

ORIGINAL RESEARCH REPORT

Longitudinal Associations of Narcissism with Interpersonal, Intrapersonal, and Institutional Outcomes: An Investigation Using a Representative Sample of the German Population

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Most studies have treated grandiose narcissism as a unidimensional construct and investigated its associations in cross-sectional convenience samples. The present research systematically addresses these limitations by investigating the associations of agentic and antagonistic aspects of narcissism in the interpersonal, intrapersonal, and institutional domains, cross-sectionally and longitudinally in a population-representative sample. We used data ($N = 1,526$) from the representative, longitudinal German Socio-economic Panel study innovation sample (SOEP-IS). Both pre-registered and exploratory research questions regarding interpersonal, intrapersonal, and institutional outcomes of agentic and antagonistic aspects of narcissism were tested. Cross-sectional associations generally confirmed the differential adaptivity of narcissism aspects: While agentic narcissism was related to *friendship, happiness, self-esteem, employment, leadership* and *income*, antagonistic narcissism was negatively related to *intrapsychic adjustment*. Longitudinally, agentic aspects were positively associated with holding a *leadership position* while the antagonistic aspects were related to lower *self-esteem* and being *unemployed*. Additional differentiated longitudinal associations were found for different age groups with most associations being more pronounced in middle adulthood. The present research highlights the importance of studying grandiose narcissism as a two-dimensional construct, in populations that are diverse and representative of the broader population, and with outcomes relevant to the population studied.

Keywords: personality; narcissism; representative sample; longitudinal study; admiration; rivalry

Research on grandiose narcissism has been a topic of heightened research interest in recent years and narcissism has been linked to people's social lives in various domains. These domains include interpersonal, intrapersonal, and institutional contexts, all of which are important areas in people's lives (Ozer & Benet-Martínez, 2006). For instance, interpersonally, the attainment and maintenance of friendships and peer relationships forms an integral part of people's social lives (Bushman & Baumeister, 1998). Intrapersonally, self-esteem is highly relevant to the management and integration of social feedback (J. D. Brown, 2010) and at the core of human functioning in the social domain (Donnellan, Trzesniewski, Robins, Moffitt, & Caspi, 2005; Schimel, Landau, & Hayes, 2008), while positive and negative affect relate to frustration and

aggression (e.g., Berkowitz, 1989). Institutional outcomes such as status attainment at work are strongly based on social evaluations by co-workers and superiors (e.g., Babiak, Neumann, & Hare, 2010) and are predicted by socially embedded personality traits such as extraversion (Judge, Bono, Ilies, & Gerhardt, 2002; Roberts, Kuncel, Shiner, Caspi, & Goldberg, 2007).

Previous research on narcissism's effects in these three domains has suffered from three important limitations: 1) It has largely been based on data from student and convenience samples, making it unclear which associations narcissism has in the general population. 2) Most previous studies had cross-sectional designs. Thus, there is a lack of longitudinal investigations which provide a more adequate test of narcissism's predictive power by relating individual differences in narcissism to relevant outcomes measured in the future and reducing methodological bias (e.g., Rindfleisch, Malter, Ganesan, & Moorman, 2008). 3) Grandiose narcissism has, moreover, mostly been treated as a unidimensional construct. Recent research, however, converges on the recognition that grandiose narcissism is best understood as a multi-dimensional

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construct encompassing agentic and antagonistic aspects (e.g., Back et al., 2013; R. P. Brown, Budzek, & Tamborski, 2009; Krizan & Herlache, 2018; Miller et al., 2016). This has helped to better understand the, at times, seemingly paradoxical effects of narcissism (e.g., Back, 2018; Geukes et al., 2017; Grijalva, Harms, Newman, Gaddis, & Fraley, 2015; Wurst et al., 2017).

The goal of the present study was to systematically address these limitations of prior research by investigating the associations of agentic and antagonistic aspects of grandiose narcissism in the interpersonal, intrapersonal, and institutional domains, both cross-sectionally and longitudinally in a population-representative sample of the German population.

Narcissism in the interpersonal domain

Previous research on the interpersonal consequences of narcissism has produced mixed findings. On the one hand, narcissism is associated with a certain social potency that fosters initial liking and perception of leadership/dominance (Back, Kűfner, & Leckelt, 2018; Back, Schmukle, & Egloff, 2010; Campbell & Campbell, 2009; Kűfner, Nestler, & Back, 2013; Leckelt, Kűfner, Nestler, & Back, 2015). This early advantage in the getting-to-know process is mainly driven by their attractive appearance, self-assuredness, and charm (Back et al., 2010) and helps narcissistic individuals to receive the social admiration they crave (e.g., Back et al., 2013; Brunell & Campbell, 2011). This is in line with narcissistic peoples' approach orientation (Foster & Trimm, 2008) and agency focus (Campbell & Foster, 2007). On the other hand, narcissism is also related to social disappointment, for instance in romantic relationships (Cramer, 2011; Wurst et al., 2017), negative evaluations by peers in the long-run (e.g., Leckelt et al., 2015; Paulhus, 1998), and less commitment to relationships (Campbell, Foster, & Finkel, 2002). Accordingly, narcissism has repeatedly been linked to difficulties in sustaining steady long-term relationships (Buss & Shackelford, 1997; Cramer, 2011). Taken together, these illustrative findings paint a, at first glance, paradoxical picture with narcissism being related to early partner appeal and popularity, but also later social disapproval and conflict.

Narcissism in the intrapersonal domain

The intrapersonal outcomes of narcissism are a subject of on-going debate. Generally, grandiose narcissism is positively linked to self-esteem level and emotional stability (e.g., Miller et al., 2011; Trzesniewski, Donnellan, & Robins, 2008) as well as happiness, life-satisfaction (Aghababaei & Błachnio, 2015), and psychological health (Sedikides, Rudich, Gregg, Kumashiro, & Rusbult, 2004). While this implies that narcissistic individuals are content with themselves, prior work has suggested that these positive self-views are inherently fragile (Morf & Rhodewalt, 2001). Recently, Geukes and colleagues (2017) showed that narcissism is related to both, higher levels of self-esteem but also self-esteem variability. Regarding affective components, composite measures of grandiose narcissism are positively related to positive, but not to negative affect (Miller et al., 2011; Wright et al., 2013),

as well as optimism (Hickman, Watson, & Morris, 1996). Finally, narcissism is positively associated with anger and aggression, especially after ego-threat (Bushman & Baumeister, 1998; Bushman & Thomaes, 2012). Taken together, narcissism appears to be a similarly mixed blessing in the intrapersonal domain showing positive relationships with self-esteem and positive affect but also self-esteem fragility and aggression.

Narcissism in the institutional domain

In line with the fact that narcissism is associated with a certain social potency and that narcissistic individuals strive for status and power (Campbell & Campbell, 2009; Rogoza, Wyszynska, Mackiewicz, & Ciecuch, 2016), narcissism has been shown to be associated with high-ranking jobs such as managers (Ahmetoglu et al., 2016; Board & Fritzon, 2005) and wealth (Leckelt et al., 2018). Likewise, narcissism is associated with leadership positions, leadership emergence (Brunell et al., 2008; Grijalva, Harms, et al., 2015), and visionary boldness, a charisma component related to being seen as inspiring and exciting (Galvin, Waldman, & Balthazard, 2010). Given the relationship with high status jobs, it is no surprise that narcissism has also been associated with higher compensations in the workplace (O'Reilly, Doerr, Caldwell, & Chatman, 2014). At the same time, narcissistic individuals tend to be prone to risky institutional behavior, expressed, for instance, in risky investment choices (Foster, Reidy, Misra, & Goff, 2011) and corporate failure in the long run (e.g., Maccoby, 2000). While narcissistic individuals seem to be fairly successful at climbing the career ladder, it remains unclear how satisfied they are with their success. In their meta-analysis, Bruk-Lee, Khoury, Nixon, Goh, and Spector (2009) found a small, negative association of narcissism with job satisfaction. In sum, again a relatively mixed picture emerges, with narcissism being associated with job attainment, income, and leadership roles, but also with risk-proneness, possible job dissatisfaction, and even corporate failure in the long run.

Differentiated associations of grandiose narcissism aspects: A two-dimensional approach

Recent advances in the conceptualization of grandiose narcissism indicate that grandiose narcissism encompasses both agentic and antagonistic aspects (Back et al., 2013; R. P. Brown et al., 2009; Krizan & Herlache, 2018; Miller et al., 2016) and that these aspects often have differentiated effects. One model that systematically captures this differentiation is the Narcissistic Admiration and Rivalry Concept (NARC; Back, 2018; Back et al., 2013). The NARC is a process model that describes how the underlying motivation of narcissistic individuals (of maintaining a grandiose self) can be achieved via two different pathways: the admiration pathway (agentic self-enhancement) and the rivalry pathway (antagonistic self-defense). The admiration and rivalry pathways trigger different behavioral dynamics which are differentially related to social outcomes.

Both, admiration and rivalry, can be connected to fundamental models of personality, such as the Big Five

and the Interpersonal Circumplex (ICP; Wiggins, 1979). For example, prior research has shown that admiration is uniquely related to extraversion ($r = .31$ in Back et al., 2013) and rivalry is uniquely related to (dis-)agreeableness ($r = -.42$ in Back et al., 2013; see also Leckelt et al., 2018; Rogoza et al., 2016). Thus, these facets seem to capture the “disagreeable-extravert” nature of grandiose narcissism (Paulhus, 2001). Similarly, admiration and rivalry are readily situated, both theoretically and empirically, in the ICP. The ICP describes interpersonal behavior and motivation along two axes that can be understood as rotational variants of extraversion and agreeableness (Traupman et al., 2009): agency/dominance (vertical) which encompasses individual differences in strivings for agency and dominance (versus passivity and submission), and communion/affiliation (horizontal) which encompasses individual differences in strivings for connection and solidarity (versus hostility towards and distance from others) (Pincus & Ansell, 2013). In this context, admiration can be understood as a dominant/agentive orientation while rivalry most strongly aligns with a hostile orientation. Indeed, when empirically investigating these relationships, Grove, Smith, Girard, and Wright (2019) found admiration to be distinctly related to agentive and rivalry to be distinctly related to hostile interpersonal processes.

When looking at the literature, taking such a differentiated perspective helps to better understand the up- and downsides of narcissism. In the interpersonal domain, for instance, narcissism’s initial positive effects are mainly driven by the agentive aspects, while long-term negative effects are driven by the antagonistic aspects (Back et al., 2010; Campbell & Campbell, 2009; Leckelt et al., 2015; Wurst et al., 2017). Narcissistic individuals are initially popular amongst peers, because they are seen as open, competent, well-adjusted, charming, and self-assured (Back et al., 2010; Paulhus, 1998), which is attributable to the agentive aspects of narcissism, while their long-term declining popularity is linked to the antagonistic aspects (Carlson & DesJardins, 2015; Carlson, Naumann, & Vazire, 2011; Leckelt et al., 2015). Likewise, when investigating the structure of the Narcissistic Personality Inventory (NPI; Raskin & Hall, 1979), Ackerman et al. (2011) found differentiated effects for the agentive (i.e., leadership/authority) and antagonistic (i.e., entitlement/exploitativeness) subscales with regard to social potency and relationship quality. In the context of early romantic relationships, narcissistic individuals appear appealing too (Brunell & Campbell, 2011; Dufner, Rauthmann, Czarna, & Denissen, 2013). They are seen as likeable, desirable as a mate, and attractive, all of which are driven by the agentive aspects of narcissism. But again, in the long run the antagonistic aspects of grandiose narcissism are responsible for relationship dissatisfaction, conflict, and dysfunctional reactions to transgressions (Wurst et al., 2017).

Similarly, using a two-dimensional conceptualization of grandiose narcissism provides a clearer picture with regards to the intrapersonal workings of narcissistic individuals: While agentive aspects of grandiose narcissism are positively related to self-esteem level, the antagonistic aspects are

related to self-esteem variability (Geukes et al., 2017; Zeigler-Hill & Besser, 2013). Hickman et al. (1996), too, found that their results regarding optimism (and pessimism) differed between subscales of the NPI, such that only the agentive subscales of the NPI were related to optimism.

Finally, narcissistic individuals’ success and failure in the institutional domain seem to differ between narcissism aspects, too. In their meta-analysis on narcissism and leadership, Grijalva, Harms, et al. (2015) found that leadership emergence is more strongly related to the agentive aspects of grandiose narcissism. A different meta-analysis showed that mainly the antagonistic aspects of narcissism are related to counter-productive work behaviors (CWB) (Grijalva & Newman, 2015) rather than global narcissism scores (Penney & Spector, 2002).

Taken together, there is mounting evidence that a two-dimensional approach increases the explanatory value of narcissism in all three domains, the intra- and interpersonal, and institutional outcome domains. As a final point it can be noted that to date, most research on narcissism has been conducted in convenience samples (e.g., psychology students) or specific populations (e.g., CEOs and managers) and little is known about how these relationships hold up in the general population.

Present Research

In the present study we investigated the associations of narcissism in a longitudinal, population-representative sample where we systematically took into account the agentive and antagonistic aspects of grandiose narcissism. Following calls for a more differentiated consideration of agentive and antagonistic aspects of grandiose narcissism (Geukes et al., 2017; Grijalva, Harms, et al., 2015; Hickman et al., 1996; Leckelt et al., 2015; Wurst et al., 2017), we investigated the intrapersonal, interpersonal, and institutional associations of narcissism in the context of the NARC (Back et al., 2013), distinguishing narcissistic admiration and rivalry. To adequately assess outcomes in the three relevant life domains (intra- & interpersonal, institutional), we used data from the SOEP Innovation Sample (Richter & Schupp, 2015), a subsample of the nationally representative longitudinal Socio-economic Panel Study (Wagner, Frick, & Schupp, 2007) designed to test innovative survey methodologies in a representative longitudinal sample of the German population. This approach allowed us to go beyond previous research by (a) assessing variables from the three outcome domains in the same sample and with multiple indicators per domain, (b) drawing on a large population representative sample of adults, who, to date, provided data over a period of two years, and (c) using a well-validated short measure of narcissism that, despite its brevity, can reliably assess both the agentive and antagonistic aspects of grandiose narcissism.

Methods

Preregistration and open science practices

In order to increase the transparency, reproducibility, and replicability of our analyses (Asendorpf et al., 2013; Munafò et al., 2017), we preregistered the variable selection and data acquisition process, and outlined our analyses and predictions on the Open Science

Framework (osf.io/8zvmq/) prior to performing any analyses. A detailed documentation of the SOEP-IS and all variables can be found at www.diw.de/sixcms/detail.php?id=diw_01.c.558445.en. Due to strict provisions of German data protection law, we cannot make the data publicly available. However, the data are available from the German Institute for Economic Research/German Socio-economic Panel Study (for requests, please contact soepmail@diw.de). The scientific use files of the data with anonymous microdata are made available free of charge to universities and research institutes for research and teaching purposes. Code for all analyses performed in this manuscript is accessible at osf.io/zj79r/?view_only=3cf19e03cf1b4475aaf4bb620a9a273f.

Sample

We used data from the 2013 and 2015¹ waves of the German SocioEconomic Panel study innovation sample (SOEP-IS) (Richter, & Schupp, 2015). As narcissism was our main variable of interest, we matched the 2013 and 2015 data for persons who filled out the narcissism measure in both waves. Across both time points, 1,526 persons ($M_{\text{age at T1}} = 52.95$, $SD_{\text{age at T1}} = 17.37$, 47% male) met this criterion. Descriptive statistics of the sample can be found in Table S1.

Measures

Demographic information. Participants indicated their sex either as “male” or “female”, scored as 1 and 2. They also gave their year of birth and their level of education, measured using the Comparative Analysis of Social Mobility in Industrial Nations (CASMIN; e.g., Braun & Müller, 1997) classification, ranging from 0 (“in school”) to 9 (“higher tertiary education”).

Narcissism. Narcissism was measured using the short 6-item version (NARQ-S; Leckelt et al., 2018) of the Narcissistic Admiration and Rivalry Questionnaire (Back et al., 2013), which distinguishes the dimensions admiration (agentic self-enhancement, $\alpha_{2013} = .80$, $\alpha_{2015} = .82$) and rivalry (antagonistic self-defense, $\alpha_{2013} = .58$, $\alpha_{2015} = .61$). A typical admiration item reads “Being a very special person gives me a lot of strength” and a typical rivalry item reads “I want my rivals to fail.” Items are answered on a 6-point scale ranging from 1 (not agree at all) to 6 (agree completely). In the current sample, admiration and rivalry correlated $r = .52$, $p < .001$ at both time points (2013 and 2015).

Interpersonal outcomes. *Number of friends* was assessed with an open-ended question asking “How many close friends would you say that you have?” and *social time with friends* was assessed by asking “How often do you meet friends, relatives or neighbors?”, with answer options of 1 (“every week”), 2 (“every month”), 3 (“less frequently”), and 4 (“never”). We used a reverse-scored version (e.g., Sander, Schupp, & Richter, 2017) of this item in our analyses ranging from 1 (“never”) to 4 (“every week”). Relationship status was assessed with the question “Are you currently in a permanent relationship?” to which respondents answered either “yes” (1) or “no” (2). In our analyses, we scored this item as “yes” (1) and “no” (0). Finally, marital status was assessed by asking “What is your family status?” Participants chose between “married, living together” (1), “married, living permanently separated” (2), “unmarried,

was never married” (3), “divorced/registered same-sex partnership annulled” (4), “widowed/life partner from registered same-sex partnership deceased” (5), “registered same-sex partnership, living together” (6), “registered same-sex partnership, living separately” (7). We created a new variable “*ever married*” with answers 1, 2, 4, 5, 6, and 7 scored as “1” and answer 3 scored as “0”, as well as a new variable “*ever divorced*” with answers 2, 4, and 7 scored as “1”, answers 1 and 6 scored as “0”, and answers 3 and 5 treated as missing values.

Intrapersonal outcomes. *Current life satisfaction* and *satisfaction with health* were assessed on a 11-point scale ranging from 0 (“completely dissatisfied”) to 10 (“completely satisfied”) with the questions “How satisfied are you with your life, all things considered?” and “How satisfied are you currently with your health?”, respectively ($r_{2013} = .47$, $p < .001$; $r_{2015} = .48$, $p < .001$). As outlined in the preregistration, these items were aggregated to form an index of *general satisfaction*. *Positive* and *negative affect* were assessed by asking respondents how often they felt *happy*, *angry*, *worried*, and *sad* in the last four weeks. Answers were given on a 5-point scale from 1 (“very rarely”) to 5 (“very often”). The three negative affect items were aggregated to form an index of *negative affect* ($\alpha_{2013} = .66$, $\alpha_{2015} = .65$) and *happy* was used as an indicator of *positive affect*. Finally, *self-esteem* was assessed with one item asking participants using a 6-point scale ranging from 1 (“does not apply to me at all”) to 6 (“applies to me perfectly”) to what degree the statement “I have a positive attitude toward myself” applied to them.

Institutional outcomes. Participants indicated whether they were currently *registered unemployed* by answering “yes” (1) or “no” (2), which we scored as “yes” (1) and “no” (0) in our analyses. *Employment status* was assessed by asking “Are you currently employed? Which one of the following applies best to your status?” Options were “Full-Time Employment” (1), “Regular Part-Time Employment” (2), “Vocational Training” (3), “Marginally employed” (4), “Near Retirement, Zero Working Hours” (5), “Military Service” (6), “Community Service” (7), “Sheltered workshop” (8), or “Not Employed” (9). We scored this as *degree of employment* with 9 = 0, 4 = 1, 2 = 2, and 1 = 3, and 3, 5, 6, 7, 8 treated as missing values. To assess *Leadership position*, respondents were asked “In your position at work, do you supervise others? In other words, do people work under your direction?” with options “yes” (1) and “no” (2). In our analyses this item was scored as “yes” (1) and “no” (0). The magnitude prestige scale (Wegener, 1988), a measure of occupational prestige specifically developed for use in Germany, was used to assess *job prestige*. It combines data from job classifications based on the sample census, education in years, net income, occupational status, and an earlier version of job classifications for which jobs were classified according to the International Standard Classification of Occupations (for details on scoring please see Frietsch & Wirth, 2001). Participation in *volunteer work* (“Doing volunteer work in clubs, associations, or social services”) and *local politics* (“Involvement in a citizens’ group, political party, local affairs”) was assessed on a 5-point scale ranging from “daily” (1) to “never” (5). We reverse scored these two items and then aggregated

them to form an indicator of *communal involvement* ($r_{2013} = .33, p < .001, r_{2015} = .26, p = .002$). *Satisfaction with work, personal income, and household income* were scored on an 11-point scale ranging from 0 (“completely dissatisfied”) to 10 (“completely satisfied”). *Satisfaction with personal and household income* were aggregated to form an indicator *financial satisfaction* ($r_{2013} = .75, p < .001, r_{2015} = .82, p = .002$). Finally, respondents indicated their *income* as their gross income in the previous months in an open-ended format. We use a log-transformed version of this variable in our analyses (Aitchison & Brown, 1957).

Analytical approach

We utilized cross-sectional and longitudinal analyses to investigate associations between narcissism and outcome indicators in the domains of intrapersonal, interpersonal, and institutional adjustment. For the concurrent associations between narcissism and the outcomes, we calculated zero-order correlations and multiple regression models controlling for the shared variance between admiration and rivalry. For variables answered in a “yes/no” fashion or which were dichotomized, we performed logistic regression analyses. To allow for a more direct comparability across outcome indicators, results from the logistic regression analyses were additionally transformed to the correlation coefficient r using

$$r = \frac{\sqrt{\left(\ln(OR) * \frac{\sqrt{3}}{\pi}\right)^2}}{\sqrt{4 + \left(\ln(OR) * \frac{\sqrt{3}}{\pi}\right)^2}} \quad (1)$$

where OR is the odds ratio (Durlak, 2009; Sánchez-Meca, Marín-Martínez, & Chacón-Moscoso, 2003). In order to investigate the longitudinal associations of narcissism, we used cross-lagged panel models (CLPM), which were estimated using the *lavaan* (Rosseel, 2012) package (version 0.5-23.1097) for the *R* (version 3.4.0.) statistical computing software (R Core Team, 2016). We used full information maximum likelihood estimation (Enders, 2001) to handle missing data in combination with a robust maximum likelihood estimator (*lavaan* “MLR”) when possible, and used weighted least squares estimation for models including binary variables (Li, 2016; Newsom, 2015).

When measuring a latent variable across time points, factorial invariance is a prerequisite for valid longitudinal inferences (Selig & Little, 2012). In order to ensure that the same latent construct is measured across time points, at least strong factorial invariance (i.e., invariant factor loadings and intercepts across time) must hold (Widaman, Ferrer, & Conger, 2010). Thus, as a first step, we checked for measurement invariance of the NARQ-S by comparing increasingly constrained models of configural (i.e., same number of factors and items that load on them), weak (i.e., equal factor loadings across time), and strong invariance (i.e., equal factor loadings and intercepts across time). We compared the increasingly constrained models against each other using changes in the CFI, RMSEA, and NCI, and following recommendations by (Chen, 2007; G. W.

Cheung & Rensvold, 2002; Meade, Johnson, & Braddy, 2008). Results indicated that strong invariance held for the NARQ-S and that this model fit the data well (CFI = .987, RMSEA = .043 [95% CI 0.034, .053], NCI = .989). Thus, it can be assumed that the same narcissism construct was measured across time points.

Following these analyses, we specified CLPMs with three variables (admiration, rivalry, and the respective outcome indicator; see **Figure 1**) incorporating the necessary constraints for strong factorial measurement invariance of the NARQ-S. Here, we have a special interest in the paths labeled “a” and “b” in **Figure 1**. These paths indicate to what extent prior levels of narcissistic admiration and rivalry predict later scores on the outcome, controlling for prior levels of the variables, i.e. investigating associations beyond cross-sectional associations (Selig & Little, 2012).² Coefficients can be interpreted as “people with similar levels of the outcome and higher levels of narcissism at T1, have higher (or lower) values in the outcomes at T2”. We report both univariate associations of admiration and rivalry as separate predictors and multivariate associations in which admiration and rivalry were used as simultaneous predictors and, thus, the coefficients refer to the unique associations of admiration and rivalry. Associations of these residualized variables have to be interpreted as such and differentiated from associations of the original, non-residualized variables (Lynam, Hoyle, & Newman, 2006; Sleep, Lynam, Hyatt, & Miller, 2017). This differentiation on a conceptual level is often challenging, particularly in the absence of a theoretical model that explicates the overlap and unique predictive pathways of the predictor variables. In the case of narcissistic admiration and rivalry, as assessed with the NARQ, however, such a conceptual basis exists. According to the NARQ, admiration and rivalry are both fueled by the urge to maintain a grandiose self but they differ in the social strategies by which this urge is played out (agentic narcissistic self-presentation versus antagonistic narcissistic self-defense). That is, effects of non-residualized admiration reflect effects of individual differences in the urge to maintain a grandiose self and the tendency to play this out via agentic narcissistic self-presentation. Similarly, effects of non-residualized rivalry reflect effects of individual differences in the urge to maintain a grandiose self and the tendency to play this out via antagonistic narcissistic self-defense.

When controlling for the shared between-person variance (i.e., in the urge to maintain a grandiose self) in multivariate analyses, effects more uniquely refer to individual differences in the social strategies: Effects of residualized admiration reflect effects of individual differences in the tendency to engage in agentic narcissistic self-presentation, while effects of residualized rivalry reflect effects of individual differences in the tendency to engage in antagonistic narcissistic self-defense. Depending on the particular research question one poses, the one or the other kinds of effects are more relevant. For instance, if someone wanted to investigate how either narcissism facet (i.e., admiration/agentic or rivalry/antagonistic) is related to dimensions of interpersonal reputation such as popularity, one would choose to look at the univariate effects. If, however, the research question was to more

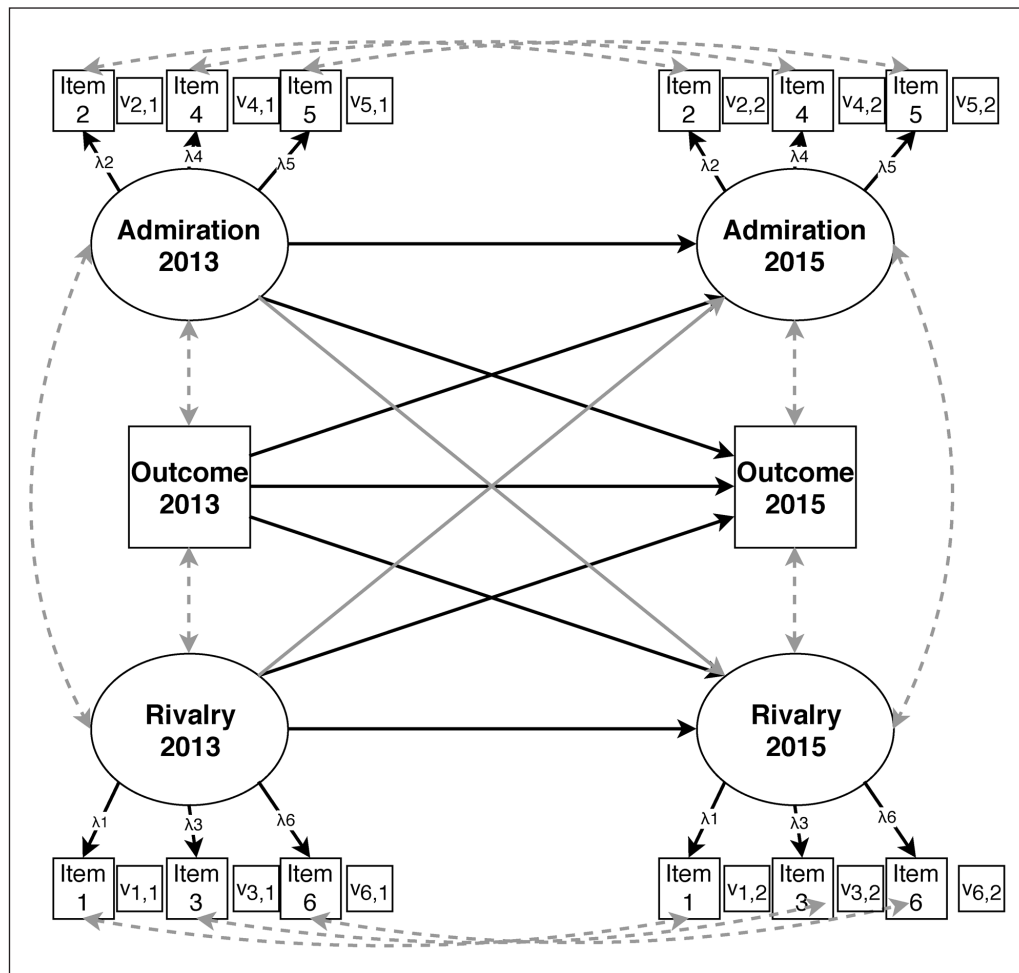


Figure 1: Illustration of the multivariate cross-lagged panel model. Paths labeled a and b describe the cross-lagged associations of residualized narcissistic admiration and rivalry at timepoint 1 with the outcomes at time point 2. Measurement invariance constraints are also shown: identical labels indicate equality constraints for factor loadings (λ_{1-6}) and intercepts (v_{1-6}).

clearly differentiate the effects that the social strategy unique to each of the facets has, partialled effects would be more relevant. We recommend always reporting both uni- and multivariate analyses with admiration and rivalry as predictors and interpreting the associations in accordance with the NARC. In the present paper, we, therefore, report univariate results based on zero-order correlations between narcissism dimensions and outcomes as well as multivariate results based on the cross-sectional regression models as well as the longitudinal cross-lagged panel models. We also provide analyses controlled for age, sex, and education, because previous research has shown that age (Foster, Keith Campbell, & Twenge, 2003) and sex (Grijalva, Newman, et al., 2015) are related to narcissism levels, and education is very likely to play a role in many of the outcomes investigated here, especially those in the institutional domain.

Different phases in peoples' lives have different affordances and developmental tasks (Hutteman, Hennecke, Orth, Reitz, & Specht, 2014) and thus make some of the outcomes investigated here more or less pertinent to participants' lives. Therefore, we performed additional exploratory analyses for age groups representing early (18–30 years), middle (30–60 years), and old adulthood

(60+ years; cf. Hutteman et al., 2014) by extending the CLPMs to multigroup CLPMs (e.g., Newsom, 2015). Lastly, we also conducted the analyses for the NARQ-S total score.³

Results

Cross-sectional analyses

Results of the cross-sectional zero-order correlations and multiple regression analyses using *admiration* and *rivalry* as simultaneous predictors are displayed in **Table 1**. Overall, results from the two time points were very similar as indicated by an absolute agreement (two-way random model) intra class correlation (ICC) of $\geq .82$ for the correlational and regression results. Similarly, most results were also consistent with the preregistered predictions (osf.io/8zvmq/), which were confirmed for 14 of the 22 predictions (~64%) and partly confirmed for 4 of the 22 predictions (~18%). Regarding the *interpersonal outcomes*, admiration, but not rivalry, was related to having more friends and spending more time with friends and acquaintances in both, univariate and multivariate analyses. In the *intrapersonal* domain, rivalry was negatively related in uni- and multivariate analyses to *general satisfaction*, *self-esteem*, and frequency of experiencing happiness, and positively to *negative affect*.

Table 1: Result from cross-sectional correlation and regression analyses and preregistered hypotheses.

| OutcomeDomain | Outcome | Admiration | | | | Rivalry | | | | Preregistered prediction | | | | Confirmed? | |
|----------------------------|-------------------------|-------------|-------------|------------|-------------|-------------|-------------|------------|------|--------------------------|---|---------|--------|------------|---------|
| | | 2013 | | 2015 | | 2013 | | 2015 | | Admiration | | Rivalry | | Admiration | Rivalry |
| | | r | β | r | β | r | β | r | β | + | - | + | - | Yes | No |
| Interpersonal | Number of close friends | .09 | .12 | .07 | .10 | .01 | -.05 | -.01 | -.05 | + | - | - | Yes | Partly | |
| | Time with friends | .10 | .12 | .12 | .14 | .02 | -.04 | .04 | -.03 | + | - | - | Yes | Partly | |
| | Ever Married | -.15 | .07 | -.12 | .06 | -.13 | .06 | -.08 | .02 | - | - | - | - | Yes | |
| | OR | | 0.77 | | 0.80 | | 0.81 | | 0.93 | | | | | | |
| | Ever Divorced | .03 | .01 | .05 | .02 | .03 | .02 | .05 | .03 | - | - | - | - | Yes | |
| OR | | 1.04 | | 1.1 | | 1.07 | | 1.12 | | | | | | | |
| Intrapersonal | General Satisfaction | -.04 | .02 | -.02 | .01 | -.10 | -.11 | -.06 | -.06 | + | - | - | No | Yes | |
| | Negative Affect | .09 | .03 | .03 | -.02 | .13 | .11 | .08 | .09 | - | + | - | No | Yes | |
| | Happiness | .03 | .08 | .06 | .15 | -.05 | -.10 | -.10 | -.17 | + | - | - | Yes | Yes | |
| | Self-esteem | .04 | .10 | .03 | .10 | -.07 | -.12 | -.08 | -.14 | + | - | - | Yes | Yes | |
| | Registered unemployed | -.02 | -.09 | .01 | .00 | .07 | .14 | .03 | .04 | - | - | - | Partly | | |
| OR | | 0.73 | | 0.99 | | 1.70 | | 1.16 | | | | | | | |
| Institutional | Employment degree | .14 | .15 | .16 | .20 | .06 | -.01 | .03 | -.08 | + | - | - | Yes | | |
| | Leadership position | .15 | .11 | .14 | .09 | .01 | -.07 | .02 | -.05 | + | + | - | Yes | | |
| | OR | | 1.49 | | 1.41 | | 0.77 | | 0.83 | | | | | | |
| | Job prestige | .14 | .18 | .06 | .10 | .03 | -.06 | -.03 | -.08 | + | - | - | Yes | | |
| | Communal involvement | .03 | .07 | .00 | .06 | -.04 | -.07 | -.09 | -.12 | - | - | - | - | Yes | |
| Satisfaction with work | -.01 | .02 | -.01 | .06 | -.05 | -.06 | -.11 | -.14 | - | - | - | - | Yes | | |
| Financial satisfaction | .00 | .05 | -.07 | -.03 | -.07 | -.10 | -.10 | -.08 | - | - | - | - | Yes | | |
| Monthly gross income (log) | .11 | .11 | .13 | .14 | .06 | .00 | .05 | -.02 | + | + | - | Yes | | | |
| ICC correlations | | | | .91 | | | | .84 | | | | | | | |
| regression | | | | .83 | | | | .82 | | | | | | | |

Note: β = standardized regression coefficient; r = correlation; OR = odds ratio; boldface indicates significant associations at p < .05.

When controlling for the overlap of the two narcissism aspects, admiration was additionally related to higher *happiness* and *self-esteem*. Finally, in the *institutional* domain, admiration was positively related to *employment degree*, *leadership position*, *job prestige*, and *income*, both in the uni- and multivariate analyses, and negatively related to being registered unemployed when the shared variance with rivalry was controlled for.

Residualized rivalry, on the other hand, was negatively related to *leadership position*, *job prestige*, and *work satisfaction*, while both rivalry and residualized rivalry were related to lower *financial satisfaction* and *communal involvement*. In 2013, both rivalry and residualized rivalry were positively related to being *registered unemployed*. All cross-sectional standardized effects were between .06 and .18 in absolute magnitude, indicating small but significant associations between the narcissism aspects and the outcomes.

Longitudinal analyses

Results from the CLPMs are displayed in **Table 2** (separate results for the NARQ total score and admiration and rivalry can be found in Tables S6 and S8, respectively) and show that, overall, there were few cross-lagged associations of narcissism. All outcomes ($\beta_{\text{mean}} = .65$) and the two narcissism aspects (admiration: $\beta = .55, p < .001$; rivalry: $\beta = .73, p < .001$) showed a substantial degree of stability. In the complete sample, previous levels of narcissism, controlling for the stability of narcissism and the outcomes

as well as the shared variance between admiration and rivalry, predicted *self-esteem* (rivalry: $\beta = -.14, p = .035$), being *registered unemployed* (rivalry: $\beta = .18, p = .023$), and *leadership position* (admiration: $\beta = .13, p = .024$) at the second time point. Specifically, participants with higher levels of narcissistic rivalry, but not admiration, reported lower levels of *self-esteem* three years later (difference in coefficients: $z = 2.40, p = .016$). Participants with higher levels of narcissistic rivalry, but not admiration, had an increased likelihood of being *registered unemployed* two years later ($z = 2.39, p = .017$). Finally, higher levels of narcissistic admiration, but not rivalry (difference in coefficients: $z = 2.29, p = .022$), in 2013 predicted a higher likelihood of being in a leadership position two years later. Looking at the non-residualized cross-lagged associations (Table S8) showed that the association with self-esteem was only significant for rivalry ($\beta = -.06, p = .012$), while the association with unemployment was significant for both, admiration ($\beta = .08, p = .002$) and rivalry ($\beta = .10, p = .001$).

The association with the likelihood of being a leader was only significant for admiration ($\beta = .06, p = .043$). This indicates that the association with unemployment is related to the shared goal of maintaining a grandiose self and both, agentic and antagonistic strategies to do so, while the associations with self-esteem and being in a leadership position seem to be uniquely related to the tendency to use antagonistic self-defense or the tendency to engage in agentic narcissistic self-presentation, respectively. Finally, there were consistent negative associations of

Table 2: Cross-lagged associations of narcissistic admiration and rivalry on outcomes.

| Outcome | Admiration → Outcome | | | Rivalry → Outcome | | | Stability | | |
|----------------------------|----------------------|-------------|-------------|-------------------|-------------|-------------|------------|-------------|----------|
| | β | SE | <i>p</i> | β | SE | <i>p</i> | β | SE | <i>p</i> |
| Number of close friends | .04 | 0.06 | .454 | -.02 | 0.06 | .719 | .60 | 0.05 | <.001 |
| Time with friends | .08 | 0.06 | .131 | -.05 | 0.06 | .380 | .50 | 0.02 | <.001 |
| Ever Married | .01 | 0.03 | .750 | -.02 | 0.03 | .608 | .92 | 0.01 | <.001 |
| Ever divorced | -.02 | 0.03 | .535 | .04 | 0.03 | .191 | .92 | 0.02 | <.001 |
| General Satisfaction | -.03 | 0.05 | .548 | -.01 | 0.05 | .809 | .63 | 0.02 | <.001 |
| Negative Affect | .09 | 0.06 | .135 | -.07 | 0.07 | .269 | .52 | 0.02 | <.001 |
| Happiness | .09 | 0.06 | .111 | -.10 | 0.06 | .091 | .46 | 0.03 | <.001 |
| Self-esteem | .08 | 0.06 | .215 | -.14 | 0.07 | .035 | .43 | 0.03 | <.001 |
| Registered unemployed | -.06 | 0.06 | .342 | .18 | 0.08 | .023 | .57 | 0.05 | <.001 |
| Employment degree | .06 | 0.03 | .055 | -.08 | 0.04 | .053 | .84 | 0.01 | <.001 |
| Leadership position | .13 | 0.06 | .024 | -.06 | 0.06 | .315 | .64 | 0.04 | <.001 |
| Job prestige | .05 | 0.04 | .199 | -.01 | 0.04 | .727 | .89 | 0.02 | <.001 |
| Communal involvement | .12 | 0.08 | .166 | -.15 | 0.10 | .146 | .59 | 0.04 | <.001 |
| Satisfaction with work | .05 | 0.08 | .573 | -.15 | 0.09 | .092 | .37 | 0.04 | <.001 |
| Financial satisfaction | -.02 | 0.05 | .641 | -.08 | 0.06 | .180 | .60 | 0.02 | <.001 |
| Monthly gross income (log) | .01 | 0.05 | .876 | .04 | 0.06 | .473 | .90 | 0.02 | <.001 |
| Stability Admiration | .55 | 0.07 | <.001 | | | | | | |
| Stability Rivalry | .73 | 0.10 | <.001 | | | | | | |

Note: β = standardized regression coefficient; SE = standard error; boldface indicates significant associations at $p < .05$.

non-residualized admiration and rivalry with financial satisfaction ($\beta = -.07, p = .001, \beta = -.07, p = .001$ respectively), indicating that financial dissatisfaction is predicted by the goal of maintaining a grandiose self through both agentic self-presentation and antagonistic self-defense.

Controlling for age, sex, and education (for a complete overview see Table S4) did not meaningfully alter any of these unique associations (difference self-esteem association: $z = 0.17, p = .864$; difference unemployment association: $z = 0.01, p = .993$; difference leadership association: $z = 0.00, p = 1.00$). However, controlling for age, sex, and education revealed additional significant associations with the outcomes *happiness* and *employment degree*. Higher levels of residualized narcissistic rivalry ($\beta = -.13, p = .039$), but not residualized admiration (difference in coefficients: $z = 2.52, p = .012$), predicted lower levels of happiness two years later. Similarly, higher levels of residualized narcissistic rivalry ($\beta = -.12, p = .041$), but not residualized admiration (difference in coefficients: $z = 3.30, p < .001$), predicted lower levels of the degree of employment in 2015.

When zooming further into the results by looking at the associations in the three age groups (early, middle, and old adulthood), it can be seen that the results differ depending on which phase of their lives people are in (Table S5). Most of the unique associations were strongest in middle adulthood. Although there was no association across all age groups when not controlling for age, sex, and education, higher levels of residualized admiration in 2013 positively predicted subsequent *happiness* ($\beta = .23, p = .019$), *self-esteem* ($\beta = .19, p = .036$), and *satisfaction with work* ($\beta = .23, p = .035$) only for participants in middle adulthood. Similarly, only for those in early adulthood did higher levels of residualized admiration in 2013 predict less *general satisfaction* two years later ($\beta = -.26, p = .019$). When looking at the longitudinal associations of residualized rivalry, only for those in middle adulthood did rivalry predict lower levels of *happiness* ($\beta = -.28, p = .006$), *self-esteem* ($\beta = -.26, p = .009$), and *satisfaction with work* ($\beta = -.34, p = .008$) in 2015. Finally, residualized rivalry was related to an increased likelihood of being unemployed in 2015 only for people in middle adulthood ($\beta = .23, p = .030$).

Discussion

In this study, we examined the cross-sectional associations and longitudinal associations of the agentic and antagonistic aspects of grandiose narcissism in a representative sample and whether the associations differed depending on the life phase people were in. We covered three important outcome areas, spanning interpersonal, intrapersonal, and institutional variables. Cross-sectional associations of narcissism aspects and the three outcome areas generally confirmed previous assertions about the differential adaptivity of agentic and antagonistic narcissism aspects (Back et al., 2013; Leckelt et al., 2015; Wurst et al., 2017). Residualized narcissistic admiration (i.e., the tendency to engage in agentic narcissistic self-presentation) was, for instance, most strongly positively related to the reported number of close friends, frequency of being happy, self-esteem level, and success in the institutional domain (e.g.,

leadership position, job prestige, monthly gross income). Residualized narcissistic rivalry (i.e., the tendency to engage in antagonistic narcissistic self-defense), in contrast, was most strongly negatively associated with intrapersonal adjustment (e.g., general dissatisfaction, increased negative affect, and decreased happiness and self-esteem) and success in the institutional domain (e.g., lower job prestige, communal involvement, satisfaction with work and income). These results align well with previous research showing that people higher in agentic aspects of narcissism are focused on getting ahead and strive for positions of power (Campbell & Campbell, 2009; Rogoza et al., 2016; Rosenthal & Pittinsky, 2006) as well as findings that indicate that agentic aspects of narcissism are generally related to higher self-esteem (Geukes et al., 2017; Miller, Lynam, Hyatt, & Campbell, 2017; Wetzel, Leckelt, Gerlach, & Back, 2016), positive affect (Rhodewalt, Madrian, & Cheney, 1998), and negatively to depression (Sedikides et al., 2004; Watson & Biderman, 1993). Similarly, antagonistic aspects of grandiose narcissism have previously been found to predict counter-productive work behaviors (Grijalva & Newman, 2015) as well as different forms of dissatisfaction (Foster, 2008; Rose, 2002), and lower self-esteem level and higher self-esteem fragility (Geukes et al., 2017; Zeigler-Hill & Besser, 2013).

Regarding longitudinal associations of narcissism, the present study found that, overall and controlling for stability in narcissism and the outcomes as well as the overlap between admiration and rivalry, previous levels of narcissistic admiration predicted being in a leadership position two years later, while higher levels of narcissistic rivalry predicted lower self-esteem and a higher likelihood of being unemployed two years later. Integrating these findings in the broader literature of narcissism's consequences and development, we conclude that narcissistic individuals' striving for status and power do indeed translate into a higher likelihood of being in a leadership position at a later time point, confirming preliminary findings that linked narcissism-like characteristics (e.g., bold and colorful from the Hogan Development Survey) to leadership development (Harms, Spain, & Hannah, 2011). With regard to self-esteem, the present study found that antagonistic, but not agentic, aspects of narcissism predicted lower levels of self-esteem in the future. This is in line with process-oriented conceptualizations of narcissism that regard lowered self-esteem as a result of threat to the narcissistic self (Morf & Rhodewalt, 2001), which narcissistic individuals typically try to resolve with antagonistic self-protection (Back et al., 2013). Thus, in combination with the fact that the antagonistic aspects have been implicated as the driving force behind many of narcissism's negative consequences (Lange, Crusius, & Hagemeyer, 2016; Leckelt et al., 2015; Wurst et al., 2017), negative feedback-loops may be created which lead to increased conflict in various domains, then end in lowered self-esteem, and restart the cycle. Finally, the present research established a link between previous levels of narcissistic rivalry and the likelihood of being registered unemployed in the future. In light of the potential for conflict inherent to the antagonistic aspects of narcissism, the established link with CWB (Grijalva

& Newman, 2015), the differentiated associations of narcissism aspects with success in the workplace (Grijalva, Harms, et al., 2015), and the relationship between narcissism and stressful life events (Orth & Luciano, 2015), this is another piece of evidence that narcissism has paradoxical effects beyond the interpersonal domain which can be disentangled by taking a multidimensional approach to grandiose narcissism.

In addition to highlighting the importance of a two-dimensional approach to grandiose narcissism, the present research also points to the importance of the representativeness of the samples used to study the associations of narcissism and how the outcomes studied are sensitive to life phases. Beyond the general findings of the cross-lagged analyses discussed above, separate exploratory investigations of different life phases suggested more fine-grained associations of narcissism: While, overall, narcissistic rivalry, but not narcissistic admiration, was linked to lower general satisfaction cross-sectionally, higher admiration scores predicted subsequent lowered general satisfaction only in early adulthood. Also, cross-lagged associations of narcissistic admiration with happiness, self-esteem, and satisfaction with work, as well as associations of narcissistic rivalry with decreased happiness, self-esteem, and satisfaction with work were particularly pronounced for participants in middle adulthood. This might be explained when looking at the developmental tasks of these life phases as well as at how relevant the outcomes studied here are for people in specific life phases (Havighurst, 1972). Hutteman et al. (2014) described the developmental tasks in early adulthood as “mainly concerned with establishing new social roles” (p. 271) with the associated developmental tasks of, for instance, selecting a mate, continuing higher education or getting started in an occupation. This means that, on the one hand, certain outcomes from the institutional domain, such as being in a leadership position, may not be relevant for this age group. On the other hand, a negative association with general satisfaction, for example, might be interpreted in the context that narcissism peaks in adolescence and only starts to decline in adulthood (Brummelman, Thomaes, & Sedikides, 2016). Younger people may already (or still) have a high sense of entitlement and strive for status, but are in a life phase where these things typically only start to become relevant and attainable. Thus, there might be a dissociation between what they feel entitled to have, but for rather pragmatic reasons can hardly have yet.

Following this logic, it seems plausible that many of the associations found here are either only present in middle adulthood or are driven by this effect. Again, when turning to developmental tasks in this life phase, people are faced, for example, with relating oneself to one's spouse and reaching and maintaining satisfactory performance in one's career. While in early adulthood some things desired by narcissistic individuals are not yet attainable, they become so in middle adulthood. In this context, it might be that previous dissatisfaction is replaced by increases in happiness, self-esteem, and work satisfaction for those people high in narcissistic admiration, while the opposite might be true for people high on narcissistic

rivalry. This is also corroborated by research showing that income-related satisfaction is more relevant for persons in middle adulthood (F. Cheung & Lucas, 2015). Of course, all of these life-phase-specific findings should be regarded as completely exploratory and future work is needed to replicate and extend them.

Limitations and future directions

While the present study has shed light on longitudinal associations of narcissism and provides important implications for future studies, there are certain caveats. First of all, it is notable that for the majority of outcomes studied here, no cross-lagged associations were found. That is, although this study goes beyond existing research by taking a two-dimensional approach to narcissism and uses a longitudinal population-representative sample, it is possible that a time period of two years is not enough for some consequences of narcissism to manifest. One reason for this may be the relatively high stability of the outcomes over a two-year period: The mean stability was $\beta_{\text{mean}} = .65$ and in the cases of marriage, divorce, job prestige, and income the stability was even $\geq .89$, leaving very little variance to be explained. This means that variability in 2013 explains nearly all variability in 2015 for some outcomes and, thus, makes it very difficult for narcissism to have longitudinal associations. Therefore, future studies should take an even longer-term perspective to be able to investigate outcomes that are stable and may change more slowly than others.

Additionally to this longer-term perspective, future studies may address the issues of effect size attenuation introduced by using short scales and one-item measures. That is, although we relied on short but well validated measures of personality and outcomes, it is still possible that lower reliability inherent to short(er) scales or single-item measures attenuated relations of narcissism with the outcomes. Ideally, future studies will use longer measures of personality traits as well as outcomes while also employing a representative, longitudinal design as we have done here.

Another concern regarding the interpretation of our results is the magnitude of the effect sizes. All associations presented in this research can be considered of small magnitude. The small absolute magnitude of the associations does, however, not mean that they are trivial. Previous research (Damian, Su, Shanahan, Trautwein, & Roberts, 2015; Roberts et al., 2007) has shown the effects of variables such as socioeconomic status or parental income, which are often intuitively regarded as impactful, are similar or even smaller than those reported here. Even small effect sizes can have a significant impact on peoples' lives (Damian et al., 2015; Roberts et al., 2007). One way to show this is to translate the effects sizes into their impact on more tangible outcomes such as, for instance, income. In the present study, the cross-sectional unstandardized regression coefficient of narcissistic admiration on log-transformed income were .10 and .12 in 2013 and 2015, respectively. This translates to a 10–12% increase in income for having a 1-point higher score in narcissistic admiration. Similarly, the association of narcissistic admiration and rivalry on the likelihood of being in a

leadership position or registered unemployed were small in terms of their correlation (.07–.15), but when looking at these association in terms of their odds ratios, this translates to being 70% more likely to be unemployed (associations with rivalry in 2013) or being 41–49% more likely to be in a leadership position (associations with admiration in 2015 and 2013, respectively).

Another issue not addressed in the present study is the role that moderating processes, such as life events, play for possible longitudinal associations of narcissism. Following the concept of trait activation (Tett & Guterman, 2000), behavioral expression of a trait (e.g., narcissism) requires arousal by trait-relevant cues in order for the trait to be expressed and have the opportunity to influence outcomes. As outlined in the NARC, ego-threatening life events (e.g., loss of job), for example, might more strongly activate the antagonistic features of grandiose narcissism (i.e. antagonistic self-defense), which can then lead to maladaptive outcomes (e.g., relationship problems). Thus, future studies should more closely investigate how life events might moderate the relationship between narcissism and outcomes (e.g., stronger associations of narcissism in individuals who lost a job) through mediating microprocesses (e.g., more antagonistic behavior). Finally, as with many large-scale panel studies, we relied on self-report measures for both the personality variables and the outcomes. It is thus difficult to disentangle how personality might have influenced the reporting of the outcomes investigated here. In future studies, this should be complemented by other-reports and other less subjective measures.

In sum, the present research highlights the importance of studying grandiose narcissism as a two-dimensional construct, while paying particular attention to differences in residualized and non-residualized associations and their conceptual meaning, in populations that are diverse and if possible representative of the broader population, and with outcomes that have relevance to the population studied.

Data Accessibility Statement

Due to strict provisions of German data protection law, we cannot make the data publicly available. However, the data are available from the German Institute for Economic Research/German Socio-economic Panel Study (for requests, please contact soepmail@diw.de). The scientific use files of the data with anonymous microdata are made available free of charge to universities and research institutes for research and teaching purposes. Code for all analyses performed in this manuscript is accessible at osf.io/zj79r/?view_only=3cf19e03cf1b4475aaf4bb620a9a273f. http://www.diw.de/documents/dokumentenarchiv/17/diw_01.c.88926.de/soep_application_contract.pdf. For further information the SOEPhotline at either soepmail@diw.de or +49 30 89789-292 can be contacted.

Notes

¹ While all other variables were assessed in 2013 and 2015, self-esteem was assessed in 2012 and 2015.

² Please note that we are not investigating narcissism development, but are interested in the longitudinal

associations narcissism has with specific outcomes. In order to adequately address the development of narcissism, more time points over a longer period of time are needed.

³ For additional results controlled for age, sex, and education and as well as for separate results by age group, please see Tables S2 and S3. Results for the NARQ-S total score instead of for Admiration and Rivalry separately can be found in Table S6/S7.

Additional File

The additional file for this article can be found as follows:

- **Supplementary material.** The supplementary material file contains descriptive statistics and additional results as mentioned in the main article. DOI: <https://doi.org/10.1525/collabra.248.s1>

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- Drafted and/or revised the article: all authors
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