnham, 2006). In all, SAI appears to play a regulatory role in narcissistic functioning.

An implication of our research is that SAI is influenced by fluctuations in one's personality. Consistent with this observation, SAI is also influenced by context (e.g., bogus feedback about one's IQ; Zajenkowski & Gignac, 2021), and insight into one's cognitive ability is moderate (i. e., the typical correlation between subjective and objective intelligence does not exceed 0.30; Freund & Kasten, 2012). In addition, our findings have implications for the literature on gender differences in narcissism and SAI. As in a prior study (Szymanowicz & Furnham, 2011), men scored higher on SAI than women, although gender differences in general intelligence are negligible. Differences in SAI, then, might be independent of situational factors (e.g., narcissism induction).

Our research has certain limitations that follow-up investigations may address. Such investigations could examine whether narcissism leads (via SAI) to improved actual academic performance, whether additional forms of narcissism (for a review, see Sedikides, 2021) are causally related to SAI (let alone actual academic performance), whether culture moderates our findings, and whether induced narcissism affects overestimation of other agentic attributes besides SAI such as leadership or physical attractiveness. Studies involving experience sampling methodology or longitudinal designs could enrich the empirical landscape. Longitudinal studies might additionally clarify the strength of the directional relation between narcissism and SAI, and experience sampling methodology studies might provide a dynamic assessment of daily fluctuation in the relation between the two variables. Another limitation of our work involves the partial overlap between our narcissism manipulation and the ensuing manipulation check. As part of the manipulation, participants recalled an event in which they felt admired, special, and entitled to social attention (vs. an event in which they felt no better or worse than others). As part of the manipulation check, participants reported the extent of their grandiose fantasies, striving for uniqueness, and charmingness. Clearly, there was some overlap between the two tasks. When state (here: manipulation check) measures are modifications of trait measures (here: manipulation), the correlation between the two can be high (Chen et al., 2021). Neverthelss, manipulation checks routinely include the key concept (or concepts) of the manipulation. Regardless, future research might attempt to differentiate as much as possible between the content of the manipulation and the content of the manipulation check.

In conclusion, a temporary infusion of narcissism leads to a comparatively positive appraisal of one's intelligence. This appraisal has downstream consequences for academic goal-pursuit, academic
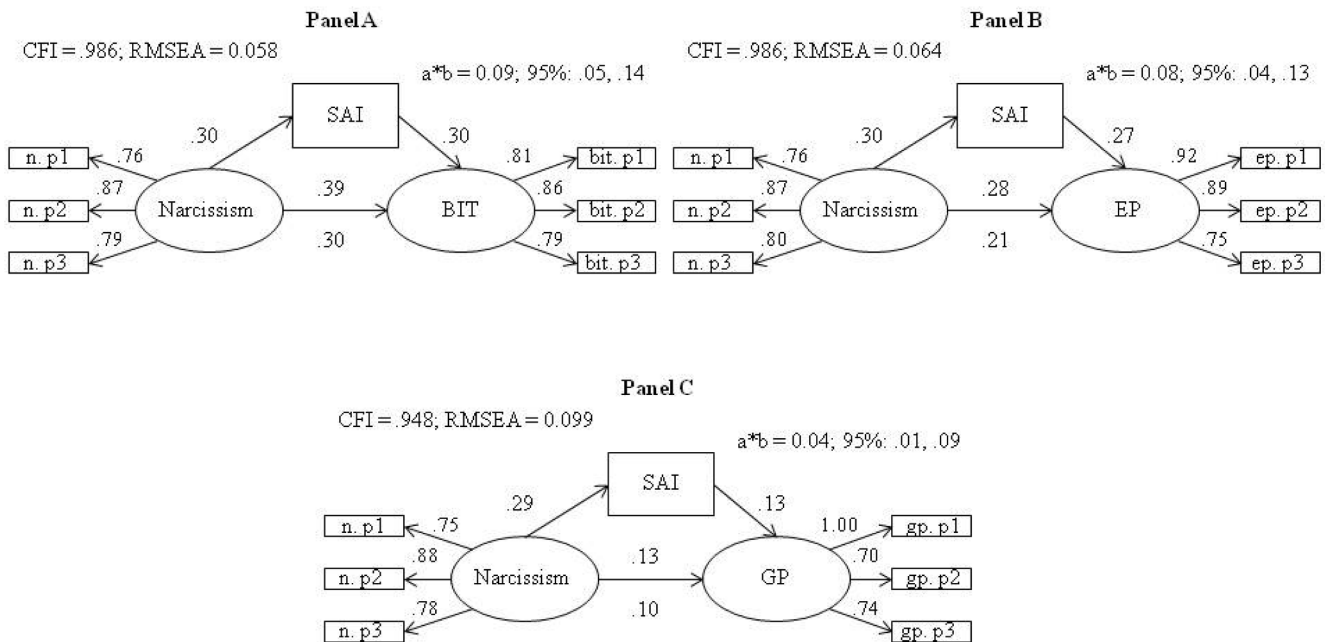
---

[1] The BIT contains the item "I feel a sense of belonging in my community." Narcissists are high on agency, but low on communion (Sedikides, 2021). As such, their PWB may not be contingent on belongingness. Indeed, when we exploratorily removed this item from the scale, the narcissism main effect reached significance, Welch's $t(366.28) = 2.06$, $p = .041$, Hedges' $g = 0.21$, 95%CI [0.01, 0.42]. Participants in the narcissism condition ($M = 4.33$, $SD = 0.83$) reported higher PWB than controls ($M = 4.15$, $SD = 0.83$).

Fig. 1. *Structural Equation Models Testing for Mediation. Note.* All estimates were statistically significant (besides 0.10 in Panel C); coefficients above the primary regression line (i.e., 0.39, 0.28, 0.13) correspond to total effects (all *p* < .05); N = narcissism; SAI = self-assessed intelligence; BIT = Brief Inventory of Thriving; EP = expected academic performance; GP = academic goal pursuit; residual terms omitted to save space; we constrained the gp.p1 residual to 0.0001 for preventing a non-positive residual variance.

achievement, and wellbeing. The findings open up exciting possibilities for understanding the effects of momentary variations in narcissism on the way they function.

Declaration of Competing Interest

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

References

Back, M. D., Kufner, A. C. P., Dufner, M., & Rauthmann, J. F. (2013). Narcissistic admiration and rivalry: Disentangling the bright and dark sides of narcissism. *Journal of Personality and Social Psychology, 105*(6), 1013–1037.

Canter, R. R. (1956). Intelligence and the social status of occupations. *Personnel & Guidance Journal, 34*, 258–260.

Chamorro-Premuzic, T., & Furnham, A. (2006). Self-assessed intelligence and academic performance. *Educational Psychology, 26*(6), 769–779.

Chen, S, et al. (2021). State and trait narcissism predict everyday helping. *Self and Identity, 20*, 182–198. https://doi.org/10.1080/15298868.2019.1598892

Freund, P., & Kasten, N. (2012). How smart do you think you are? A meta-analysis on the validity of self-estimates of cognitive ability. *Psychological Bulletin, 138*(2), 296–321.

Gebauer, J. E., Wagner, J., Sedikides, C., & Neberich, W. (2013). Agency-communion and self-esteem relations are moderated by culture, religiosity, age, and sex: Evidence for the "self-centrality breeds self-enhancement" principle. Journal of Personality, 81(3), 261–275. https://doi.org/10.1111/j.1467-6494.2012.00807.x.

Gottfredson, L. S. (1997). Mainstream science on intelligence: An editorial with 52 signatories, history and bibliography. *Intelligence, 24*(1), 13–23.

Grapsas, S., Brummelman, E., Back, M. D., & Denissen, J. J. A. (2020). The "Why" and "How" of Narcissism: A Process Model of Narcissistic Status Pursuit. Perspectives on Psychological Science, 15n(1), 150–172. https://doi.org/10.1177/1745691619873350.

Hoaglin, D. C., & Iglewicz, B. (1987). Fine-tuning some resistant rules for outlier labeling. *Journal of the American Statistical Association, 82*(400), 1147–1149.

Howard, M. C., & Cogswell, J. (2018). The "other" relationships of self-assessed intelligence: A meta-analysis. *Journal of Research in Personality, 77*, 31–46.

Kazak, A. E. (2018). Editorial: Journal article reporting standards. *American Psychologist, 73*(1), 1–2.

Leunissen, J. M., Sedikides, C., & Wildschut, T. (2017). Why narcissists are unwilling to apologize: The role of empathy and guilt. *European Journal of Personality, 31*(4), 385–403.

McGregor, H. A., & Elliot, A. J. (2005). The shame of failure: Examining the link between fear of failure and shame. *Personality and Social Psychology Bulletin, 31*(2), 218–231.

Milyavskaya, M., Ianakieva, I., Foxen-Craft, E., Colantuoni, A., & Koestner, R. (2012). Inspired to get there: The effects of trait and goal inspiration on goal progress. *Personality and Individual Differences, 52*(1), 56–60.

Rogoza, R., Wyszyńska, P., Maćkiewicz, M., & Cieciuch, J. (2016). Differentiation of the two narcissistic faces in their relations to personality traits and basic values. *Personality and Individual Differences, 95*, 85–88.

Schoenemann, A. M., Boulton, A. J., & Short, S. D. (2017). Determining power and sample size for simple and complex mediation models. *Social Psychological and Personality Science, 8*(4), 379–386.

Sedikides, C. (2021). In search of narcissus. *Trends in Cognitive Sciences, 25*(1), 67–80.

Su, R., Tay, L., & Diener, E. (2014). The development and validation of the Comprehensive Inventory of Thriving (CIT) and the Brief Inventory of Thriving (BIT). *Applied Psychology: Health and Well-Being, 6*(3), 251–279.

Szymanowicz, A., & Furnham, A. (2011). Gender differences in self-estimates of general, mathematical, spatial and verbal intelligence: Four meta analyses. *Learning and Individual Differences, 21*(5), 493–504.

Zajenkowski, M., Czarna, A. Z., Szymaniak, K., & Dufner, M. (2020). What do highly narcissistic people think and feel about (their) intelligence? *Journal of Personality, 88*(4), 703–718.

Zajenkowski, M., & Dufner, M. (2020). Why do narcissists care so much about intelligence? *Current Directions in Psychological Science, 29*(3), 261–266.

Zajenkowski, M., & Gignac, G. E. (2021). Telling people they are intelligent correlates with the feeling of narcissistic uniqueness: The influence of IQ feedback on temporary state narcissism. *Intelligence, 89,* 101595.