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Development of Narcissism Across the Life Span: A Meta-Analytic Review of Longitudinal Studies

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This meta-analytic review investigated the development of narcissism across the life span, by synthesizing the available longitudinal data on mean-level change and rank-order stability. Three factors of narcissism were examined: agentic, antagonistic, and neurotic narcissism. Analyses were based on data from 51 samples, including 37,247 participants. As effect size measures, we used the standardized mean change *d* per year and test–retest correlations that were corrected for attenuation due to measurement error. The results suggested that narcissism typically decreases from age 8 to 77 years (i.e., the observed age range), with aggregated changes of $d = -0.28$ for agentic narcissism, $d = -0.41$ for antagonistic narcissism, and $d = -0.55$ for neurotic narcissism. Rank-order stability of narcissism was high, with average values of .73 (agentic), .68 (antagonistic), and .60 (neurotic), based on an average time lag of 11.42 years. Rank-order stability did not vary as a function of age. However, rank-order stability declined as a function of time lag, asymptotically approaching values of .62 (agentic), .52 (antagonistic), and .33 (neurotic) across long time lags. Moderator analyses indicated that the findings on mean-level change and rank-order stability held across gender and birth cohort. The meta-analytic data set included mostly Western and White/European samples, pointing to the need of conducting more research with non-Western and ethnically diverse samples. In sum, the findings suggest that agentic, antagonistic, and neurotic narcissism show normative declines across the life span and that individual differences in these factors are moderately (neurotic) to highly (agentic, antagonistic) stable over time.

Public Significance Statement

This meta-analytic review suggests that people's level of narcissism typically declines across the life course. The aggregated changes from childhood to old age were of small to medium size. The results also indicated that the rank-order stability of narcissism is high, even across long periods, supporting the conclusion that narcissism should be considered a personality trait. The findings have important implications given that high levels of narcissism influence people's lives in many ways, both the lives of the narcissistic individuals themselves and, maybe even more, the lives of the people whom they encounter.

Keywords: narcissism, life span, longitudinal, systematic review, meta-analysis

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Researchers have long been interested in questions about the development of narcissism in childhood, adolescence, and adulthood. For example, do adolescents show particularly high levels of narcissism (relative to other age groups), and do narcissistic tendencies slowly decrease as people mature and go through life? How stable are interindividual differences in narcissism over time? In other words, do individuals with relatively high (or low) narcissism at one stage of life have relatively high (or low) narcissism at a later stage of life? Yet, despite strong interest in these questions, the field has not come to an agreement about the development of narcissism. One reason is that few studies focus explicitly on these questions, even if the number of studies that provide relevant data is larger (see below for information on the studies included in the present meta-analytic review). Another reason is that for a long time, researchers

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did not distinguish between different dimensions of narcissism, which may have contributed to an inconsistent pattern of findings.

In recent years, three-factor models of narcissism have been described that help to better understand the key dimensions of narcissism (Back, 2018; Crowe et al., 2019; Krizan & Herlache, 2018). Specifically, there is an emerging consensus that three factors—agentic, antagonistic, and neurotic narcissism—can be distinguished, corresponding to the trifurcated model of narcissism (Miller et al., 2017; Weiss et al., 2019). Agentic narcissism is characterized by the need for admiration, feelings of grandiosity and superiority, assertiveness, leadership, and approach motivation (Back & Morf, 2018; Miller et al., 2021). Agentic narcissism leads to fewer interpersonal problems compared to the other factors of narcissism. Antagonistic narcissism includes aspects such as arrogance, exploitativeness, deceitfulness, entitlement, callousness, and low empathy. Thus, this factor captures the disagreeable and antisocial facets of narcissism. Finally, neurotic narcissism is characterized by emotional dysregulation, hypersensitivity, and shame proneness (Miller et al., 2021). All three factors are dimensional constructs that allow us to describe the distribution of these narcissistic characteristics in the general population.

The three-factor model also helps to better understand the similarities and differences between the concepts of grandiose and vulnerable narcissism (Miller et al., 2011). Whereas grandiose narcissism comprises the factors of agentic and antagonistic narcissism, vulnerable narcissism combines the factors of neurotic and antagonistic narcissism (Back & Morf, 2018; Miller et al., 2021; Weiss et al., 2019). Thus, grandiose and vulnerable narcissism converge in the antagonistic component, but they differ in whether the agentic or the neurotic component shapes the narcissistic attributes of the individual. In addition, the three-factor model helps to better understand the relation between narcissism and self-esteem (i.e., people's subjective evaluation of their worth as a person; Donnellan et al., 2011). Whereas agentic narcissism shows a medium-sized positive correlation with self-esteem (at about .30), antagonistic narcissism shows a small negative correlation with self-esteem (at about −.10 to −.20), and neurotic narcissism shows a large negative correlation (at about −.60; Back et al., 2013; Crowe et al., 2019; Weiss et al., 2019). Thus, empirical data show that the three factors of narcissism are related in quite distinct ways to self-esteem. Moreover, the constructs of self-esteem and narcissism can be conceptually distinguished because having high self-esteem is compatible with prosocial attitudes and does not necessarily imply that individuals believe that they are superior to others (Brummelman et al., 2016; Orth & Luciano, 2015; Paulhus et al., 2004).

In the present research, we therefore focused on the three factors of agentic, antagonistic, and neurotic narcissism. As the goal was to gain a comprehensive picture of stability and change in narcissism across the life span, we examined both mean-level change and rank-order stability, which are the two central concepts of stability in personality constructs (Bleidorn et al., 2021; Roberts et al., 2008). Mean-level change refers to a change in the average level of a construct across time (e.g., over a period of 1 year, based on repeated assessments of the same sample). When mean-level change is mapped on age, it is also referred to as normative change. Mean-level change is typically expressed as standardized mean change in the metric of Cohen's *d* (Roberts et al., 2006). Rank-order stability refers to the stability of interindividual differences in a construct across time (again, e.g., over a period of 1 year, based on repeated assessments of the same sample). Rank-order stability is typically expressed in the metric of correlations (Roberts & DelVecchio, 2000).

A better understanding of stability and change in narcissism across the life span is important given that research suggests that narcissism predicts both positive and negative outcomes in many life domains. With regard to positive outcomes, this includes initial peer popularity (Back et al., 2010; Leckelt et al., 2015), dating success (Wurst et al., 2017), and leadership emergence in work groups (Härtel et al., 2023), as well as the actual attainment of leadership positions (Leckelt et al., 2019) and higher managerial ranks (Wille et al., 2019). With regard to negative outcomes, this includes decreases in social acceptance (Leckelt et al., 2015; Paulhus, 1998), conflicts in romantic relationships (Campbell et al., 2006; Wurst et al., 2017), and problems in the work domain (Back, 2018; Grijalva & Newman, 2015). Moreover, research suggests that narcissism is a predictor of stressful life events (Orth & Luciano, 2015). These negative outcomes do not only threaten the well-being of narcissistic individuals themselves but also the well-being of individuals with whom they interact, such as family, children, partners, friends, coworkers, supervisors, and employees. Interestingly, positive and negative outcomes of narcissism are already visible in childhood (for a review, see Thomaes et al., 2013). For example, research suggests that childhood narcissism is related to popularity (Poorthuis et al., 2021) and to the emergence of leadership in the classroom (Brummelman et al., 2021), but also to aggression and conduct problems (Ang et al., 2010; Barry et al., 2003; Bukowski et al., 2009; Thomaes, Bushman, et al., 2008) and reduced well-being (Barry & Malkin, 2010).

Mean-Level Change in Narcissism

A number of theoretical perspectives suggest that average levels of narcissism tend to decrease across the life span (for reviews, see Hill & Roberts, 2018; Thomaes et al., 2018). A first perspective is provided by the social investment model of personality development (Roberts et al., 2008). This model suggests that individuals invest in the social roles that they take over (e.g., in the relationship domain, at work, and more broadly in the society) and that people's personality develops in the direction of characteristics that help them to function well in these roles. According to the model, these processes lead to increases in mature personality traits, including agreeableness, conscientiousness, and emotional stability, which has been summarized as the maturity principle of personality development (Roberts et al., 2008). The maturity principle has been supported by a substantial body of research, including meta-analyses, in particular with regard to young and middle adulthood (Bleidorn et al., 2022; Roberts et al., 2006). Given that narcissism is considered as antithetical to maturity (particularly the antagonistic and neurotic factors of narcissism), the social investment model suggests that narcissism should decrease across the life span, especially during young and middle adulthood.

A second theoretical perspective is provided by the socio-emotional selectivity theory (Carstensen et al., 1999). According to this theory, as people become older, they change their focus from the acquisition of new personal resources and the willingness to encounter emotional challenges to the protection of emotional stability and close personal relationships. Recent theoretical accounts of the motivational core of narcissism emphasize the striving for social status, which corresponds to a strong focus on acquiring personal resources (Grapsas et al., 2020; Zeigler-Hill et al., 2018). Thus, based on socioemotional selectivity theory, one would expect that people's striving for social status weakens with age and, consequently, that narcissism tends to decline.

A third theoretical perspective is that there could be age-related changes in the maladaptiveness of narcissism (Chopik & Grimm, 2019; Hill & Roberts, 2018; Thomaes et al., 2018). Specifically, narcissistic tendencies might be relatively adaptive in adolescence and emerging adulthood, which are developmental periods that are characterized by a larger degree of self-focused attention and search for identity (Kroger, 2007; Luyckx et al., 2013). Also, adolescents tend to experience illusions of omnipotence and personal uniqueness—phenomena related to grandiose aspects of narcissism (Thomaes et al., 2018). Later, when individuals make the transition into adult social roles that involve important individual and social responsibilities (e.g., the roles of employee, partner in a committed romantic relationship, and parent), narcissism is assumed to become more maladaptive (Chopik & Grimm, 2019). If narcissism becomes maladaptive in the transition from adolescence to adulthood, and if this was already true in the evolutionary past of humans, genetic factors might contribute to the age-related normative decline of narcissism.

A fourth perspective is provided by the reality principle model (Foster et al., 2003). This model posits that the likelihood of failures increases as individuals go through childhood, adolescence, and young adulthood. Consequently, individuals will make more and more experiences of failure compared to earlier developmental stages. For example, in the transition from adolescence to adulthood, many individuals experience failures and rejections with regard to romantic relationships, admission to educational institutions, and selection for desired jobs (Foster et al., 2003). The reality principle model assumes that the age-related accumulation of experiences of failure accounts for decreasing levels of narcissism. In sum, several theoretical perspectives suggest that narcissism declines as individuals go through life. Nevertheless, although the perspectives focus on different mechanisms that could account for a decline, it should be noted that the perspectives are not necessarily mutually exclusive.

Several cross-sectional studies have tested for age differences in narcissism. Overall, these studies suggested that older adults show lower levels of narcissism compared to younger adults and adolescents (Barlett & Barlett, 2015; Foster et al., 2003; Kawamoto et al., 2020; Weidmann et al., 2023; Wilson & Sibley, 2011). Across samples, the effect sizes of the observed differences between adolescence and old age corresponded roughly to about one half to a full standard deviation (Foster et al., 2003; Wilson & Sibley, 2011). Yet, a problem is that cross-sectional studies cannot distinguish between developmental effects and cohort differences (Baltes et al., 1979). Consequently, the observed pattern of age differences could be biased and provide a misleading portrait of the true developmental trajectory. For example, even if in a cross-sectional study middle-aged adults have substantially lower levels of narcissism compared to emerging adults, participants who were in middle adulthood at the time of the study may have been less narcissistic all along because of differing sociocultural conditions or differing parenting environments when they were young. In other words, cross-sectional data give only a snapshot of age differences at a given time point, but it is possible that different cohorts included in the sample follow different trajectories.

Thus, longitudinal studies are needed to gain more valid insights into normative change in narcissism. As noted earlier, few longitudinal studies focused explicitly on mean-level change in narcissism. Some of these studies suggested that narcissism declines with age. Specifically, Stronge et al. (2018) examined multiwave data from a large sample, based on items from the Psychological Entitlement Scale (Campbell et al., 2004). Their results suggested that narcissistic entitlement decreased by about 0.75 *SD*s from age 18 to 74 years. Wetzel et al. (2020) used longitudinal data from a sample of college students, who had been reassessed in midlife. Both assessments were conducted with the Narcissistic Personality Inventory (NPI; Raskin & Terry, 1988). From age 18 to 41 years, the overall narcissism score decreased by about 0.80 *SD*s, although the effect size was smaller for the leadership and vanity facet of the measure. In contrast, a longitudinal study by Chopik and Grimm (2019) found a more complex pattern of findings, based on data from several samples (some of which were also used by Carlson & Gjerde, 2009; Cramer, 2011; Edelstein et al., 2012). Whereas hypersensitivity (a measure related to neurotic narcissism) showed stronger declines from age 13 to 77 years, willfulness (a measure related to antagonistic narcissism) declined only slightly, and autonomy (a measure related to agentic narcissism) increased across the observed age range. Using longitudinal data from two cohorts, Grosz et al. (2019) did not observe any mean-level change in agentic narcissism from age 19 to 30 years (other factors of narcissism were not assessed in the study). In sum, the pattern of results found in longitudinal studies is inconsistent. In such situations, meta-analytic methods are ideal to gain a more robust picture of the evidence, especially if the systematic search of the literature yields a larger number of studies that provide relevant data.

In the meta-analysis, we will also test for moderators. First, we will examine gender, which is a key demographic variable. Research on mean-level differences indicates that men are more narcissistic than women, even if the overall effect size is small with $d = 0.26$ (Grijalva et al., 2015). Regarding facets of narcissism, the largest gender difference emerged for exploitativeness/entitlement (a facet related to antagonistic narcissism), whereas the difference was smaller for leadership/authority, close to zero for grandiosity/exhibitionism (facets related to agentic narcissism), and close to zero for vulnerable narcissism (which is related to neurotic narcissism). Despite the small to nonexistent gender differences in mean levels, it is possible that men and women differ significantly in mean-level change. For example, if individuals are exposed to gender-specific cultural norms about appropriate self-perceptions, behaviors, and social roles, this could lead to gender-specific patterns of mean-level change in narcissism. Yet, in a recent study with a large cross-sectional data set, gender did not systematically moderate age differences in narcissism (i.e., interactions between gender and age were generally very small and inconsistent; Weidmann et al., 2023), which speaks against gender differences in mean-level change. Nevertheless, the heterogeneity of gender differences across different inventories and subscales (Grijalva et al., 2015) suggests that it is important to test for gender differences in change in the three factors of narcissism.

Second, we will test for the effects of birth cohort. Do more recent generations differ in patterns of mean-level change compared to earlier generations? This question is important for methodological reasons because if generational differences in changes are present, then any conclusions from data on mean-level change (as in the present research) must be qualified by noting the specific generation for which they are valid. In addition, the question is relevant also for theoretical reasons because researchers have debated whether there have been generational increases in narcissism over the past decades (Grubbs & Riley, 2018). On the one hand, several studies suggested that mean levels of narcissism have risen over the generations born in the 1970s to 1990s (Twenge & Foster, 2008, 2010; Twenge et al., 2008), which led to the suggestion that these cohorts should be called "Generation Me" (Twenge, 2014). Researchers have explained the possible generational increase in narcissism by referring to sociocultural changes in Western countries, such as an increase in individualism, a decrease in empathy, increasing avenues for self-presentation in social media, and grade inflation in educational systems (Grubbs & Riley, 2018; Twenge et al., 2008). Moreover, researchers have hypothesized that societal efforts to raise children's self-esteem have been counterproductive, leading to a rise in narcissism rather than an improvement in genuine self-worth (Twenge & Foster, 2010). On the other hand, several studies have questioned the existence of generational increases in narcissism (Trzesniewski & Donnellan, 2010; Trzesniewski et al., 2008a, 2008b), suggesting that narcissistic tendencies may even have declined in recent birth cohorts (Wetzel et al., 2017). Still, the debate about generational increases in mean levels of narcissism suggests that it is important to test for birth cohort effects on mean-level change because cohort differences in change could account for cohort differences in mean levels of a construct.

Third, we will test for differences between clinical and nonclinical samples. Given the clinical relevance of narcissism, it is possible that a larger number of studies examined data from clinical samples (i.e., samples recruited in clinical settings or samples recruited because of clinically relevant symptom levels). If mean-level change of narcissism does not differ significantly between clinical and nonclinical samples, then including clinical samples in the meta-analysis will increase the number of studies and, consequently, increase the power of the analyses and robustness of the findings. Conversely, if the clinical status of the samples moderates the effect sizes, then conclusions about the normative development of narcissism in the general population should be based on findings from the set of nonclinical samples included in the meta-analytic data set.

Rank-Order Stability of Narcissism

In this research, we will also synthesize the available data on the rank-order stability of narcissism. As noted above, rank-order stability is typically expressed in the metric of correlations and refers to the degree to which individual differences in a construct are maintained over time. Research suggests that the rank-order stability of many personality characteristics increases with age (Fraley & Roberts, 2005; Roberts & DelVecchio, 2000). For example, meta-analytic findings suggest that the rank-order stability of the Big Five personality traits increases in childhood, adolescence, and young adulthood, reaching a plateau at about age 40 (Bleidorn et al., 2022). At the plateau, stability was estimated at approximately .75, based on an average time lag of about 5 years. Some studies also suggested that rank-order stability of personality characteristics might be lower again in old age, after having reached a peak in middle adulthood (Lucas & Donnellan, 2011; Specht et al., 2011; Trzesniewski et al., 2003). However, in the meta-analysis by Bleidorn et al. (2022), which covered a relatively large number of data points until about age 80 years, rank-order stability did not systematically decline in old age.

Little research is available regarding the rank-order stability of narcissism. In a study with college students who were assessed twice with the NPI at an interval of 3 months, rank-order stability was .81 (del Rosario & White, 2005). Research with Mexican-origin adolescents, who were assessed twice across 2 years, showed a stability of narcissism at about .60 (Wetzel & Robins, 2016). In a study with two adult samples who were assessed with the NPI across 6 and 18 months, respectively, stability ranged from .81 to .84 (Orth & Luciano, 2015). In the study by Chopik and Grimm (2019), in which participants were assessed across many decades, rank-order stability ranged from .37 to .52. Finally, a study with two large samples assessed across 2 and 6 years, respectively, resulted in stability coefficients ranging from .72 to .85 (Jung et al., 2024).

When assessing the rank-order stability of a psychological construct, it is important to account for the time lag between the assessments. Theory suggests that rank-order stability decreases as the time lag increases; nonetheless, rank-order stability typically does not approach zero over long periods, but rather a nonzero asymptote that captures the enduring component of individual differences in the construct (Fraley & Roberts, 2005). In a meta-analysis, the asymptote was estimated for a number of personality constructs and corrected for unreliability in the measures (Anusic & Schimmack, 2016). For personality traits such as the Big Five, the asymptote was estimated at .83, whereas the asymptote was lower for self-esteem (.56), life satisfaction (.52), and affect (.42). Similar estimates of the long-term rank-order stability have been reported in other studies on the constructs (Donnellan et al., 2012; Fraley & Roberts, 2005; Kuster & Orth, 2013; Lucas & Donnellan, 2007; Wagner et al., 2016).

Knowledge about the rank-order stability of psychological constructs, such as narcissism, is important because it provides information about the degree to which a construct should be considered a trait. In particular, the asymptote of long-term rank-order stability provides a direct estimate of the proportion of interindividual variance that is completely stable across long periods (Fraley & Roberts, 2005). Thus, the findings from the present meta-analysis will allow us to compare the asymptotic values of agentic, antagonistic, and neurotic narcissism with each other and with the values of other personality constructs.

The Present Research

The goal of this research was to synthesize the available longitudinal data on mean-level change and rank-order stability of narcissism across the life span. Given that prior research on the factorial structure of narcissism suggests that three factors should be distinguished, corresponding to the trifurcated model of narcissism (Miller et al., 2017; Weiss et al., 2019), we focused on the three factors of agentic, antagonistic, and neurotic narcissism.

Regarding mean-level change, we examined how average levels of narcissism change across the life span. Specifically, we estimated the overall rate of change in longitudinal studies (standardized in the metric of Cohen's d per year) and tested whether the rate of change varied as a function of age. Moreover, we tested whether gender, birth cohort, and the clinical status of the sample moderated the effect sizes.

Then, we estimated the average rank-order stability of narcissism and tested whether rank-order stability varied as a function of age. As an effect size measure, we used test–retest correlations that were corrected for attenuation due to measurement error (i.e., estimates of the true rank-order stability). Again, we tested whether gender, birth cohort, and clinical status of the sample moderated the effect sizes. In addition, we examined the influence of the time lag between assessments. Specifically, we tested whether the findings on average rank-order stability and on age differences in rank-order stability held when controlling for time lag. Moreover, we examined how rank-order stability varied as a function of time lag, by testing whether stability coefficients followed an exponential decay function as suggested by prior research (Fraley, 2002; Fraley & Roberts, 2005; Kuster & Orth, 2013).

The present research advances the field by yielding robust insights into the life span trajectory of narcissism and into the stability of individual differences in narcissism (no prior meta-analysis or systematic review is available on these topics). Important strengths of the present research consist in (a) the distinction between the three factors of agentic, antagonistic, and neurotic narcissism; (b) the use of longitudinal data; (c) the inclusion of samples across the life span, ranging from childhood to old age; (d) the analysis of both mean-level change and rank-order stability; (e) the test of moderators, which provide information about the generalizability of the findings; and (f) the meta-analytic approach, which increases the robustness of the conclusions.

Method

The present research used anonymized data and therefore was exempt from approval by the Ethics Committee of the first author's institution (Faculty of Human Sciences, University of Bern), in accordance with national law.

Transparency and Openness

We report how we determined our sample size, all data exclusions (if any), all manipulations, and all measures in the study, and we follow the Journal Article Reporting Standards and Meta-Analysis Reporting Standards (Appelbaum et al., 2018). Data, code, and materials are available on the Open Science Framework at https://osf.io/eyzfc/. The present research was not preregistered.

Selection of Studies

To search for relevant studies, we used three strategies. First, we searched the database APA PsycInfo. The search was conducted on July 2, 2021, and covered all entries in APA PsycInfo beginning in 1806. We searched for records that included the term narcissis* in subject headings (i.e., the index terms used in APA PsycInfo), text words (i.e., title, abstract, key concepts, and table of contents), and the field "tests and measures." The asterisk allowed for the inclusion of alternative word endings of the search term (e.g., narcissism, narcissist, narcissistic). To ensure that the search will likely yield longitudinal studies, we employed two strategies. In Search Strategy 1, we restricted the search by the limitation option "Longitudinal Study." In Search Strategy 2, we operationalized "longitudinal" by including the search terms longitudinal*, multi-wave*, stabilit*, prospective*, follow-up*, and psychological development. After accounting for the overlap between the two strategies, the search resulted in a total of 743 potentially relevant records. Supplemental Table S1 documents the search terms and the resulting number of records from the search in APA PsycInfo.

Second, we sent a request for unpublished studies via electronic mailing lists of six scientific societies in the fields of social–personality psychology (Society for Personality and Social Psychology, European Association of Personality Psychology), developmental psychology (Gerontological Society of America, European Society for Research in Adult Development), and industrial–organizational psychology (Division Occupational Health Psychology of the American Psychological Association, Section Organizational Behavior of the Academy of Management). We requested unpublished articles, preprints, articles in press, theses, or any other form of gray literature or unpublished longitudinal data. This strategy resulted in two additional studies. We also received references to potentially relevant studies; however, all of these were already included in the APA PsycInfo search described above.

Third, we examined the reference sections of narrative reviews on the topic (Hill & Roberts, 2011, 2018; Thomaes et al., 2009, 2013, 2018). This strategy did not result in further potentially relevant studies. Thus, overall, there were 745 potentially relevant studies.

Studies were included in the meta-analysis if the following criteria were fulfilled: (a) the report was available in English or German language; (b) the study was empirical–quantitative; (c) the study used a longitudinal study design (i.e., it included two or more assessments of the same sample); (d) data were available for at least two assessments that were separated by 6 months or more (note that if a study included more than two assessments, each interval coded was at least 6 months)[1]; (e) narcissism was assessed by self-report, informant report, or observer report (i.e., implicit measures of narcissism were not eligible); (f) the measure of narcissism was identical across assessments (i.e., with regard to number of items, item wording, response scale, etc.); (g) the study was not an intervention study (we would have used information from control groups if the control group did not undergo any alternative treatment; yet, none of the samples included was a control group of an intervention study); (h) effect size information was not inconsistent across abstract, text, tables, or figures; and (i) sufficient information was given to compute effect sizes.

Coding of Studies

In the first step of the coding procedure, all results from the APA PsycInfo search were assessed by two coders. In this step, the pool of coders consisted of four master's students. The first 100 records from the APA PsycInfo search were used for training the coders. Specifically, each article was first assessed independently by two coders, who then reviewed the codings together; the procedure was supervised by the first author of the present research. All questions and disagreements were discussed until a consensus was reached. Importantly, the coded data from these 100 records were included in the meta-analytic data set (thus, even if these records were used for training, the data of eligible studies were not discarded from the data set). Next, the remaining records were coded. These codings were used for assessing the interrater agreement. Again, each article was coded independently by two coders. The interrater agreement was

[1] The minimum time lag of 6 months was selected consistent with the procedures used in other recent meta-analytic reviews of developmental changes (e.g., Bleidorn et al., 2022; Bühler et al., 2021; Orth et al., 2018).

good, with an average agreement of $\kappa = .78$ for inclusion versus exclusion, $\kappa = .85$ for categorical variables, and $r = .96$ for continuous variables. After assessing the interrater agreement, all questions and disagreements were discussed until a consensus was reached.

In the first step of the coding procedure, only data from the first two waves of each study were coded. Yet, many of the studies used multiwave longitudinal designs. Therefore, in the second step of the coding procedure, the second author of the present research coded all effect size data that were available for additional (i.e., third, fourth, etc.) waves of the studies.[2] Moreover, in the first step of the coding procedure, some studies could not be included because they did not provide sufficient information on effect sizes, although they fulfilled all other inclusion criteria. Also, some studies provided data for only one, but not both, of the relevant effect sizes (i.e., mean-level change or rank-order stability). Therefore, in the second step of the coding procedure, we contacted the authors of these studies with a request for providing the required information. Of 22 requests, 13 authors responded, and 10 authors were able to provide the requested data. The coding procedures led to the inclusion of 40 reports, which provided data on 51 samples. Supplemental Figure S1 shows the Preferred Reporting Items for Systematic Reviews and Meta-Analyses flow diagram of the search and selection procedures (Page et al., 2021).

We coded the following data: year of publication, publication type, sample type, sample size, country in which sample was collected, percentage of female participants, ethnicity, measure used, type of measure, reliability of measure, year of Time 1 assessment, mean age of participants at Time 1, standard deviation of age at Time 1, time lag between assessments, and effect size information. If year of Time 1 assessment was not reported and not available from another article or the authors of the article upon request, we estimated it using the assumption that studies are published on average 3 years after completion of data collection, that is, based on the following formula: year of Time 1 assessment = publication year − 3 years − interval between first and last assessment (for a similar procedure, see Orth et al., 2018). If studies did not report the mean age of participants but valid indicators of age were given, we used this information to estimate age. For example, if a study reported that participants were adolescents in seventh grade, we estimated the mean age of participants as 13 years (thus, the general rule was adding the value of 6 to the grade). Information on the reliability of the measures was required for studies that provided information on rank-order stability to compute disattenuated test–retest correlations (see below). For one of these studies, reliability was not reported; given that the study employed established measures (i.e., the NPI and the Narcissistic Admiration and Rivalry Questionnaire), we used reliability estimates from the literature on these measures (Back et al., 2013; Raskin & Terry, 1988).

As noted above, the present research focused on the factors of the trifurcated model of narcissism, that is, agentic, antagonistic, and neurotic narcissism (Miller et al., 2017; Weiss et al., 2019). For each of the measures included in the meta-analytic data set, we assessed whether it could be clearly assigned to one of the factors or whether it should be assigned to a mixture of factors. For assessing the measures, we used a rational approach based on inspecting the items of the measures, supported by empirical data on the factors captured by measures of narcissism (Crowe et al., 2019; Wright & Edershile, 2018). For measures with a mixture of factors (e.g., a mixture of agentic and antagonistic narcissism), we assessed which was the predominant factor and which was the less dominant factor. Table 1 documents the assignment of measures to factors. For the main analyses, measures were assigned to the factor that was clearly (i.e., no mixture) or at least predominantly (i.e., mixture with a less dominant factor) assessed by the measure to fully capitalize on the meta-analytic data set. In sensitivity analyses, the analyses were repeated without measures that included a mixture of factors to assess whether the results replicated for the reduced set of measures.

Given that the present research included samples from childhood, adolescence, and adulthood, it is important to note that narcissism can be measured reliably already in childhood. More precisely, studies that developed measures of narcissism in children used samples as young as 8 years (e.g., Grapsas et al., 2021; Thomaes, Stegge, et al., 2008). In fact, the youngest age included in the present meta-analytic data set was 8 years. As shown in Table 1, three of the measures covered in the present research were measures that had been developed specifically for children (i.e., Ang & Raine, 2009; Barry et al., 2003; Thomaes, Stegge, et al., 2008).

Meta-Analytic Procedure

Data were analyzed using R, Version 4.2.2 (R Core Team, 2022); the metafor package, Version 3.8-1 (Viechtbauer, 2010); the psych package, Version 2.2.9 (Revelle, 2022); and the ggplot2 package, Version 3.4.0 (Wickham, 2016). In the meta-analytic computations, we used random-effects models (for estimating weighted mean effect sizes) and mixed-effects metaregression models (for testing moderators), following recommendations by Borenstein et al. (2009) and Raudenbush (2009). We accounted for the multilevel structure of the data (i.e., multiple effect sizes nested within samples) by using the "rma.mv" function in metafor (Viechtbauer, 2010). Heterogeneity was estimated with restricted maximum likelihood estimation, as recommended by Viechtbauer (2005, 2010).

As an effect size measure of mean-level change, we used the standardized mean change d per year, denoted as d_{year} (Orth et al., 2018). We first computed the standardized mean change by subtracting the mean at the first assessment from the mean at the second assessment and dividing this difference by the standard deviation at the first assessment (Morris & DeShon, 2002). Thus, computing standardized mean change yielded d values (Cohen, 1988), with positive values indicating an increase in narcissism and negative values indicating a decrease in narcissism. Next, we set the d value in relation to the observed time interval, by dividing it by the length of the time lag between assessments (in years). Thus, the effect size measure used is a change-to-time ratio (corresponding to a slope), with the unit d per year. The within-study variance of d is given by Equation 1:

[2] Specifically, for mean-level change, effect sizes were coded for sequential intervals (e.g., in a four-wave study, change was coded between Waves 1 and 2, between Waves 2 and 3, and between Waves 3 and 4). For rank-order stability, test–retest correlations were coded for all possible pairs of assessments (e.g., in a four-wave study, the correlations were coded between Waves 1 and 2, Waves 1 and 3, Waves 1 and 4, Waves 2 and 3, Waves 2 and 4, and Waves 3 and 4). The reason for using different procedures for the two types of effect sizes was that for mean-level change, additional effect sizes would have been fully redundant with the effect sizes for sequential intervals (e.g., the change between Waves 1 and 3 directly depends on the changes between Waves 1–2 and Waves 2–3). In contrast, the test–retest correlation between Waves 1 and 3 does not directly depend on the test–retest correlations between Waves 1–2 and Waves 2–3. For further illustration, see the data file available on the Open Science Framework at https://osf.io/eyzfc/.

Table 1
Assignment of Measures to Factors of Narcissism

Measure	Factor
Ad hoc scale used in Bell et al. (2019)	Antagonistic
Antisocial Process Screening Device, Narcissism subscale (Frick & Hare, 2001)	Agentic (+ Antagonistic)
California Adult Q-Sort (Wink, 1992)	
Autonomy subscale	Agentic
Hypersensitivity subscale	Neurotic (+ Antagonistic)
Willfulness subscale	Antagonistic
Childhood Narcissism Scale (Thomaes, Stegge, et al., 2008)	Agentic
Dark Triad Scale, Narcissism subscale (Jones & Paulhus, 2014)	Agentic
Diagnostic Interview for Narcissism (Gunderson et al., 1990)	
Grandiosity subscale	Agentic
Interpersonal Relations subscale	Antagonistic
Mood States subscale	Neurotic
Reactiveness subscale	Neurotic (+ Antagonistic)
Social/Moral Adaptation subscale	Antagonistic
Dimensional Assessment of Personality Pathology, Narcissism subscale (Livesley & Jackson, 2009)	Agentic
Dirty Dozen Scale, Narcissism subscale (Jonason & Webster, 2010)	Agentic
Hypersensitive Narcissism Scale (Hendin & Cheek, 1997)	Neurotic
Levenson Self-Report Psychopathy Scale, Narcissism factor (Levenson et al., 1995)	Antagonistic
Millon Clinical Multiaxial Inventory, Narcissism subscale (Millon, 2009)	Agentic (+ Antagonistic)
Narcissistic Admiration and Rivalry Questionnaire (Back et al., 2013)	
Admiration subscale	Agentic
Rivalry subscale	Antagonistic
Narcissistic Personality Inventory (Raskin & Terry, 1988)	
Total Scale	Agentic (+ Antagonistic)
Entitlement subscale (Wetzel et al., 2020)	Antagonistic
Leadership subscale (Wetzel et al., 2020)	Agentic
Vanity subscale (Wetzel et al., 2020)	Agentic
Admiration subscale (Grosz et al., 2019)	Agentic
Narcissistic Personality Inventory for Children, Maladaptive Narcissism subscale (Barry et al., 2003)	Agentic
Narcissistic Personality Questionnaire for Children–Revised (Ang & Raine, 2009)	
Total Scale	Agentic (+ Antagonistic)
Exploitativeness subscale	Antagonistic
Superiority subscale	Agentic
NEO-PI-R, Personality Disorder Additive Count Technique, Narcissism score (Miller et al., 2005)	Antagonistic (+ Agentic)
Personality Disorder Examination, Narcissism subscale (Loranger, 1988)	Antagonistic (+ Agentic)
Psychological Entitlement Scale (Campbell et al., 2004)	Agentic (+ Antagonistic)
Young Schema Questionnaire, Entitlement/Grandiosity subscale (Young & Brown, 1994)	Antagonistic (+ Agentic)

Note. For measures that assessed a mixture of factors, the predominant factor is shown first and the less dominant factor is shown in parentheses. Measures were assigned to the factor that was clearly (i.e., no mixture) or at least predominantly (i.e., mixture with a less dominant factor) assessed by the measure, to fully capitalize on the meta-analytic data set. In sensitivity analyses, the analyses were repeated without measures that included a mixture of factors, to assess whether the results held for the reduced set of measures. NEO-PI-R = Revised NEO Personality Inventory.

$$v_i = \frac{2(1 - r_i)}{n_i} + \frac{d_i^2}{2n_i}, \quad (1)$$

where v_i is the within-study variance in study i, d_i is the effect size d in study i, n_i is the sample size in study i, and r_i is the correlation between pre- and postscores in study i (Borenstein et al., 2009). For most effect sizes, r_i was available in the meta-analytic data set. When r_i was not available, we used the mean r_i in the data set (i.e., .483) as an estimate of the correlation between pre- and postscores (note that this estimate was used only for computing the within-study variance of standardized mean change, but not in other analyses of the present research). Given that the effect size measure d_{year} was computed by dividing d by time lag, the within-study variance of d_{year} needed to be computed by dividing the within-study variance of d by the squared time lag (Viechtbauer, 2019).

As an effect size measure of rank-order stability, we used the test–retest correlation between assessments of narcissism. Because test–retest correlations systematically underestimate the rank-order stability of a construct if the measure is not perfectly reliable (Cohen et al., 2003) and because we were interested in the true rank-order stability of narcissism, we corrected the correlations for attenuation due to measurement error. When correlations are based on assessments with the same measure, the disattenuated correlation coefficient can be computed by dividing the correlation by the reliability of the measure (Cohen et al., 2003). For the meta-analytic computations, the disattenuated correlations were converted to Fisher's z values (Borenstein et al., 2009). After the meta-analytic computations, the effect size estimates were converted back to the correlation metric. The within-study variance of the Fisher's z transformed correlation is given by Equation 2:

$$v_i = \frac{1}{n_i - 3}, \quad (2)$$

where v_i is the within-study variance in study i and n_i is the sample size in study i (Borenstein et al., 2009). Given that the disattenuated correlation was computed by dividing the correlation by the reliability of the measure, the within-study variance of the disattenuated correlation needed to be computed by dividing the within-study variance of the Fisher's z transformed correlation by the squared reliability of the measure (Viechtbauer, 2019).

Results

Description of Studies

The meta-analytic data set included 51 samples, based on 40 reports (Table 2 shows basic sample characteristics). For some of the samples, data were also reported in other articles. To ensure the independence of the samples, these articles were excluded from the meta-analytic data set. For example, the samples used in Cramer (2011), Edelstein et al. (2012), and Wink and Dillon (2008), which were excluded, were also used in Chopik and Grimm (2019), which was included. The sample used in Cramer (1998), which was excluded, was also used in Cramer (2017), which was included. The sample used in Stronge et al. (2018), which was excluded, was also used in Stronge et al. (2019), which was included. When more than one article was reported on the same sample, we selected those reports for which the most comprehensive information on sample and effect size data was available.

Sample sizes ranged from 20 to 12,550 (M = 730.3, SD = 1,858.5, Mdn = 307). In sum, the samples included 37,247 participants. Of the 51 samples, two were nationally representative, 13 were samples of college students, four were clinical samples with a personality disorder as the focal disorder, five were clinical samples with another disorder as the focal disorder, and 27 were community samples. Given the low number of clinical samples, we combined all nine clinical samples in one category (in the moderator analyses, we used this category to contrast clinical and nonclinical samples). The mean percentage of female participants was 52% (range = 0%–100%, SD = 26%, Mdn = 51%). Of the samples, 21 were from the United States, eight from Germany, six from the Netherlands, three from Switzerland, two from Canada, two from Italy, two from Poland, two from Spain, two from the United Kingdom, one from Belgium, one from China, and one from New Zealand. Thus, except for one Chinese sample, all samples were from Western cultural contexts. With regard to ethnicity, 26 of the samples were predominantly White/European ("predominantly" was defined as 80% and more), one was predominantly Asian, one was predominantly Hispanic/Latin American, 18 were mixed, and for five samples, ethnicity was unknown. Mean age at Time 1 ranged from 8.5 to 57.0 years (M = 23.1, SD = 12.8).[3] Year of Time 1 assessment ranged from 1936 to 2019 (M = 2003.9, SD = 14.9). We computed the mean year of birth using the variables year of Time 1 assessment and mean age at Time 1. The mean year of birth ranged from 1923 to 2002 (M = 1980.8, SD = 19.7). The time lag between assessments ranged from 0.50 to 64.00 years (M = 11.42, SD = 14.9, Mdn = 4.00, skewness = 1.69, kurtosis = 2.25).

Mean-Level Change in Narcissism

In this section, we examine how narcissism changes across the life span as a function of age. As noted above, we used standardized mean change d per year (i.e., d_{year}) as an effect size measure. Thus, the effect size measure was a measure of change, conceptually corresponding to the slope of a trajectory.

Effect Size Analyses

First, we computed weighted mean effect sizes in the full set of samples (Table 3, upper half). The meta-analytic estimates ranged from −0.032 to −0.015 across the three factors of narcissism, indicating that the average yearly change in narcissism was negative (i.e., a decline). For agentic narcissism, the estimate was based on a relatively large number of effect sizes (i.e., 96), whereas the number of effect sizes was lower for the other factors of narcissism. None of the weighted mean effect sizes differed significantly from zero, as indicated by the fact that zero was included in the confidence intervals. However, it is important to note that null hypothesis significance testing of mean-level change was not central in this meta-analysis (cf. Cumming, 2014; Fraley & Marks, 2007). Rather, the key goal was to gain estimates of mean-level change in agentic, antagonistic, and neurotic narcissism, based on all available information. Thus, the weighted mean effect sizes represent the best estimates for this purpose.

Then, we tested for age effects on mean-level change (Table 4). If the effect size measure d_{year} varies as a function of age, then any conclusions need to account for age-dependent changes in the slope of the narcissism trajectory. Specifically, we tested linear, quadratic, and cubic models of age effects on the effect sizes (i.e., Models 1, 2, and 3 in Table 4). For the analyses, age was mean-centered. For all factors of narcissism, none of the age effects were significant, suggesting that the rate of change in narcissism did not systematically vary over the age range covered by the samples included in the data set.

Next, we tested for moderators of mean-level change, including gender (i.e., proportion of female participants), birth cohort (i.e., mean year of birth), and clinical status of the sample (i.e., clinical vs. nonclinical). Supplemental Table S2 shows the intercorrelations among moderators. The analyses were based on mixed-effects meta-analytic models, simultaneously testing the effects of the three moderators (Table 5). Gender and birth cohort did not show significant effects for any of the factors of narcissism. In contrast, the clinical status of the sample was a significant moderator for all factors of narcissism, with regression weights ranging from −0.239 (neurotic) to −0.080 (agentic). Given that the moderator was a dichotomous variable, coded with 0 (nonclinical) and 1 (clinical), the regression weights represent the estimated difference in the effect size between nonclinical and clinical samples, with clinical samples showing larger declines in narcissism compared to nonclinical samples. Thus, the results indicated that conclusions on mean-level change in narcissism cannot be generalized across clinical and nonclinical samples. In our view, the most likely explanation for this finding is that clinical samples often consist of participants who have been recruited because they experience elevated levels of symptoms at the beginning of the study or because they are currently patients in a clinical setting. Consequently, participants in clinical samples may have a higher likelihood of decrease in narcissism due to regression to the mean and/or due to some degree of recovery.

For these reasons, conclusions about normative mean-level change in narcissism in the general population should be based on

[3] Note that for many studies, data were included for more than two waves. In the analyses, we used an age variable that reflected the age at the beginning of the interval on which the effect size was based (e.g., for an effect size based on Times 3 and 4, we used the age at Time 3). Thus, although the highest age at Time 1 was 57.0 years, the meta-analytic data set covered a broader age range. Specifically, the highest age at the beginning of an effect size interval was 72.0 years, and the highest age at the end of an effect size interval was 91.0 years.

Table 2
Descriptive Information on the Studies Included in the Meta-Analysis

Study	Sample size	Mean age at Time 1	Year of Time 1	Female (%)	Sample type	Country	Ethnicity
Barry et al. (2008)	80	10.66	2002	44	Community	United States	Mixed
Bégin et al. (2021)	370	8.49	2008	40	Clinical	Canada	
Bell et al. (2019)	453	36.36	2008	58	Clinical	United States	Mixed
Bradley (2017), male sample	71	12.75	2012	0	Community	United Kingdom	White
Bradley (2017), female sample	73	12.75	2012	100	Community	United Kingdom	White
Brummelman et al. (2015)	565	9.56	2010	54	Community	The Netherlands	White
Brummelman et al. (2017)	120	8.86	2011	50	Community	The Netherlands	White
Calsyn et al. (2000), light drug use	89	38.20	1990	37	Clinical	United States	Mixed
Calsyn et al. (2000), heavy drug use	141	38.20	1990	37	Clinical	United States	Mixed
Calvete et al. (2015)	591	14.17	2011	50	Community	Spain	White
Chopik and Grimm (2019), Block and Block Study	107	14.00	1983	51	Community	United States	Mixed
Chopik and Grimm (2019), Intergenerational Studies	361	13.00	1936	54	Community	United States	White
Chopik and Grimm (2019), Mills Longitudinal Study	112	21.00	1957	100	College	United States	White
Chopik and Grimm (2019), Radcliffe College Class	167	43.00	1986	100	College	United States	White
Cichocka et al. (2019)	557	39.89	2013	51	Community	Poland	White
Cramer (2017)	120	18.00	1992	58	College	United States	Mixed
Dakanalis et al. (2016), female subsample	1,073	18.34	2012	100	College	Italy	White
Dakanalis et al. (2016), male subsample	982	18.34	2012	0	College	Italy	White
Dean (2004)	70	57.00	1994	7	Community	United States	Mixed
Dufner (2022)	209	27.48	2011	66	College	Germany	White
Durst (2006)	149	14.70	2002	38	Community	United States	Mixed
Farrell and Vaillancourt (2019)	577	13.02	2010	55	Community	Canada	Mixed
Geukes et al. (2019)	126	21.35	2012	83	College	Germany	
Grilo et al. (2001)	60	15.60	1990	48	Clinical	United States	White
Grosz et al. (2019), TOSCA 2002 Cohort	2,571	21.60	2004	54	Community	Germany	White
Grosz et al. (2019), TOSCA 2006 Cohort	4,962	19.45	2006	55	Community	Germany	White
Hawk et al. (2019)	307	12.87	2015	52	Community	The Netherlands	White
Joiner et al. (2008)	71	22.00	2003	18	Clinical	United States	Mixed
Leckelt et al. (2019)	1,526	52.95	2013	53	National	Germany	White
Lee et al. (2022)	1,006	18.10	2018	76	College	United States	Mixed
Maneiro et al. (2019)	326	20.55	2014	53	College	Spain	White
Orth and Luciano (2015), Study 1	328	21.20	2010	50	Community	Switzerland	White
Orth and Luciano (2015), Study 2	371	29.00	2011	50	Community	Switzerland	White
Orth et al. (2016), Study 4	663	32.40	2009	51	Community	Switzerland	White
Pauletti (2014), female subsample	94	10.10	2010	100	Community	United States	Mixed
Pauletti (2014), male subsample	101	10.10	2010	0	Community	United States	Mixed
Reijntjes et al. (2016)	393	10.30	2006	51	Community	The Netherlands	White
Rogoza et al. (2021)	243	15.96	2016	60	Community	Poland	White
Ronningstam et al. (1995)	20	33.00	1989	15	Clinical	United States	
Sijtsema et al. (2019), female subsample	241	13.57	2013	100	Community	The Netherlands	Mixed
Sijtsema et al. (2019), male subsample	253	13.57	2013	0	Community	The Netherlands	Mixed
Spurk and Hirschi (2018), young employees	490	30.00	2014	47	Community	Germany	White
Spurk and Hirschi (2018), old employees	695	54.50	2014	47	Community	Germany	White
Stronge et al. (2019)	12,550	50.36	2014	63	National	New Zealand	White
Tonigan et al. (2013)	130	38.65	2009	47	Clinical	United States	Mixed
Vater et al. (2014)	40	30.18	2009	58	Clinical	Germany	
Wetzel and Robins (2016)	674	14.00	2009	50	Community	United States	Hispanic
Wetzel et al. (2020)	486	18.59	1992	56	College	United States	Mixed
Wille et al. (2019)	934	22.59	1994		College	Belgium	
Zhu and Geng (2023), Study 1	373	19.47	2019	43	College	China	Asian
Zuckerman and O'Loughlin (2009)	176	20.00	2002	72	College	United States	Mixed

Note. Mean age is given in years. TOSCA = Transformation of the Secondary School System and Academic Careers.

the nonclinical samples included in the meta-analytic data set. We therefore computed weighted mean effect sizes again, this time restricted to nonclinical samples (Table 3, lower half). Note that the number of samples was not much reduced by omitting the clinical samples (i.e., most effect sizes came from nonclinical samples). The weighted mean effect sizes were now much closer to zero, ranging from −0.008 (neurotic) to −0.004 (agentic).[4] Nevertheless, the

[4] For reasons of completeness, we also computed the estimates for the set of clinical samples. As expected, the weighted mean effect sizes indicated much larger declines compared to nonclinical samples, with $d = -0.060$ for agentic narcissism, $d = -0.181$ for antagonistic narcissism, and $d = -0.251$ for neurotic narcissism. Note, however, that these analyses were based on relatively few samples, with $k = 16$, $k = 4$, and $k = 2$ for agentic, antagonistic, and neurotic narcissism, respectively. The full set of findings is available in Supplemental Table S3.

Table 3
Estimates of Mean-Level Change (d_{year}) in Narcissism

Factor	k	N	Weighted mean effect size	95% CI	Q	Variance σ_1^2	Variance σ_2^2
All samples							
Agentic	96	34,980	−0.015	[−0.040, 0.011]	938.4*	.000	.011
Antagonistic	31	6,383	−0.032	[−0.074, 0.011]	405.7*	.004	.003
Neurotic	19	2,822	−0.021	[−0.057, 0.015]	394.3*	.000	.006
Nonclinical samples							
Agentic	80	34,119	−0.004	[−0.028, 0.021]	850.8*	.000	.010
Antagonistic	27	5,850	−0.006	[−0.028, 0.017]	373.5*	.000	.003
Neurotic	17	2,802	−0.008	[−0.041, 0.024]	376.9*	.000	.004

Note. Computations were made with multilevel random-effects models. d_{year} = standardized mean change d per year; k = number of effect sizes; N = number of unique participants, on which effect sizes are based; CI = confidence interval; Q = statistic used in heterogeneity test; σ_1^2 = variance component corresponding to the level of the grouping variable (i.e., between samples); σ_2^2 = variance component corresponding to the level nested within the grouping variable (i.e., within samples).
* $p < .05$.

meta-analytic estimates still indicated that the average yearly change corresponded to a decline in narcissism. We plotted the model-implied narcissism trajectories across the age range covered in the meta-analytic data set (Figure 1). From age 8 to 77 years, the results suggested that agentic narcissism decreased by $d = -0.28$, antagonistic narcissism by $d = -0.41$, and neurotic narcissism by $d = -0.55$.[5]

Testing for Publication Bias

We tested whether there was evidence of publication bias in effect sizes of mean-level change, based on two methods. First, we used Egger's regression test, which tests whether funnel graphs of the data deviate significantly from a symmetrical shape (Egger et al., 1997). Second, we tested whether published effect sizes differed significantly from unpublished effect sizes. Effect sizes were coded as "unpublished" (a) when they came from unpublished reports or (b) when they came from published reports that did not include the effect size data in the article or Supplemental Material (as described in the Method section, when articles did not provide effect size data, although they fulfilled all other inclusion criteria, we contacted the authors of these studies with a request for the required information). In consequence, many of the effect sizes included in the meta-analytic data set were unpublished. If the size and significance of an effect influenced whether it was published or not, then the comparison of published and unpublished effect sizes should yield a significant difference.

We conducted these tests both in the full set of samples (i.e., including clinical samples) and in the set of nonclinical samples, for each of the three factors of narcissism (Table 6). In the full set of samples, three of the six tests were significant. However, when restricting the data to nonclinical samples, only one of the six tests was significant. Given that the conclusions about the life span trajectory of narcissism should be based on nonclinical samples (see above), we believe that the conclusions about publication bias should likewise focus on the nonclinical samples. Overall, the pattern of findings suggested that publication bias is not a major concern in the set of nonclinical samples and that the larger proportion of significant tests in the full set of samples was accounted for by the inclusion of clinical samples. Figure 2 shows the funnel graphs for the nonclinical samples, for each of the factors of narcissism. Even if Egger's regression test was significant for antagonistic narcissism, the funnel graphs exhibited a relatively symmetrical shape typical of nonbiased meta-analytic data sets. Moreover, the finding that published effect sizes did not differ significantly from unpublished effect sizes in the set of nonclinical samples further strengthened confidence in the findings on mean-level change.

Sensitivity Analyses

In sensitivity analyses, we estimated the weighted mean effect sizes without measures that included a mixture of narcissism factors (i.e., using only those measures that were clearly assigned to one of the factors; see the Method section). Supplemental Table S4 shows the results for the full set of samples and nonclinical samples. For agentic and antagonistic narcissism, the estimates were similar to the estimates from the main analyses. For neurotic narcissism, the estimates were quite different, indicating a much stronger yearly decline. Yet, for neurotic narcissism, the sensitivity analyses were based only on three (nonclinical and clinical samples) and two (nonclinical samples only), suggesting that the reliability of the sensitivity analyses for neurotic narcissism was low. For these reasons, we believe that the sensitivity analyses do not indicate that the findings from the main analyses must be qualified. We therefore suggest that the conclusions about mean-level change should be based on the findings from the main analyses.

Rank-Order Stability of Narcissism

In this section, we examine the stability of individual differences in narcissism. As noted above, we used disattenuated test–retest correlations (i.e., corrected for measurement error) as effect size measure.

[5] Figure 1 shows ages 8–77 years, corresponding to the minimum age at the beginning of the effect size interval and the maximum age at the end of the effect size interval in the set of nonclinical samples that provided data on mean-level change.

Table 4
Age Effects on Mean-Level Change (d_{year}) in Narcissism

Factor and moderator	Model 1			Model 2			Model 3		
	B	*SE*	*p*	*B*	*SE*	*p*	*B*	*SE*	*p*
Agentic (k = 96)									
Linear age	.0092	.0083	.267	.0160	.0145	.270	.0152	.0150	.309
Quadratic age	—	—	—	−.0030	.0054	.584	−.0053	.0127	.675
Cubic age	—	—	—	—	—	—	.0007	.0032	.836
Antagonistic (k = 31)									
Linear age	.0006	.0089	.944	−.0178	.0203	.381	−.0298	.0248	.230
Quadratic age	—	—	—	.0079	.0062	.206	.0272	.0231	.239
Cubic age	—	—	—	—	—	—	−.0038	.0045	.390
Neurotic (k = 19)									
Linear age	−.0024	.0111	.830	−.0272	.0258	.293	−.0411	.0336	.221
Quadratic age	—	—	—	.0081	.0076	.286	.0276	.0300	.358
Cubic age	—	—	—	—	—	—	−.0037	.0055	.505

Note. Computations were made with multilevel mixed-effects models. Regression coefficients are unstandardized. For the analyses, age was centered at 23.13 years and, to avoid numerically small estimates, rescaled by the factor 10^{-1}. Em dash indicates that the predictor was not included in the model. d_{year} = standardized mean change d per year; k = number of effect sizes; SE = standard error.

Effect Size Analyses

First, we computed weighted mean effect sizes (Table 7, upper half). The meta-analytic estimates ranged from .60 to .76 across the three factors of narcissism. For agentic narcissism, the estimate was based on a relatively large number of effect sizes (i.e., 179), whereas the number of effect sizes was lower for the other factors of narcissism.

Then, we tested for age effects on rank-order stability (Table 8). As in the analyses on mean-level change, we tested linear, quadratic, and cubic models. None of the age effects were significant, even if the p values of the linear age effects were close to significance for agentic and neurotic narcissism (because the quadratic and cubic age effects were nonsignificant, conclusions about linear age effects should be based on the results for the linear model, i.e., Model 1).

Next, we tested for moderators of rank-order stability. As in the analyses on mean-level change, we examined the effects of gender, birth cohort, and clinical status of the sample. In addition, it was important to test the effects of the time lag between the assessments.[6] The analyses were based on mixed-effects meta-analytic models, simultaneously testing the effects of all moderators (Table 9). Gender, birth cohort, and clinical status did not show significant effects, except for the effect of birth cohort on rank-order stability of neurotic narcissism (the effect had a positive sign, indicating that rank-order stability was higher in samples from more recent generations). In contrast, time lag was a significant moderator for all factors of narcissism. The signs of these effects were negative, indicating that rank-order stability was lower when assessed across longer time lags.

Given the consistent moderator effects of time lag, we computed the weighted mean effect sizes when controlling for time lag (Table 7, lower half). In these analyses, the time lag was mean-centered at 11.42 years. Consequently, the analyses now estimate the rank-order stability of narcissism for a time lag of 11.42 years. Overall, the estimates were similar to the estimates without controlling for time lag. Moreover, we tested whether the age effects on rank-order stability became significant when controlling for differences in time lag. If time lag is correlated with age across effect sizes, it would be possible that the age effects are suppressed when time lag is not controlled for (for a discussion of suppressor situations, see Paulhus et al., 2004). First, however, the correlation between age and time lag was close to zero and nonsignificant ($r = .02, p = .700$). Second, when time lag was controlled, all age effects remained nonsignificant and the p values were even higher (Supplemental Table S5). In contrast, the effect of time lag remained significant when tested simultaneously with age (again, because the quadratic and cubic age effects were nonsignificant in all models, the conclusions should be based on the results of the linear models).

So far, we tested for linear effects of time lag on rank-order stability. Yet, theory (Fraley & Roberts, 2005) and statistical modeling of long-term longitudinal data (e.g., Anusic &

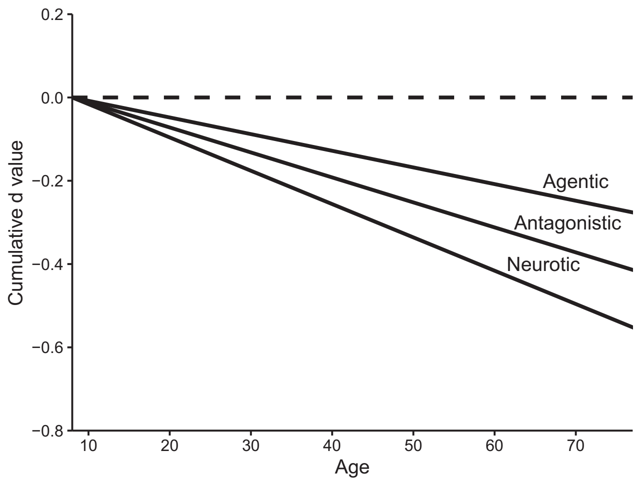
Table 5
Effects of Moderators on Mean-Level Change (d_{year}) in Narcissism

Factor and moderator	*k*	*B*	*SE*	*p*
Agentic	96			
Proportion of female		−.0398	.0592	.501
Mean year of birth		−.0004	.0005	.411
Clinical sample[a]		−.0799*	.0357	.025
Antagonistic	29			
Proportion of female		.0360	.0873	.680
Mean year of birth		−.0003	.0007	.698
Clinical sample[a]		−.1572*	.0615	.011
Neurotic	19			
Proportion of female		−.0001	.0698	.999
Mean year of birth		−.0001	.0008	.908
Clinical sample[a]		−.2392*	.0894	.007

Note. Computations were made with multilevel mixed-effects models. Regression coefficients are unstandardized. d_{year} = standardized mean change d per year; k = number of effect sizes; SE = standard error; proportion of female = percentage divided by 100.
[a] 1 = yes, 0 = no.
* $p < .05$.

[6] Note that in the analyses on mean-level change, it was not meaningful to include time lag as a moderator because the effect size measure (i.e., standardized mean change d per year) accounted already for different time lags used in the studies.

Figure 1
Mean-Level Change in Agentic, Antagonistic, and Neurotic Narcissism From Age 8 to 77 Years for Nonclinical Samples



Note. The figure shows model-implied cumulative d values relative to age 8 years; thus, the point of origin (i.e., zero) is arbitrary.

Schimmack, 2016; Fraley, 2002; Kuster & Orth, 2013) suggests that rank-order stability of psychological constructs does not decrease linearly across time but exponentially decays as the time lag increases, approaching an asymptote that can be zero or a positive value between 0 and 1. The exponential decay function with a possible nonzero asymptote is also implied by latent trait–state models for longitudinal data, such as Kenny and Zautra's (1995, 2001) STARTS model. Specifically, whereas the autoregressive component of latent trait–state models accounts for the exponential decay, the trait component accounts for the nonzero asymptote (e.g., Cole, 2012).

We therefore estimated an exponential decay function using Equation 3:

$$S = a + (1 - a) \times e^{-bt}, \tag{3}$$

where S is the rank-order stability, a represents the asymptote, e is a mathematical constant, b represents the rate of decay, and t represents the time lag (Ratkowsky, 1990; for an empirical example, see Kuster & Orth, 2013). Importantly, the function accounts for two theoretical assumptions (Fraley & Roberts, 2005). The first assumption is that S equals 1 when $t = 0$ (given that e raised to the power of 0 equals 1). As we used test–retest correlations that were corrected for measurement error, rank-order stability should be 1 (i.e., perfect) when two assessments are conducted at the same point in time. The second assumption is that S decreases with increasing time lag and approaches the asymptote a (i.e., 0 or a nonzero value between 0 and 1). For the analyses, we tested nonlinear regression models, using the "nls" function included in R (R Core Team, 2022).[7] Table 10 shows the parameter estimates for the three factors of narcissism. The largest asymptote emerged for agentic narcissism (.62); the asymptote was lower for antagonistic narcissism (.52) and neurotic narcissism (.33). For antagonistic narcissism, the rate of decay did not differ significantly from zero, suggesting that the parameter could not be estimated well for this factor of narcissism. However, in the present context, the important parameter is the asymptote because it allows testing whether rank-order stability approaches zero or a nonzero value over long time lags. Figure 3 shows scatterplots of the relation between rank-order stability and time lag, including the estimated decay function. In sum, the nonlinear regression analyses suggest that the long-term rank-order stability (as indicated by the asymptote) is high for agentic narcissism and slightly lower, but still relatively high, for antagonistic narcissism. In contrast, the estimated long-term rank-order stability was much lower for neurotic narcissism.

Table 6
Tests of Publication Bias in Mean-Level Change (d_{year}) in Narcissism

	Egger's regression test			Effect size data published versus unpublished[a]			
Factor	k	z	p	k_p	k_u	z	p
All samples							
Agentic	96	−1.482	.138	43	53	−0.758	.449
Antagonistic	31	−3.946	<.001	11	20	−1.831	.067
Neurotic	19	−2.704	.007	4	15	−2.098	.036
Nonclinical samples							
Agentic	80	−1.161	.246	37	43	−1.190	.234
Antagonistic	27	−2.159	.031	7	20	−0.963	.335
Neurotic	17	−0.231	.817	2	15	−0.608	.543

Note. The differences between effect sizes from studies for which effect size data were published versus unpublished were tested with multilevel mixed-effects metaregression models. d_{year} = standardized mean change d per year; k = number of effect sizes; k_p = number of published effect sizes; k_u = number of unpublished effect sizes.
[a] 1 = effect size data published, 0 = effect size data unpublished.

Testing for Publication Bias

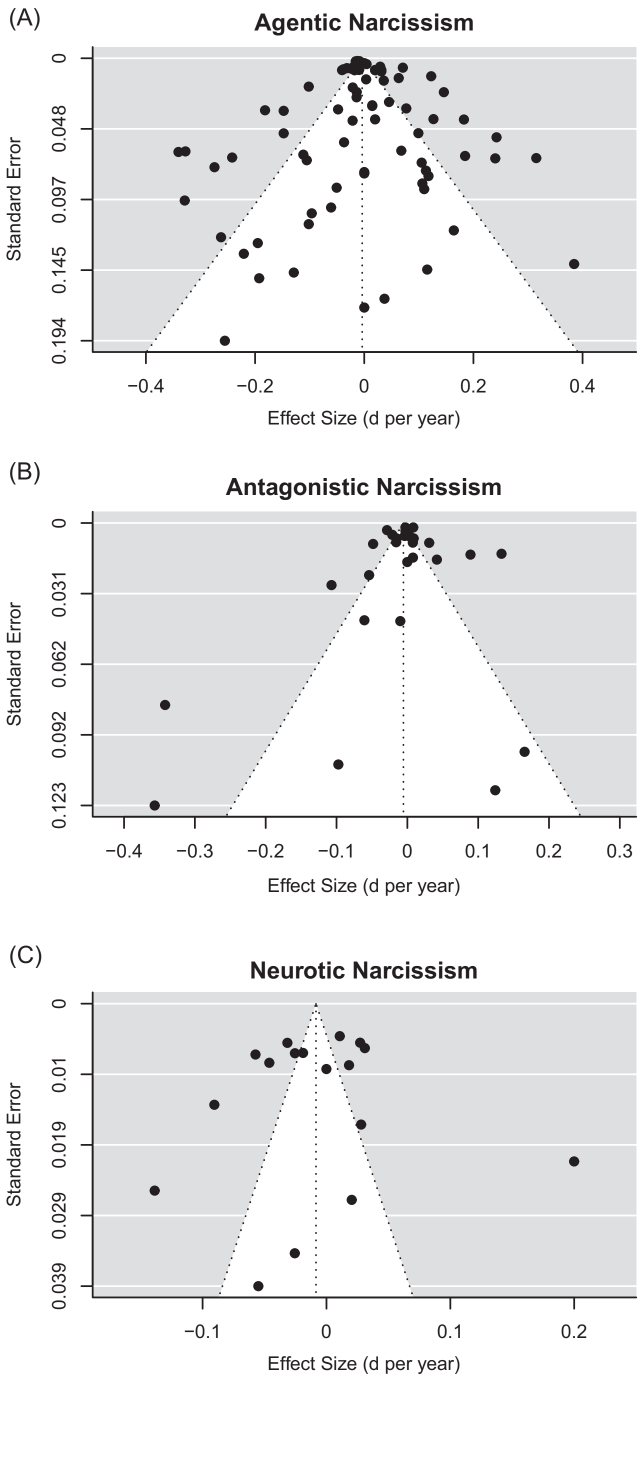
Again, we tested for publication bias using Egger's regression tests and the comparison of published and unpublished effect sizes, for each of the three factors of narcissism (Table 11). One of the six tests was significant, specifically the comparison of published and unpublished effect sizes for neurotic narcissism. Thus, the findings suggest that the estimated rank-order stability of neurotic narcissism could be influenced by publication bias. Nevertheless, Egger's tests were nonsignificant for all factors of narcissism, including neurotic narcissism. Also, the funnel graphs showed relatively symmetrical shapes typical of nonbiased meta-analytic data sets (Figure 4). Overall, the findings suggest that the data on rank-order stability were not influenced by publication bias, with the possible exception of neurotic narcissism.

Sensitivity Analyses

In sensitivity analyses, we estimated the weighted mean effect sizes without measures that included a mixture of narcissism factors (Supplemental Table S6). For agentic and antagonistic narcissism, the estimates were relatively similar to the estimates from the main analyses. For neurotic narcissism, the estimates were much larger than in the main analyses. Yet, for neurotic narcissism, the

[7] Although it would be desirable to estimate the nonlinear moderator effect of time lag in the meta-analytic framework using the metafor package, it is not yet possible to integrate nonlinear functions such as exponential decay.

Figure 2
Funnel Graphs for Effect Sizes of Mean-Level Change (d_{year}) in Nonclinical Samples



Note. The figure shows funnel graphs displaying the relation between standard error and effect size for agentic narcissism (Panel A), antagonistic narcissism (Panel B), and neurotic narcissism (Panel C). d_{year} = standardized mean change d per year.

sensitivity analyses were based only on two samples, suggesting low reliability of the sensitivity analyses for this factor. Thus, we believe that the sensitivity analyses do not suggest that the conclusions from the main analyses must be qualified.

Discussion

In this meta-analytic review, we synthesized the available longitudinal data on mean-level change and rank-order stability in agentic, antagonistic, and neurotic narcissism. The meta-analytic data set included 51 samples with a total of 37,247 participants. As effect size measures, we used the standardized mean change d per year and test–retest correlations that were corrected for attenuation due to measurement error. The results suggested that narcissism typically decreases from age 8 to 77 years (i.e., the observed age range), with aggregated changes of $d = -0.28$ for agentic narcissism, $d = -0.41$ for antagonistic narcissism, and $d = -0.55$ for neurotic narcissism. Rank-order stability of narcissism was high, with average values of .73 (agentic), .68 (antagonistic), and .60 (neurotic), based on an average time lag of 11.42 years. Rank-order stability did not vary as a function of age. However, rank-order stability declined as a function of time lag, asymptotically approaching values of .62 (agentic), .52 (antagonistic), and .33 (neurotic) across long time lags. Moderator analyses indicated that the findings on mean-level change and rank-order stability held across gender and birth cohort. In sum, the findings suggest that agentic, antagonistic, and neurotic narcissism show normative declines across the life span and that individual differences in these factors are moderately (neurotic) to highly (agentic, antagonistic) stable over time.

Implications of the Findings on Mean-Level Change

The theoretical perspectives reviewed in the introduction suggested that narcissism should typically decline as people go through life. The present findings are consistent with these perspectives, showing that average levels gradually decrease across the life span. Yet, the findings do not allow us to distinguish between the different theoretical accounts, that is, the social investment model of personality development (Roberts et al., 2008), propositions derived from socioemotional selectivity theory (Carstensen et al., 1999) and models emphasizing the narcissistic striving for social status (Grapsas et al., 2020; Zeigler-Hill et al., 2018), assumptions about increasing maladaptiveness of narcissism (Chopik & Grimm, 2019; Hill & Roberts, 2018; Thomaes et al., 2018), and the reality principle model (Foster et al., 2003). Future research should empirically test which of the perspectives provides the best explanation for developmental patterns in narcissism, by deriving competing hypotheses from the different theoretical accounts. For example, social investment theory posits that the adoption of social roles in the relationship domain, at work, and in the community is the key mechanism that accounts for the normative developmental trend toward more mature personality characteristics, including decreases in narcissism (Roberts et al., 2008). In contrast, socioemotional selectivity theory suggests that changes in the subjectively perceived remaining time in life account for the motivational shift from striving for social status to the protection of emotional stability (Carstensen et al., 1999), which could explain the

Table 7
Estimates of Rank-Order Stability of Narcissism

Factor	k	N	Weighted mean effect size	95% CI	Q	Variance σ_1^2	Variance σ_2^2
Not controlled for time lag							
Agentic	179	33,724	.760*	[.704, .807]	11258.7*	.080	.136
Antagonistic	60	6,512	.687*	[.569, .777]	3038.5*	.092	.094
Neurotic	42	2,802	.601*	[.433, .729]	791.9*	.069	.023
Controlled for time lag							
Agentic	179	33,724	.733*	[.667, .787]	10455.7*	.075	.133
Antagonistic	60	6,512	.679*	[.559, .771]	2517.6*	.093	.085
Neurotic	42	2,802	.604*	[.472, .709]	472.3*	.042	.020

Note. Computations were made with multilevel random-effects models (not controlled for time lag) and multilevel mixed-effects models (controlled for time lag). Time lag was centered at 11.42 years for the analyses. k = number of effect sizes; N = number of unique participants, on which effect sizes are based; CI = confidence interval; Q = statistic used to test residual heterogeneity; σ_1^2 = variance component corresponding to the level of the grouping variable (i.e., between samples); σ_2^2 = variance component corresponding to the level nested within the grouping variable (i.e., within samples).
* $p < .05$.

normative age-related decline of narcissistic characteristics. Still, another perspective is provided by the reality principle model, which proposes that the accumulation of experiences of failure is the key mechanism for the decline of narcissism across age (Foster et al., 2003). Thus, future research could simultaneously test for the effects of these diverse mechanisms and thereby pit competing models against each other. It is important to note that these hypotheses are not necessarily mutually exclusive; thus, more than one mechanism might be responsible for the observed decline in narcissism.

For all factors of narcissism (i.e., agentic, antagonistic, and neurotic), the present findings suggested a linear decrease across the life span, as illustrated in Figure 1. More precisely, the rate of change in narcissism did not vary significantly as a function of age. Of course, if data from a larger number of samples were available, it is possible that those analyses would reveal some degree of curvilinearity in the trajectory. Nevertheless, in the present meta-analytic data, the age effects on the slope of the trajectory were very small and far from significance (see Table 4), suggesting that strong deviations from a linear trajectory should not be expected. The findings are in line with a recent cross-sectional study with a very large sample, which suggested a linear pattern of age differences across adulthood, corresponding to a linear decline (Weidmann et al., 2023).

Thus, the meta-analytic results suggest that narcissism declines already in childhood and adolescence. Yet, this finding does not imply that the decline occurs in a predetermined way. Rather, the finding strengthens the need to identify influential factors (such as family and social influences) and to understand the mechanisms that account for the normative decline. In fact, it is possible that the responsible mechanisms differ across childhood, adolescence, and adulthood. Also, as suggested by growth curve analyses (e.g., Chopik & Grimm, 2019), there is important variability in individual trajectories, which makes it likely that some individuals do not show declines of narcissism in childhood and adolescence, but rather constant levels or increases. Moreover, even if narcissism

Table 8
Age Effects on Rank-Order Stability of Narcissism

Moderator	Model 1 B	Model 1 SE	Model 1 p	Model 2 B	Model 2 SE	Model 2 p	Model 3 B	Model 3 SE	Model 3 p
Agentic (k = 179)									
Linear age	.0628	.0332	.059	.1031	.0490	.035	.1050	.0490	.032
Quadratic age	—	—	—	−.0281	.0194	.261	−.0755	.0458	.100
Cubic age	—	—	—	—	—	—	.0128	.0099	.195
Antagonistic (k = 60)									
Linear age	.0480	.0329	.144	.0740	.0527	.161	.0539	.0612	.379
Quadratic age	—	—	—	−.0126	.0194	.516	.0295	.0664	.657
Cubic age	—	—	—	—	—	—	−.0083	.0125	.509
Neurotic (k = 42)									
Linear age	.0354	.0181	.050	.0404	.0287	.160	.0182	.0327	.577
Quadratic age	—	—	—	−.0024	.0106	.817	.0450	.0366	.218
Cubic age	—	—	—	—	—	—	−.0093	.0069	.177

Note. Computations were made with multilevel mixed-effects models. Regression coefficients are unstandardized. For the analyses, age was centered at 23.13 years and, to avoid numerically small estimates, rescaled by the factor 10^{-1}. Em dash indicates that the predictor was not included in the model. k = number of effect sizes; SE = standard error.

Table 9
Effects of Moderators on Rank-Order Stability of Narcissism

Moderator	*k*	*B*	*SE*	*p*
Agentic	179			
Proportion of female		.0407	.2601	.876
Mean year of birth		−.0016	.0033	.639
Clinical sample[a]		−.1863	.2361	.430
Time lag (in years)		−.0096*	.0039	.015
Antagonistic	57			
Proportion of female		−.5712	.3994	.153
Mean year of birth		.0032	.0033	.337
Clinical sample[a]		−.4487	.2402	.062
Time lag (in years)		−.0059*	.0025	.018
Neurotic	42			
Proportion of female		.1518	.1185	.200
Mean year of birth		.0072*	.0015	<.001
Clinical sample[a]		—	—	—
Time lag (in years)		−.0041*	.0017	.014

Note. Computations were made with multilevel mixed-effects models. Regression coefficients are unstandardized. Em dash indicates that the moderator was not included in the model. For neurotic narcissism, the contrast between clinical and nonclinical samples could not be tested in the model because all samples were nonclinical. k = number of effect sizes; *SE* = standard error; proportion of female = percentage divided by 100.
[a] 1 = yes, 0 = no.
* $p < .05$.

shows normative decreases from childhood to old age, this does not necessarily imply that narcissism is high in childhood in an absolute sense. The reason is that the findings on mean-level change do not provide information about the absolute level of narcissism (thus, statistical norms for specific measures of narcissism would be needed to evaluate the absolute level of narcissism).

Across the observed age range (i.e., from age 8 to 77 years), the aggregated decline in narcissism corresponded to small to medium effect sizes (Cohen, 1992), ranging from $d = -0.28$ for agentic narcissism to $d = -0.55$ for neurotic narcissism. To put these effect sizes into perspective (i.e., to provide benchmarks for the interpretation; Funder & Ozer, 2019), it is useful to compare them with aggregated changes for other personality characteristics. For some constructs, meta-analytic estimates were considerably larger than the estimates for narcissism. For example, aggregated changes (in absolute values) across the life span are about $d = 1.25$ for emotional stability (Bleidorn et al., 2022), $d = 1.25$ for self-esteem (Orth et al., 2018), $d = 1.00$ for openness (Bleidorn et al., 2022), and $d = 0.70$ for extraversion (Bleidorn et al., 2022). For other constructs, meta-analytic estimates of aggregated changes are

Table 10
Parameter Estimates for Exponential Decay of Rank-Order Stability of Narcissism as a Function of Time Lag

	Asymptote (*a*)			Rate of decay (*b*)		
Factor	Estimate	*SE*	*p*	Estimate	*SE*	*p*
Agentic	0.616	0.020	<.001	1.848	0.425	<.001
Antagonistic	0.523	0.029	<.001	2.834	1.826	.126
Neurotic	0.326	0.032	<.001	0.133	0.026	<.001

Note. *SE* = standard error.

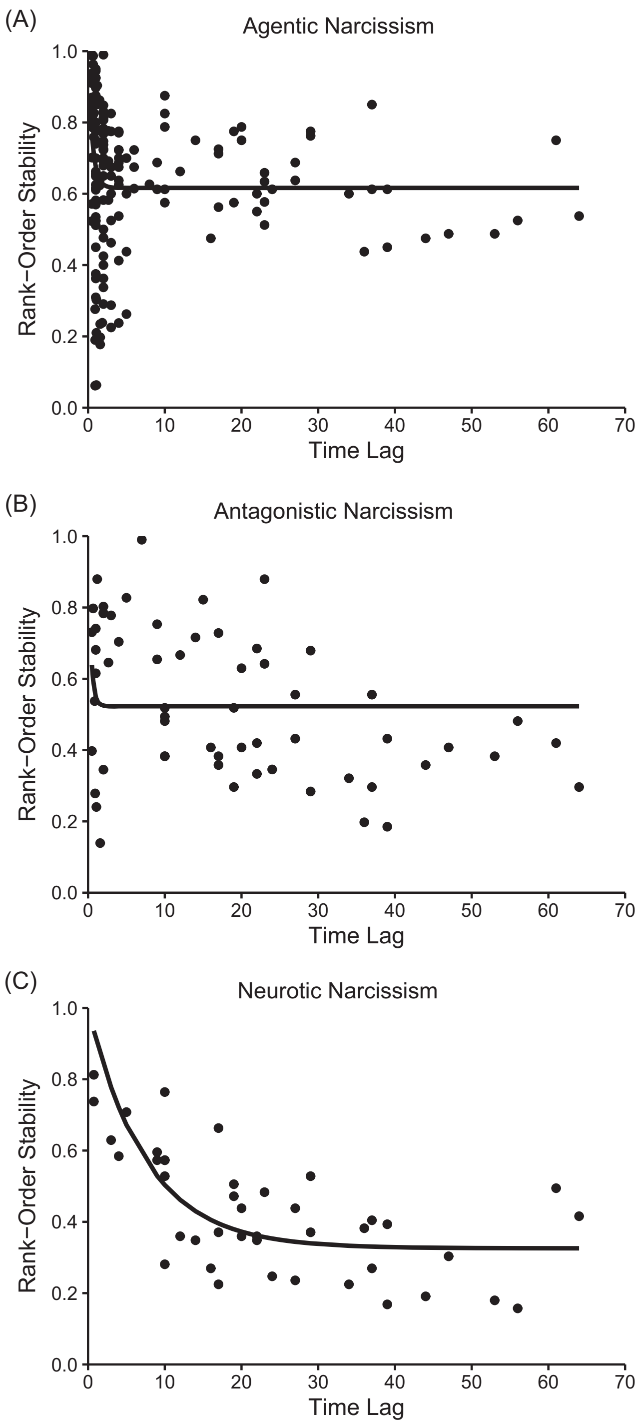
of about the same size as for narcissism, including $d = 0.30$ for agreeableness (Bleidorn et al., 2022) and d values in the range of 0.20–0.50 for vocational interests (Hoff et al., 2018). Overall, these data suggest that the aggregated mean-level changes of narcissism should, in fact, be interpreted as small to medium-sized, consistent with Cohen's (1992) guidelines. Thus, although narcissism shows normative decline as a function of age, mean levels of narcissism can be considered as relatively stable across the life span. It is important to emphasize that the concept of normative decline refers to average levels in the population and that individual trajectories can show significant variance around the normative trajectory. Yet, how much individual trajectories of narcissism deviate from the normative trajectory is currently unknown and awaits future research.

The moderator analyses indicated that mean-level change in narcissism differed significantly between clinical and nonclinical samples. Specifically, clinical samples showed much larger declines compared to nonclinical samples. As discussed earlier, a likely explanation is that participants in clinical samples often show elevated narcissism scores at the beginning of a study (i.e., due to selection bias) and consequently have a higher likelihood of a subsequent decrease in narcissism due to regression to the mean or some degree of recovery. Regardless of the explanation, because clinical samples differed significantly from nonclinical samples, the conclusions about normative change in narcissism should be drawn from the findings for nonclinical samples. The reason is that nonclinical samples (including community samples, samples of college students, and national samples) are more representative for the general population compared to clinical samples. Therefore, the conclusions on mean-level change were based on the findings for nonclinical samples (including the effect sizes given in the Discussion section and illustrated in Figure 1).

Even if the conclusions about the normative trajectory of narcissism are based on the set of nonclinical samples, the findings have possible clinical implications. More precisely, the findings suggest that clinically elevated levels of narcissism should become less likely across the life span. First, nonclinical samples—in particular national and community samples—typically do include participants with elevated symptom levels, but just at a proportion that is much closer to the population compared to clinical samples. Second, given that agentic, antagonistic, and neurotic narcissism are dimensional constructs, there is reason to expect that the findings on mean-level change apply, at least by and large, to individuals with scores at different levels of the continuum. We emphasize that this is an untested hypothesis that should be examined empirically in future research. In fact, even if average levels in the population decrease, it is possible that extreme manifestations of narcissism remain constant across the life span. Nevertheless, research suggests that the prevalence of personality disorders, such as narcissistic personality disorder, declines with age (Hopwood & Bleidorn, 2018; Newton-Howes et al., 2015).

The analyses indicated that birth cohort was not a moderator of mean-level change for all factors of narcissism. Given that the mean year of birth ranged from 1923 to 2002 across samples, the nonsignificant cohort effects suggest that the shape of the trajectory in narcissism has not changed over the past generations. Consequently, the meta-analytic findings do not support the hypothesis that the birth cohorts called "Generation Me" (i.e., cohorts born in the 1970s to 1990s) experience more problematic trajectories of narcissism compared to earlier birth cohorts (cf.

Figure 3
Rank-Order Stability of Narcissism as a Function of Time Lag



Note. The figure shows scatterplots displaying the relation between rank-order stability and time lag for agentic narcissism (Panel A), antagonistic narcissism (Panel B), and neurotic narcissism (Panel C). Each of the plots also shows the estimated function of exponential decay (solid lines).

Twenge et al., 2008). It is important to note that the present research provides information only about generational differences in the slope (as indicated by mean-level change) but not in the overall level of the trajectory. Thus, other evidence is needed to evaluate the hypothesis that more recent generations show higher levels of narcissism than earlier generations (for reviews, see Grubbs & Riley, 2018; Wetzel et al., 2018). The nonsignificant cohort effects on mean-level change are relevant also for methodological reasons because modeling of coherent trajectories across the observed age range is valid only if the cohorts included in the meta-analytic data set do not differ systematically in the effect sizes. Thus, the nonsignificant effects strengthen confidence in the trajectories shown in Figure 1.

It may be informative to compare the trajectory of narcissism with related personality constructs. In other words, how specific are the life span trajectories of agentic, antagonistic, and neurotic narcissism? Regarding the Big Five personality traits, agentic narcissism is strongly correlated with extraversion, antagonistic narcissism with low agreeableness, and neurotic narcissism with neuroticism (Crowe et al., 2019; Miller et al., 2021). The meta-analysis by Bleidorn et al. (2022) suggests that extraversion and neuroticism decrease across the life span, which is consistent with the trajectories of agentic and neurotic narcissism. In contrast, although agreeableness increases in childhood and adolescence, it is constant in young adulthood and decreases in middle and old adulthood (Bleidorn et al., 2022), which is inconsistent with the trajectory of antagonistic narcissism. Regarding self-esteem, agentic narcissism shows a medium-sized positive correlation, antagonistic narcissism a small negative correlation, and neurotic narcissism a large negative correlation (as reviewed in the introduction, see Back et al., 2013; Crowe et al., 2019; Weiss et al., 2019). Meta-analytic research suggests that self-esteem increases in childhood, adolescence, and young and middle adulthood; peaks at about age 60–70 years; and decreases in old age (Orth et al., 2018). Thus, the developmental trajectories of antagonistic and neurotic narcissism are consistent with the trajectory of self-esteem, at least until age 60–70. In contrast, the trajectory of agentic narcissism differs substantially from the trajectory of self-esteem (although the two constructs are positively correlated). The divergent developmental patterns for agentic narcissism and self-esteem support that it is essential to distinguish between the constructs and to understand the specific life span trajectories of the factors of narcissism. This is also supported by research suggesting that changes in agentic and antagonistic narcissism are uncorrelated with changes in self-esteem (Jung et al., 2024; neurotic narcissism was not examined in the study).

Implications of the Findings on Rank-Order Stability

The results suggested that the rank-order stability of narcissism does not vary significantly across the life span. Thus, although research suggests that rank-order stability of personality characteristics typically increases across the first half of life, reaching a plateau in midlife (Bleidorn et al., 2022), the present findings did not support this pattern for narcissism. For all three factors of

Table 11
Tests of Publication Bias in Rank-Order Stability of Narcissism

Factor	Egger's regression test			Effect size data published versus unpublished[a]			
	k	z	p	k_p	k_u	z	p
Agentic	179	0.428	.669	87	92	0.616	.538
Antagonistic	60	−0.902	.367	43	17	−1.594	.111
Neurotic	42	1.382	.167	33	9	−2.840	.005

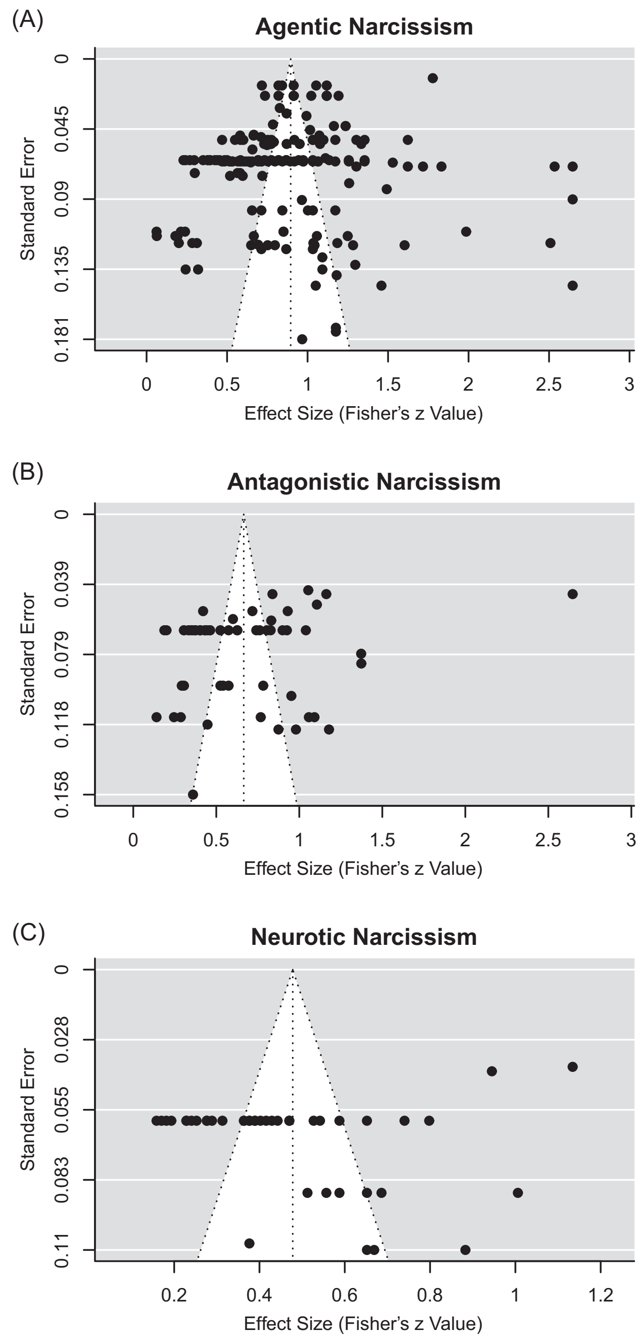
Note. The differences between effect sizes from studies for which effect size data were published versus unpublished were tested with mixed-effects metaregression models. k = number of effect sizes; k_p = number of published effect sizes; k_u = number of unpublished effect sizes.
[a] 1 = effect size data published, 0 = effect size data unpublished.

narcissism, the meta-analytic estimates of rank-order stability—based on an average time lag of about 11 years—were large, ranging from .60 to .73. Overall, these effect sizes are similar to effect sizes for other personality constructs, such as the Big Five (Bleidorn et al., 2022), suggesting that all three factors should be considered personality traits. Thus, the results also indicated that the rank-order stability of narcissism is large already in childhood and adolescence. This finding further supports the need to identify the factors that shape the emergence of individual differences in narcissism early in life. Although research has shown that genetic factors account for about half of the variance in narcissistic characteristics (Luo & Cai, 2018), research also suggests that environmental factors such as parenting influence children's level of narcissism (Brummelman et al., 2015; Thomaes & Brummelman, 2018; Wetzel & Robins, 2016). Future research should continue to investigate the influences on the individual development of narcissism.

Although rank-order stability did not vary as a function of age, stability coefficients significantly decreased as a function of the time lag between assessments. When estimating an exponential decay function for rank-order stability, as suggested by previous research (Fraley, 2002; Fraley & Roberts, 2005; Kuster & Orth, 2013), the asymptote of long-term stability was .62 for agentic narcissism, .52 for antagonistic narcissism, and .33 for neurotic narcissism. Importantly, the asymptotes could be estimated with high precision (as indicated by small standard errors). Thus, the analyses support the conclusion that the rank-order stability of agentic, antagonistic, and neurotic narcissism does not approach zero over long periods, but rather nonzero asymptotes, which capture the enduring component of individual differences in the constructs (Fraley & Roberts, 2005). Compared to estimates for other personality constructs, the present asymptotic values indicate moderate (neurotic) to high (agentic, antagonistic) long-term stability (Anusic & Schimmack, 2016; Donnellan et al., 2012; Fraley & Roberts, 2005; Kuster & Orth, 2013; Lucas & Donnellan, 2007; Wagner et al., 2016). The findings further attest to the trait character of narcissism, although the long-term stability of neurotic narcissism is lower than could have been expected based on its strong association with the Big Five trait of neuroticism (Crowe et al., 2019; Miller et al., 2021).

In contrast to the analyses for mean-level change, the clinical status of the sample did not moderate the effect sizes of rank-order stability. Thus, there was no need to restrict the analyses of rank-order stability to nonclinical studies, which allowed to maximize the number of samples on which the conclusions were based. The analyses also suggested that gender and birth cohort did not systematically moderate rank-order stability. The only exception was a significant effect of mean year of birth on the rank-order stability of neurotic narcissism. Overall, however, the moderator analyses suggested that the pattern of findings held across the moderators tested.

Figure 4
Funnel Graphs for Effect Sizes of Rank-Order Stability



Note. The figure shows funnel graphs displaying the relation between standard error and effect size for agentic narcissism (Panel A), antagonistic narcissism (Panel B), and neurotic narcissism (Panel C).

Limitations and Future Directions

A limitation of the present research is that nearly all samples were from Western cultural contexts, more precisely from North America, Europe, and New Zealand (the only exception was a sample from China). Thus, the data did not allow testing whether the pattern of findings holds in samples from Asian, African, South American, and Central American countries. In future research, it would be highly desirable to more often collect longitudinal data on narcissism in non-Western samples, to evaluate the degree to which the findings on mean-level change and rank-order stability replicate across cultures (Henrich et al., 2010; Thalmayer et al., 2021).

Similarly, another limitation is that most of the samples were predominantly White/European (57% of the samples for which information on ethnicity was available). Given that another 39% of the samples were mixed with regard to ethnicity, it was not possible to test for systematic differences in the pattern of findings between ethnic groups. Future research is needed to test whether the findings hold across different ethnicities.

The meta-analytic data set covered a broad age range (see Footnote 3), but the number of data points from old age was relatively low. Consequently, the findings on old age should be interpreted with some more caution. For example, even if the present findings did not suggest that rank-order stability is lower in old age than in middle adulthood—a pattern that sometimes emerged for other personality constructs (Lucas & Donnellan, 2011; Specht et al., 2011; Trzesniewski et al., 2003; but see Bleidorn et al., 2022)—it would be worthwhile to test this more closely in future research.

Because the present research included data from samples as young as 8 years, it should be noted that the three-factor model of narcissism has not been fully evaluated in child samples. The available evidence suggests that the agentic and antagonistic factors of narcissism can be distinguished, for example, when using the Narcissistic Personality Questionnaire for Children (Ang & Raine, 2009) or the Child Version of the Narcissistic Admiration and Rivalry Questionnaire (Grapsas et al., 2021). Nevertheless, future research should test whether the full three-factor model, including agentic, antagonistic, and neurotic narcissism, holds in samples with children.

Although the present research provides information about the average life span trajectory of narcissism, a general limitation of the meta-analytic approach—which examines sample-level data, but not individual-level data—is that it does not provide information about individual differences in the trajectory. Future research should use data from large longitudinal studies to examine the variability of the trajectories as well as factors that explain why individuals follow a specific trajectory.

Conclusions

Based on longitudinal data from 51 samples, this meta-analytic review suggested that all factors of narcissism—that is, agentic, antagonistic, and neurotic narcissism—show a normative decline across the life span. The findings are consistent with theoretical perspectives on the development of narcissism, including the social investment model (Roberts et al., 2008) and socioemotional selectivity theory (Carstensen et al., 1999). The aggregated changes from childhood to old age were of small to medium size. Thus, even if narcissism does show a normative decline, mean levels of narcissism are more stable than mean levels of many other personality constructs (Bleidorn et al., 2022). The present research also indicated that the rank-order stability of narcissism is high. Rank-order stability did not change as a function of age but as a function of time lag between assessments. Specifically, stability coefficients declined with increasing time lag but approached a nonzero asymptote, suggesting that individual differences in narcissism are moderately (neurotic) to highly (agentic, antagonistic) stable even across very long periods. The results on rank-order stability support the conclusion that agentic, antagonistic, and neurotic narcissism should be considered personality traits. In sum, the present findings on stability and change in narcissism have important implications given that high levels of narcissism influence people's lives in many ways, both the lives of the narcissistic individuals themselves and, maybe even more, the lives of the people whom they encounter.

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