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“Am I better than I was before?”

Social and temporal comparisons in childhood and adolescence

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Chapter 4

Social Comparisons (but not Temporal Comparisons) Maintain Narcissism Levels in Adolescence

Adolescence is a time when narcissism levels peak. What maintains narcissism in adolescence? Here, we propose that narcissism is maintained, in part, through downward social comparisons (i.e., comparing oneself favorably to others), given that such comparisons affirm one's superiority over others. By contrast, narcissism may not be maintained through temporal comparisons (i.e., comparing one's present self favorably to one's past self). Although such comparisons shed a favorable light on the self, they do not portray the self as superior to others. We tested these hypotheses in two studies in adolescence (ages 11-15). A correlational study ($N = 382$) showed that adolescents with higher narcissism levels were more inclined to make downward social and temporal comparisons. In an intensive longitudinal study ($N = 389$), we assessed adolescents' narcissism levels at the beginning of the school year and at three-month follow-up. In-between those assessments, we captured adolescents' social and temporal comparisons via daily diary assessments. Adolescents with higher narcissism levels made more downward social and temporal comparisons in their daily lives. Downward social comparisons—but not downward temporal comparisons—mediated the long-term stability of narcissism. In both studies, self-esteem was unrelated to downward social and temporal comparisons, indicating that effects were unique to narcissism. Bridging insights from social, personality, and developmental psychology, our research uncovers an intrapersonal mechanism that helps maintain the trait of narcissism over time. These findings highlight the self-regulatory nature of narcissism and may inspire interventions that discourage social comparisons (e.g., by encouraging temporal comparisons) to curtail narcissism.

Gürel, Ç., Overbeek, G., & Brummelman, E. Social comparisons (but not temporal comparisons) maintain narcissism levels in adolescence.

Adolescence is characterized by elevated levels of narcissism—a personality trait characterized by an inflated sense of self-importance and entitlement (Foster et al., 2003; Thomaes, & Brummelman, 2016). In its extreme levels, narcissism can develop into Narcissistic Personality Disorder, which is more prevalent in adolescence than in other age groups (Bernstein et al., 1993; Stinson et al., 2008). Narcissism may put adolescents at risk for maladjustment, including anxiety, depression, aggression, and problematic social relationships (Thomaes & Brummelman, 2016). Unfortunately, little is known about the developmental processes that maintain narcissism in adolescence.

We posit that adolescents with high narcissism levels maintain their narcissism levels, in part, via downward *social comparisons*—comparing themselves favorably to others (Festinger, 1954)—given that these comparisons affirm their superiority over others. In addition, we posit that adolescents with high narcissism levels also engage in downward *temporal comparisons*—comparing their present self favorably to their past self (Wilson & Ross, 2000)—but that these comparisons do not maintain their narcissism levels. Such comparisons shed a favorable light on the self, but they do not portray the self as superior to others. We tested these novel hypotheses in a correlational and an intensive longitudinal study conducted in adolescence, a time when narcissism peaks (Foster et al., 2003) and individuals make frequent social and temporal comparisons (Gürel et al., 2020a).

Narcissism and Social Comparisons

Social comparisons enable individuals to evaluate whether they are better than others (downward social comparison) or worse than others (upward social comparison; Collins, 1996; Festinger, 1954; Wills, 1981). Social comparisons are critical in adolescence (Gürel et al., 2020a; Keil et al., 1990). Indeed, adolescents have a strong need for competence and social status (Cushman & Rogers, 2008; Yeager et al., 2018), which may encourage them to seek social comparison information. Especially with the transition from primary to secondary school, adolescents become eager to assess their competence and social status in comparison to their newly formed peer group (Midgley et al., 1995). Secondary school contexts are rich in social comparison information, with an emphasis on normative grading and competition (e.g., Ames, 1992; Dweck, 1986; Maehr & Midgley, 1996; Nicholls, 1984). Overall, adolescents' needs and social contexts are likely to trigger social comparisons.

Several theories suggest that social comparisons play a key role in the maintenance of narcissism. For example, the dynamic self-regulatory processing model of narcissism posits that individuals with high narcissism levels engage in intrapersonal strategies to maintain and reinforce their grandiose self-views (Morf et al., 2011; Morf & Rhodewalt, 2001). Such strategies may include downward social comparisons. For example, individuals with high narcissism levels are likely to perceive themselves as superior to others (Morf & Rhodewalt, 2001; Morf et al., 2000). Similarly, the extended agency model holds that individuals with high narcissism levels strive for narcissistic esteem (Campbell & Foster, 2007; also see Baumeister & Vohs, 2001), which may lead them to engage in downward social comparisons. Building on these ideas, the status pursuit in narcissism model holds that narcissism is rooted in a desire for social status (Grapsas, Brummelman, et al., 2020). Driven by a desire for status (Zeigler-Hill et

al., 2018), individuals with high narcissism levels may engage in downward social comparisons. For individuals with high narcissism levels, downward social comparisons might be particularly attractive, as being better than peers is believed to bring social status (Anderson et al., 2012).

Do adolescents with higher narcissism levels indeed make more frequent downward social comparisons than others? Although this has not been studied in adolescents, clinical observations and empirical research in adults provides supporting evidence. According to the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; DSM-5; American Psychiatric Association, 2013), individuals with Narcissistic Personality Disorder are often “condescending toward others,” firmly hold on “to the belief that [they are] better than others,” and excessively “reference to others for self-definition” (pp. 767-768). Indeed, a clinician described the thoughts of her patients with this disorder as follows: “I am bigger and better than anyone else. I am the greatest, the most grandiose” (Reich, 1960, p. 220). Consistent with these observations, empirical studies show that adults with higher narcissism levels frequently make downward social comparisons. A series of correlational studies (Campbell et al., 2002) found that adults with high narcissism levels see themselves as above average, such as in terms of their intelligence and attractiveness. A correlational study (Krizan & Bushman, 2011) shows that adults with higher narcissism levels make more frequent downward social comparisons. A daily diary study (Bogart et al., 2004) assessed adults’ social comparisons over a period of three days, showing that adults with higher narcissism levels made more frequent downward social comparisons.

Do these downward comparisons, in turn, feed into narcissism? Although no studies have examined this possibility, indirect evidence supports it. When individuals make downward social comparisons, they notice a favorable gap between themselves and others. This reinforces individuals’ grandiose self-views and put individuals in competition with others to maintain or increase the gap between themselves and others (Sedikides & Gregg, 2008; Tesser, 1988). For example, an experimental study (Gürel et al., 2020) shows that downward social comparisons cause children and adolescents to feel proud and to desire superiority over others (at the expense of improving themselves). Similarly, a daily diary study (Gürel et al., 2020a) shows that on days when adolescents make more downward social comparisons, they feel prouder and desire more strongly for more superiority over others (at the expense of improving themselves). This desire for superiority is central to narcissism (Brummelman & Sedikides, 2020). Thus, by engaging in downward social comparisons, individuals with high narcissism levels may reinforce their own grandiose self-views and status motive (Bellezza et al., 2014), leading them maintain their own narcissism levels over time.

Narcissism and Temporal Comparisons

Here, we focus on another type of comparison that is frequent among adolescents: temporal comparisons (Gürel et al., 2020; 2020a). Unlike social comparisons, temporal comparisons are with one’s own self across time rather than with others (Albert, 1977). Temporal comparisons enable individuals to evaluate whether their present self is better than their past self (downward temporal comparisons) or worse than their past self (upward temporal comparisons; Albert, 1977; Gürel et al., 2020; Wilson & Ross, 2000). Research shows that temporal comparisons are more frequent than social comparisons (Wayment & Taylor, 1995;

Wilson & Ross, 2000), even in adolescence (Gürel et al., 2020a). Even when social comparison information is available, individuals frequently make temporal comparisons (Zell & Alicke, 2009).

We theorize that individuals with high narcissism levels make frequent downward temporal comparisons, as these comparisons help them see themselves more positively. According to the dynamic self-regulatory processing model, individuals with high narcissism levels might reconstruct their past self to see their present self more positively (Morf & Rhodewalt, 2001). Similarly, temporal self-appraisal theory (Wilson & Ross 2000, 2001) posits that individuals sometimes derogate their past self retrospectively to create a more positive present self. Indeed, in adolescence, downward comparisons make individuals feel proud (Gürel et al., 2020) and help them evaluate themselves more favorably (Conway & Ross, 1984; Taylor et al., 1996; Zell & Alicke, 2009). Individuals with high narcissism levels may engage in such downward comparisons to satisfy their desire for self-enhancement.

Unlike downward social comparisons, however, downward temporal comparisons are unlikely to maintain narcissism over time. Downward temporal comparisons involve comparisons with one's own self over time—not with others (Albert, 1977)—so they are likely to trigger competition with one's own self—not with others (Gürel et al., 2020). Downward temporal comparisons focus adolescents on how they can improve themselves (Butler, 2000). By making improvement trajectories salient to adolescents, temporal comparisons might help them realize that their characteristics are malleable (Butler, 2000; Gürel et al., 2020). Indeed, an experimental study (Gürel et al., 2020) showed that downward temporal comparisons did not trigger superiority goals; instead, they made adolescents desire to improve themselves, while giving them a sense of progress and insight. Similarly, a daily diary study (Gürel et al., 2020a) showed that on days when adolescents made frequent downward temporal comparisons, they felt prouder, adopted more improvement over superiority goals, and felt more related to others. Thus, downward temporal comparisons may not foster individuals with high narcissism levels' tendency to see themselves as superior to others or to desire such superiority. By not feeding into the core beliefs and motives that underlie narcissism (Brummelman et al., 2018), downward temporal comparisons may not maintain narcissism over time.

Narcissism Versus Self-Esteem

Psychologists often define narcissism as inflated, excessive, or exaggerated self-esteem, suggesting that narcissism is merely a form of high self-esteem (Brummelman, Thomaes et al., 2016; Donnellan et al., 2005; Trzesniewski et al., 2013). Although narcissism and self-esteem both involve favorable self-evaluations, they are conceptually distinct (Brummelman, Thomaes et al., 2016) and have unique nomological networks (Hyatt et al., 2018). Individuals with high narcissism levels see themselves as superior to others, whereas those with high self-esteem levels see themselves and others as worthy but not necessarily as superior to others (Brummelman et al., 2018). While narcissism peaks in adolescence, self-esteem drops in adolescence, especially with the transition from primary to secondary school (Robins & Trzesniewski, 2005; Robins et al., 2002).

Unlike individuals with high narcissism levels, individuals with high self-esteem levels may be unlikely to engage in downward social comparisons. Research in adults shows that, contrary to narcissism, self-esteem is not associated with downward social comparisons (Krizan & Bushman, 2011). Indeed, individuals with high self-esteem levels may not make frequent *downward* social comparisons but may instead be more likely to refrain from *upward* social comparisons (Taylor et al., 1996). Indeed, research in adults shows that those with lower levels of self-esteem tend to make more upward social comparisons, thinking about how they are worse than others (Krizan & Bushman, 2011; Taylor et al., 1996; Wheeler & Miyake, 1992). This suggests a self-verification process (Swann, 2012), whereby individuals with low self-esteem seek out and embrace information that verifies their negative self-views.

These upward social comparisons may, in turn, maintain lower levels of self-esteem over time. Experimental evidence in adolescents shows that upward social comparisons reduce self-esteem (Gürel et al., 2020) and longitudinal evidence in adults shows that such comparisons predict lower levels of self-esteem over time (Schmuck et al., 2019). Thus, upward social comparisons may feed adolescents' negative self-evaluations and maintain lower levels of self-esteem over time.

Present Study

This research examined, for the first time, social and temporal comparisons as intrapersonal mechanisms in the maintenance of narcissism and self-esteem. We conducted a correlational study and an intensive longitudinal study in the key age of adolescence (ages 11-15), when narcissism rises (Foster et al., 2003), self-esteem falls (Robins & Trzesniewski, 2005), and adolescents engage in social comparisons (Gürel et al., 2020a). We hypothesized that adolescents with higher narcissism levels would engage in more downward social and temporal comparisons. We also hypothesize that downward social comparisons—but not downward temporal comparisons—would mediate the long-term stability of narcissism. Additionally, we hypothesized that adolescents with lower self-esteem levels would engage in more upward social comparisons and that such comparisons would mediate the long-term stability of self-esteem.

Study 1

We conducted a correlational study to examine associations between adolescents' narcissism, self-esteem, and social and temporal comparison tendencies. We hypothesized that narcissism (but not self-esteem) would be positively related to downward social comparisons, whereas self-esteem (but not narcissism) would be negatively related to upward social comparisons.

Method

Participants. This study was conducted in the same sample as a prior study (Chapter 2). We selected 11-15-year-old participants who participated in a questionnaire assessment that was several days prior to the aforementioned study. The sample utilized here involved 382 adolescents (53.7% girls) aged 11-15 years ($M_{\text{age}} = 12.46$, $SD = 1.23$; 97.1% ethnic Dutch). All participants received active parental consent (parental consent rate = 67%). All procedures were

approved by the Ethics Review Board of the Faculty of Social and Behavioral Sciences, 2016-CDE-7421. Similar to a previous study (Yeager et al., 2016), final sample size was determined by the maximum number of parents who were willing to provide consent. Based on a previous study (i.e., Krizan & Bushman, 2011), a power analysis in G*power (two tailed, effect size $|\rho| = 0.18$, $\alpha = 0.05$, power = 0.80; Faul et al., 2007) showed that the required sample size was 237 participants. We report how we determined our sample size, all data exclusions (if any), all manipulations, and all measures in the study. The study materials, study protocol, variable codebook, and analysis scripts are available on OSF at osf.io/c384a/?view_only=ba240e7fc1e14657b98b92d4e8e21df5.

Procedure and measures. Participants completed questionnaires in their classrooms. All items were rated on four-point scales (0 = *not at all true*, 3 = *completely true*). For each scale, responses were averaged across items. We measured trait narcissism using the 10-item Childhood Narcissism Scales (Thomaes et al., 2008). Sample items include: “I am a very special person” and “Kids like me deserve something extra” ($M = 1.13$, $SD = 0.47$, Cronbach’s $\alpha = .78$). We measured self-esteem using the 10-item Rosenberg Self-esteem Scale (Rosenberg, 1965). Sample items include, “On the whole, I am satisfied with myself” and “I feel that I have a number of good qualities” ($M = 2.23$, $SD = 0.46$, Cronbach’s $\alpha = .81$). The five negatively worded items (e.g., “I certainly feel useless at times”) were reverse coded. We measured comparison tendencies using the Social and Temporal Comparison Tendencies Scale, constructed for the purpose of this study (see Supplemental Material for all items and the results of a principal component analysis confirming the scale’s component structure). Three items assessed downward social comparisons (e.g., “I often think about how I am better than my classmates;” $M = 0.82$, $SD = 0.65$, Cronbach’s $\alpha = .84$), three items assessed upward social comparisons (e.g., “I often think about how I am worse than my classmates;” $M = 0.74$, $SD = 0.67$, Cronbach’s $\alpha = .86$), three items assessed downward temporal comparisons (e.g., “I often think about how I am better now than I was younger;” $M = 1.38$, $SD = 0.78$, Cronbach’s $\alpha = .80$), and three items assessed upward temporal comparisons (e.g., “I often think about how I am worse now than I was younger;” $M = 0.57$, $SD = 0.64$, Cronbach’s $\alpha = .83$).

Results

Preliminary analysis. There were four univariate outliers for downward social comparisons, six for upward social comparisons, four for upward temporal comparisons ($z_s > 3.29$), and two for self-esteem ($z_s < -3.29$). However, none of these outliers unduly influenced our results (Cook’s distances < 1) and excluding them did not change our pattern of findings. We therefore reported results including these outliers.

Main analyses. Descriptive statistics and zero-order correlations are shown in Table 1. Narcissism and self-esteem were weakly positively correlated, attesting to their independence.

As hypothesized, narcissism was positively related to downward social comparisons, $r(375) = .56$, $p < .001$, and to downward temporal comparisons, $r(375) = .26$, $p < .001$. By contrast, narcissism was not significantly related to upward social comparisons, $r(361) = .09$, $p = .095$, and, unexpectedly, narcissism was positively related to upward temporal comparisons, $r(361) = .17$, $p = .001$.

As hypothesized, self-esteem was negatively related to upward social comparisons, $r(361) = -.53, p < .001$, and upward temporal comparisons, $r(361) = -.30, p < .001$. By contrast, self-esteem was not significantly related to downward social comparisons, $r(375) = -.01, p = .860$, or downward temporal comparisons, $r(375) = -.03, p = .510$.

Thus, adolescents with higher narcissism levels made more frequent downward comparisons (both social and temporal), whereas adolescents with higher self-esteem levels made less frequent upward comparisons (both social and temporal).

Robustness analyses. To examine the robustness of our findings, we reran the analyses adding gender and age as covariates. The results remained (i.e., no significant association became non-significant, and no non-significant association became significant), except that narcissism became positively related to upward social comparisons, $r(358) = .11, p = .039$.

Discussion

Study 1 provided initial evidence for our theoretical predictions. Consistent with prior work with adults (e.g., Bogart et al., 2004; Krizan & Bushman, 2011), adolescents with higher narcissism levels made more frequent downward social comparisons. Extending prior work, we found that adolescents with higher narcissism levels also made more frequent downward temporal comparisons. These findings were unique to adolescents with higher narcissism levels, as those with higher self-esteem levels did not make more frequent downward comparisons; rather, they made less frequent upward comparisons, both social and temporal. These cross-sectional findings raise the interesting possibility that downward social comparisons maintain narcissism over time. We designed Study 2 to examine this possibility.

Study 2

Study 2 used intensive longitudinal design. We assessed adolescents' narcissism and self-esteem levels at the beginning of the school year and at three-month follow-up. In-between those assessments, we captured adolescents' social and temporal comparisons via daily diary assessments. We tested the hypothesis that narcissism is maintained through downward social (but not temporal) comparisons. Additionally, we tested the hypothesis that low self-esteem is maintained through upward social comparisons.

Method

Participants. All students from first, second, and third grade of a public secondary school (serving a middle-class neighborhood in the Netherlands) were eligible for participation. We report how we determined our sample size, all data exclusions (if any), all manipulations, and all measures in the study. Data were collected as part of a larger longitudinal project called the Adolescents' Social and Temporal Comparisons Study. All participants received active parental consent (parental consent rate = 58%). All procedures were approved by the Ethics Review Board of the Faculty of Social and Behavioral Sciences, University of Amsterdam (2016-CDE-7449). We analyzed our data using structural equation models. A Monte Carlo power analysis for indirect effects (1000 replications, random seed = 1234, confidence level = 95%, Monte Carlo draws per rep = 20000; Schoemann et al., 2017) given our models (see Table 2 and Figure 1) and sample size ($N = 201$) resulted in a statistical power ranged between 0.97-

0.98 for the main hypotheses. The study materials, study protocol, and variable codebook are available for the larger project on OSF at osf.io/zfkcw/?view_only=06aedfe66d7f47afbe6733a9c9831f07. The data and syntax for Study 2 are available on osf.io/5bdwx/?view_only=f4d76c6eabec45e985487eef3f55a55.

Procedure and measures. On a Monday, one week after the school year began, a total of 389 adolescents (ages 11-15, $M_{\text{age}} = 12.69$, $SD = 0.97$; 41.4% girls; 99% of Dutch origin) completed narcissism and self-esteem questionnaires in their classrooms. Three months later, 201 of those adolescents (ages 11-15, $M = 12.79$, $SD = 0.97$; 45.3% girls; 100% of Dutch origin) completed an online follow-up. At each assessment, adolescents reported how they perceived themselves “the past three months.” We measured narcissism with the Childhood Narcissism Scale (Thomaes et al., 2008), rated on four-point scales (0 = *not at all true*, 3 = *completely true*). Responses were averaged across items ($M_{\text{baseline}} = 1.01$, $SD_{\text{baseline}} = 0.44$, Cronbach’s $\alpha_{\text{baseline}} = .79$; $M_{\text{follow-up}} = 1.02$, $SD_{\text{follow-up}} = 0.50$, Cronbach’s $\alpha_{\text{follow-up}} = .84$). We measured self-esteem using the 6-item Global Self-Worth subscale of the Self-Perception Profile for Children (e.g., “Some kids like the kind of person they are”; Harter, 1985), rated on four-point scales (0 = *I am not like these children at all*, 3 = *I am exactly like these children*). After reverse scoring three negatively worded items (e.g., “Some kids are often unhappy with themselves”), responses were averaged across items ($M_{\text{baseline}} = 2.17$, $SD_{\text{baseline}} = 0.52$, Cronbach’s $\alpha_{\text{baseline}} = .85$; $M_{\text{follow-up}} = 2.68$, $SD_{\text{follow-up}} = 0.59$, Cronbach’s $\alpha_{\text{follow-up}} = .84$).

Immediately following the assessment, from Monday through Friday, adolescents completed a daily diary assessment at home after school hours, reporting the comparisons they engaged in that day. We measured social and temporal comparisons using one item for each comparison type (Gürel et al., 2020a): “Today at school, I thought I was better than my classmates” (downward social comparison; $M = 1.40$, $SD = 0.47$, Cronbach’s α across 5 days = .81), “Today at school, I thought I was worse than my classmates” (upward social comparison; $M = 1.34$, $SD = 0.43$, Cronbach’s α across 5 days = .74), “Today at school, I thought I had become better compared to a while ago” (downward temporal comparison; $M = 2.18$, $SD = 0.70$, Cronbach’s α across 5 days = .83), and “Today at school, I thought I had become worse compared to a while ago” (upward temporal comparison; $M = 1.28$, $SD = 0.39$, Cronbach’s α across 5 days = .80). All items were rated on four-point scales (1 = *not at all true* to 4 = *completely true*). Following prior research (Becht et al., 2017), responses averaged across days to form a reliable score for each comparison type.

Statistical approach. We used structural equation modeling to examine whether social and temporal comparisons mediated the long-term stability of narcissism and self-esteem. We ran separate models for narcissism and self-esteem, and for each comparison type. The model included self-views at baseline (narcissism, self-esteem) as the predictor, self-views at follow-up (narcissism, self-esteem) as the outcome, and comparisons (upward social, downward social, upward temporal, downward temporal) as the mediator. Each model tested (a) the direct effect of self-views at baseline on a specific type of comparison in the daily diary; (b) the direct effect of a specific type of comparison in the daily diary on self-views at follow-up, controlling for self-views at baseline; and (c) the direct effect of self-views at baseline on self-views at follow-up, controlling for the specific type of comparison in the daily diary. The indirect effect, then,

refers to the effect of the self-views at baseline on self-views at follow-up via a comparison type in the daily diary. The total effect refers to the sum of the direct and indirect effects (Hayes, 2013). We conducted the analyses in R v.3.6.2 (R Core Team, 2019) with RStudio v1.2.5033 (RStudio Team, 2019) using the lavaan package (Rosseel, 2012).

Little's (1988) Missing Completely at Random (MCAR) test indicated that the pattern of missing values was not completely at random, $\chi^2(38) = 66.017, p = .003$. Missing values at wave 2 were predicted by narcissism $\chi^2(1) = 11.508, p = .001$ and self-esteem $\chi^2(1) = 9.935, p = .002$, measured at baseline, but not by comparisons, $ps > .106$. Adolescents who did not participate had higher narcissism levels, $t(386) = 3.84, p < .001$, and higher self-esteem levels, $t(385) = 3.36, p = .020$, than those who did participate. For this reason, we dealt with missingness in two ways. First, we used full information maximum likelihood (FIML) to account for the pattern of missingness (Muthén & Satorra, 1995). Second, we repeated the analyses excluding all participants who did not complete any of the daily diary assessments or had missing data at baseline or follow-up for narcissism or self-esteem. Because both strategies produced the same results, we report analyses using FIML, as this maximizes statistical power.

Results

Descriptive statistics and zero-order correlations are shown in Table 2. At baseline, narcissism and self-esteem were weakly positively correlated, attesting to their independence.

Narcissism. Figure 1 shows the mediational models tested for narcissism.

Social comparisons. Narcissism at baseline positively predicted downward social comparisons across the subsequent 5-day school period, $\beta = 0.306, SE = 0.057, p < .001, 95\% CI [0.195, 0.418]$. Downward social comparisons positively predicted narcissism at 3-month follow-up, controlling for narcissism at baseline, $\beta = 0.231, SE = 0.062, p < .001, 95\% CI [0.110, 0.352]$. Narcissism at baseline positively predicted narcissism at follow-up, controlling for downward social comparisons, $\beta = 0.720, SE = 0.063, p < .001, 95\% CI [0.597, 0.844]$. The total effect of narcissism at baseline on narcissism at follow-up was significant, $\beta = 0.791, SE = 0.061, p < .001, 95\% CI [0.672, 0.910]$. As hypothesized, downward social comparisons partially mediated the link between narcissism at baseline and narcissism at follow-up, $\beta = 0.071, SE = 0.023, p = .002, 95\% CI [0.026, 0.116]$.

By contrast, narcissism at baseline was unrelated to upward social comparisons across the subsequent 5-day school period, $\beta = 0.085, SE = 0.054, p = .115, 95\% CI [-0.021, 0.190]$. Upward social comparisons were not significantly related to narcissism at 3-month follow-up, controlling for narcissism at baseline, $\beta = 0.011, SE = 0.070, p = .876, 95\% CI [-0.126, 0.147]$. Narcissism at baseline positively predicted narcissism at follow-up, controlling for upward social comparisons, $\beta = 0.798, SE = 0.062, p < .001, 95\% CI [0.677, 0.919]$. The total effect of narcissism at baseline on narcissism at follow-up was significant ($\beta = 0.799, SE = 0.062, p < .001, 95\% CI [0.678, 0.920]$). Upward social comparisons did not significantly mediate the link between narcissism at baseline and narcissism at follow-up, $\beta = 0.001, SE = 0.006, p = .877, 95\% CI [-0.011, 0.013]$.

Together, these findings indicate that adolescents with higher levels of narcissism engaged in more downward (but not upward) social comparisons in their daily lives, and that these comparisons, in turn, maintained their narcissism levels over a three-month period.

Temporal comparisons. Narcissism at baseline positively predicted downward temporal comparisons across the subsequent 5-day school period, $\beta = 0.240$, $SE = 0.087$, $p = .006$, 95% CI [0.069, 0.410]. Downward temporal comparisons were positively predicted narcissism at 3-month follow-up, controlling for narcissism at baseline, $\beta = 0.081$, $SE = 0.041$, $p = .048$, 95% CI [0.001, 0.162]. Narcissism at baseline positively predicted narcissism at follow-up, controlling for downward temporal comparisons, $\beta = 0.780$, $SE = 0.062$, $p < .001$, 95% CI [0.660, 0.901]. The total effect of narcissism at baseline on narcissism at follow-up was significant, $\beta = 0.800$, $SE = 0.061$, $p < .001$, 95% CI [0.680, 0.920]. As hypothesized, downward temporal comparisons did not significantly mediate the link between narcissism at baseline and narcissism at follow-up, $\beta = 0.019$, $SE = 0.012$, $p = .107$, 95% CI [-0.004, 0.043].

By contrast, narcissism at baseline was not significantly related to upward temporal comparisons across the subsequent 5-day school period, $\beta = 0.012$, $SE = 0.049$, $p = .803$, 95% CI [-0.084, 0.109]. Upward temporal comparisons were unrelated to narcissism at 3-month follow-up, controlling for narcissism at baseline, $\beta = -0.029$, $SE = 0.069$, $p = .671$, 95% CI [-0.164, 0.105]. Narcissism at baseline positively predicted narcissism at follow-up, controlling for upward temporal comparisons, $\beta = 0.801$, $SE = 0.062$, $p < .001$, 95% CI [0.680, 0.922]. The total effect of narcissism at baseline on narcissism at follow-up was significant, $\beta = 0.801$, $SE = 0.062$, $p < .001$, 95% CI [0.680, 0.922]. Upward temporal comparisons did not significantly mediate the link between narcissism at baseline and narcissism at follow-up, $\beta = -0.000$, $SE = 0.002$, $p = .830$, 95% CI [-0.004, 0.003].

Together, these findings indicate that adolescents with higher levels of narcissism engaged in more downward (but not upward) temporal comparisons in their daily lives, but these comparisons did not significantly maintain their narcissism levels over a three-month period.

Self-Esteem. Figure 2 shows the mediational models tested for self-esteem.

Social Comparisons. Self-esteem at baseline was not significantly related to downward social comparisons across the subsequent 5-day school period, $\beta = 0.034$, $SE = 0.051$, $p = .498$, 95% CI [-0.065, 0.134]. Downward social comparisons were unrelated to self-esteem at 3-month follow-up, controlling for self-esteem at baseline, $\beta = -0.059$, $SE = 0.064$, $p = .355$, 95% CI [-0.185, 0.067]. Self-esteem at baseline positively predicted self-esteem at follow-up, controlling for downward social comparisons, $\beta = 0.806$, $SE = 0.051$, $p < .001$, 95% CI [0.707, 0.906]. The total effect of self-esteem at baseline on self-esteem at follow-up was significant, $\beta = 0.804$, $SE = 0.051$, $p < .001$, 95% CI [0.704, 0.904]. Importantly, downward social comparisons did not mediate the link between self-esteem at baseline and self-esteem at follow-up, $\beta = -0.002$, $SE = 0.004$, $p = .588$, 95% CI [-0.009, 0.005].

By contrast, self-esteem at baseline negatively predicted upward social comparisons across the subsequent 5-day school period, $\beta = -0.230$, $SE = 0.044$, $p < .001$, 95% CI [-0.317, -0.143]. Upward social comparisons negatively predicted self-esteem at 3-month follow-up,

controlling for self-esteem at baseline, $\beta = -0.166$, $SE = 0.076$, $p = .029$, 95% CI [-0.314, -0.017]. Self-esteem at baseline positively predicted self-esteem at follow-up, controlling for upward social comparisons, $\beta = 0.759$, $SE = 0.055$, $p < .001$, 95% CI [0.652, 0.867]. Total effect of self-esteem at baseline on self-esteem at follow-up was significant, $\beta = 0.797$, $SE = 0.051$, $p < .001$, 95% CI [0.698, 0.897]. Thus, as hypothesized, upward social comparisons partially mediated the link between self-esteem at baseline and self-esteem at follow-up, $\beta = 0.038$, $SE = 0.019$, $p = .042$, 95% CI [0.001, 0.075].

Together, these findings indicate that adolescents with lower levels of self-esteem engaged in more upward (but not downward) social comparisons in their daily lives, and that these comparisons, in turn, maintained their self-esteem levels over a three-month period.

Temporal Comparisons. Self-esteem at baseline positively predicted downward temporal comparisons across the subsequent 5-day school period, $\beta = 0.193$, $SE = 0.074$, $p = .009$, 95% CI [0.047, 0.338]. Downward temporal comparisons were unrelated to self-esteem at 3-month follow-up, controlling for self-esteem at baseline, $\beta = -0.028$, $SE = 0.044$, $p = .526$, 95% CI [-0.115, 0.059]. Self-esteem at baseline positively predicted self-esteem at follow-up, controlling for downward temporal comparisons, $\beta = 0.810$, $SE = 0.051$, $p < .001$, 95% CI [0.710, 0.910]. The total effect of self-esteem at baseline on self-esteem at follow-up was significant, $\beta = 0.805$, $SE = 0.051$, $p < .001$, 95% CI [0.705, 0.905]. Importantly, downward temporal comparisons did not mediate the link between self-esteem at baseline and self-esteem at follow-up, $\beta = -0.005$, $SE = 0.009$, $p = .540$, 95% CI [-0.023, 0.012].

Self-esteem at baseline negatively predicted upward temporal comparisons across the subsequent 5-day school period, $\beta = -0.189$, $SE = 0.041$, $p < .001$, 95% CI [-0.269, -0.109]. Upward temporal comparisons were unrelated to self-esteem at 3-month follow-up, controlling for self-esteem at baseline, $\beta = -0.046$, $SE = 0.073$, $p = .526$, 95% CI [-0.189, 0.097]. Self-esteem at baseline positively predicted self-esteem at follow-up, controlling for upward temporal comparisons, $\beta = 0.799$, $SE = 0.052$, $p < .001$, 95% CI [0.697, 0.902]. Total effect of self-esteem at baseline on self-esteem at follow-up was significant, $\beta = 0.808$, $SE = 0.051$, $p < .001$, 95% CI [0.708, 0.908]. Importantly, upward temporal comparisons did not mediate the link between self-esteem at baseline and self-esteem at follow-up, $\beta = 0.009$, $SE = 0.014$, $p = .529$, 95% CI [-0.018, 0.036].

Together, these findings indicate that adolescents with lower levels of self-esteem engaged in more upward and fewer downward temporal comparisons in their daily lives. However, these comparisons did not significantly maintain self-esteem levels over a three-month period.

Robustness Analyses

We took several steps to examine the robustness of our findings (see Supplemental Material). First, we reran the analyses with gender and age as covariates. The results remained (i.e., no significant path became non-significant, and no non-significant path became significant). Second, because comparisons were correlated with each other, we reran analysis adding all comparisons in the same model and specifying the covariance among them, separately for narcissism and self-esteem. The results remained, with one exception: The path

from self-esteem at baseline to self-esteem at follow-up via fewer upward social comparisons became marginally significant, $\beta = 0.039$, $SE = 0.021$, $p = .067$, 95% CI [-0.003, 0.081].

Discussion

As a first study of its kind, Study 2 shows that social comparisons may maintain narcissism and self-esteem over time. Adolescents with higher narcissism levels made more frequent downward social comparisons in daily life and doing so maintained their narcissism levels over a period of 3 months. Adolescents with lower self-esteem levels made more frequent upward social comparisons in daily life and doing so maintained their lower self-esteem levels over a period of 3 months.

General Discussion

The aim of this research was to shed light on critical intrapersonal processes—social and temporal comparison—in the maintenance of narcissism and self-esteem in the phase of adolescence. A correlational study (Study 1) shows that adolescents with higher narcissism levels make frequent downward social and temporal comparisons. An intensive longitudinal study (Study 2) replicates these findings and extends them by showing that downward social comparisons—but not downward temporal comparisons—maintain adolescents’ narcissism over time. These findings uncover a critical mechanism through which narcissism levels are maintained in development, and they suggest that temporal comparisons are an alternative to social comparisons that do not feed into narcissism. Attesting to the specificity of these findings, self-esteem was not significantly related to downward social comparisons; in fact, low self-esteem was maintained through upward social comparisons. These findings collectively show that comparison strategies play an important role in the maintenance of self-views in adolescents.

Theoretical Implications

Over the past decade, research shed important light on the nature, origins, and consequences of narcissism (Brummelman et al., 2015; Campbell et al., 2011; Carlson & Gjerde, 2009; Chopik & Grimm, 2019; Harris et al., 2018; Thomaes et al., 2008; Thomaes & Brummelman, 2016; Tracy et al., 2009; Trzesniewski et al., 2008; Wetzel & Robins, 2016). Yet, it is unknown how narcissism levels are maintained over time. Since individuals with high narcissism levels have unrealistically positive self-views, one may expect that narcissism simply disappears over time, as individuals are increasingly faced with undeniable realities of life (e.g., Bianchi, 2018). Our work challenges this view and suggests that individuals with high narcissism levels maintain their narcissistic self-views by actively engaging in an intrapersonal strategy: downward social comparisons. This finding is consistent with recent models of narcissism (Baumeister & Vohs, 2001; Campbell & Foster, 2007; Grapsas, Brummelman et al., 2020; Morf & Rhodewalt, 2001), which portray narcissism as self-regulatory strategy. Our work extends these models by showing, for the first time, that narcissistic self-regulatory strategies already take central stage in adolescence, help maintain narcissism over time, and are distinct from strategies used by individuals with high self-esteem levels. Moreover, our study shows that not all narcissistic intrapersonal strategies cultivate narcissism over time, as

temporal comparisons—viewing one’s present self as better than one’s past self—did not help maintain narcissism levels over time.

How can downward social comparisons maintain narcissism? When adolescents frequently make downward social comparisons, they may become more inclined to conclude that they are superior to others. Indeed, social comparisons are helpful in assessing one’s stable characteristics, and these assessments can then serve as a cue for superiority (e.g., “I am better at soccer than others; thus, I must be a good soccer player”; Arkelsson & Smith, 2000; Festinger, 1954; Ruble & Flett, 1988). In addition, downward social comparisons may trigger a desire for superiority over others (Gürel et al., 2020). Thus, downward social comparisons may feed narcissistic beliefs (e.g., “I am better than others”) and narcissistic motives (e.g., “I want to be better than others”). These processes may be most consequential in adolescence, when narcissism is still in development (Thomaes & Brummelman, 2016) and individuals are highly sensitive to cues of superiority (Yeager et al., 2018).

Our findings uncover the importance of an understudied comparison strategy: temporal comparisons. Relative to social comparisons, temporal comparisons have long been understudied (Gürel et al., 2020; Vogel et al., 2020; Wedell & Parducci, 2000; Zell & Alicke, 2009). Our study shows that adolescents with high narcissism levels make more frequent downward temporal comparisons, perceiving themselves as getting better over time. These findings provide the first evidence that individuals with high narcissism levels not only derogate others (Grapsas, Brummelman et al., 2020) but also their past selves. They imply that individuals with high narcissism levels are able to look at their past self and conclude that they have improved themselves, implying that they know that they are not born perfect. In addition, our study also shows that downward temporal comparisons—unlike downward social comparisons—do not maintain narcissism over time. Downward temporal comparisons make adolescents feel proud without teaching them that they are superior to others and without triggering a desire for superiority over others (Gürel et al., 2020, 2020a). This has implications for existing theories of narcissism. Individuals with high narcissism levels desire social status (Grapsas, Brummelman et al., 2020; Zeigler-Hill et al., 2018) and they use self-regulatory strategies to achieve it (Morf & Rhodewalt, 2001). Strategies that focus on superiority, such as downward social comparisons, might serve the pursuit of status (Anderson et al., 2012) and maintain their grandiose self-views (Grapsas, Brummelman et al., 2020; Morf & Rhodewalt, 2001). Strategies that shift their focus away from superiority, such as downward temporal comparisons, might not feed these narcissistic beliefs and motives. Thus, not all comparisons that narcissistic individuals spontaneously engage in cultivate narcissism.

Our findings extend the literature on the differences between narcissism and self-esteem (Barry et al., 2017; Brummelman et al., 2018; Hyatt et al., 2018; Orth et al., 2015; Tracy et al., 2009; Trzesniewski et al., 2003). Consistent with past work, narcissism and self-esteem were only weakly related. Extending past work, narcissism and self-esteem had distinct associations with comparisons: Adolescents with higher narcissism levels engaged in more downward comparisons, whereas those with lower self-esteem levels engaged in more upward comparisons. This may reflect different underlying motives. Adolescents with higher narcissism levels seem driven by both self-enhancement and self-verification motives

(Sedikides & Gregg, 2001), leading them to embrace positive information about themselves. Adolescents with lower self-esteem levels, however, seem driven by self-verification motives (Swann, 2012), leading them to embrace negative information about themselves. More broadly, the narcissistic interest in downward social comparison may reflect a generalized view of social relationships as a zero-sum game, in which the self is superior and others are inferior (e.g., Brummelman et al., 2018; Crocker et al., 2017; Hyatt et al., 2018; Zeigler-Hill et al., 2020).

Implications for Intervention

Although there are several evidence-based interventions that raise self-esteem (O'Mara et al., 2006), little is known about how to curtail narcissism (Brummelman & Gürel, 2019). Our findings have tentative implications for interventions that aim to simultaneously raise self-esteem and curtail narcissism. Social comparison opportunities are omnipresent in adolescents' lives (Gürel et al., 2020; Kohn, 1992), especially in secondary school contexts (Dijkstra et al., 2008). From the perspective of goal-matching model (Harackiewicz & Sansone, 1991), social comparisons might be alluring to adolescents with high narcissism levels, and they may generate positive affect, foster task enjoyment, and reduce stress (Morf et al., 2000). However, our findings suggest that social comparisons help maintain higher levels of narcissism and lower levels of self-esteem over time. Interventions may prevent this process by shifting adolescents' mindsets from social comparison to temporal comparison, and from competition to collaboration. In secondary schools, for example, this might be achieved by making improvement trajectories more salient to adolescents via report cards and feedback (e.g., Ames, 1992; Corpus et al., 2006; Gürel et al., 2020), and by assigning collaborative tasks that foster interdependence in students (e.g., Ames & Archer, 1988). An important question for future work is whether these changes in educational practices can contribute to higher self-esteem and lower narcissism at the level of individual students.

Strengths, Limitations, and Future Research Directions

Strengths of our study include its multi-method design, and its focus on adolescence, and its novel proposal that social and temporal comparisons have unique roles in the maintenance of self-views. Our study also has limitations. First, our sample consisted of adolescents from a Western society. In non-Western cultures, social comparisons are often seen as a tool for self-improvement (Watkins, 2007). Thus, in such cultures, social comparisons may be less central to the development of narcissism than they are in Western cultures. Future research should test that possibility. Second, our study investigated a 3-month period. The effects of social comparisons may sustain, or even exacerbate, over time (Carmona et al., 2006; Jones, 2004). Future research should therefore track narcissism and self-esteem over multiple years. Third, our study assessed narcissism as a unitary construct (Thomaes et al., 2008), without differentiating its agentic and antagonistic features (Back & Morf, 2018; Crowe et al., 2019). Although both features are about equally related to the tendency to make social comparisons (Lange et al., 2016), individuals with higher levels of agentic (rather than antagonistic) narcissism may be more inclined to make temporal comparisons, given their mental toughness (Manley et al., 2019). Future research should test these possibilities.

Our findings also generate new research directions. The novel finding that adolescents with higher narcissism levels make frequent downward temporal comparisons can have novel implications for clinical practice. Several theoretical accounts and clinical observations suggest that individuals with high narcissism levels are resistant to change and often quit therapy prematurely (Ellison et al., 2013). One possible explanation is that these individuals believe they are perfect as they are and that further improving themselves is neither desirable nor possible (Thomaes & Brummelman, 2016). Temporal comparisons might help individuals with high narcissism levels realize that improvement is both desirable and enjoyable. Temporal comparisons trigger adolescents' desire to improve themselves (Gürel et al., 2020) and are often used by those with growth mindset, who believe they can improve their skills through effort and education (Butler, 2000; Dweck, 2006). When individuals with high narcissism levels are encouraged to make more downward temporal comparisons, they might notice their progress over time, regardless of how small it is, and they might come to see themselves as individuals who can change and want to change. Future research should examine, for example, whether encouraging such temporal comparisons can make individuals with high narcissism levels less resistant to change.

As downward social comparisons are critical in the maintenance of narcissism, another important question is when and how individuals with high narcissism levels acquire their tendency to make such social comparisons. Childhood environments are rich in social comparison information (e.g., normative grades, competitive classroom assignments; Cimpian, 2017; Ruble et al., 1976; Ruble & Flett, 1988; Veroff, 1969) and children readily use social comparison information for the purpose of self-evaluation (Butler, 1996; Pomerantz et al., 1995; Ruble et al., 1980). Yet, why do some engage in social comparisons more frequently than do others? One possibility is that some children are raised in an environment that emphasizes the importance of social comparison. There is indeed evidence that parents of narcissistic children want their children to get ahead and stand out (Brummelman et al., 2015; Grapsas, Brummelman et al., 2020). For example, already from the age of 8, children with high narcissism levels are sensitive to gaining and losing status among their peers, and they share this sensitivity with their parents (Grapsas, Denissen et al., 2020). Future research should unravel underlying developmental mechanisms.

Conclusion

Adolescence is a time when narcissism levels are on the rise. We demonstrated in this study that adolescents with high narcissism levels make more downward social and temporal comparisons in their everyday life. Downward social comparisons—but not downward temporal comparisons—maintain their narcissism levels over time. Considering how pervasive social comparison opportunities are in Western society, these findings highlight how common cultural beliefs and practices may shape adolescent personality development.

Table 1
Descriptive Statistics and Pearson Correlations between Self-views and Comparison Tendencies (N = 382)

	<i>M (SD)</i>	Age (in years)	Narcissism	Self-esteem	DSOC	USOC	DTEM
1. Age (in years)	12.46 (1.23)						
1. Narcissism	1.13 (0.47)	.08					
2. Self-esteem	2.23 (0.46)	-.05	.18**				
3. DSOC	0.82 (0.65)	.07	.56**	-.01			
4. USOC	0.74 (0.67)	.11*	.09	-.53**	.24**		
5. DTEM	1.38 (0.78)	.01	.26**	-.03	.34**	.18**	
6. UTEM	0.57 (0.66)	-.02	.17**	-.30**	.29**	.50**	.22**

Note. DSOC refers to downward social comparison tendencies; USOC refers to upward social comparison tendencies; DTEM refers to downward temporal comparison tendencies; UTEM refers to upward social comparison tendencies. Five adolescents had completely missing data on the variables narcissism, self-esteem, and downward social comparison tendencies, and downward temporal comparison tendencies; 19 adolescents had completely missing data on the variables upward social comparison tendencies and upward temporal comparison tendencies. * $p < .05$, ** $p < .01$ (two-tailed).

Table 2
Descriptive Statistics and Pearson Correlations between Self-views and Comparison Tendencies (N = 389)

	<i>N</i>	<i>M</i> (<i>SD</i>)	1	2	3	4	5	6	7	8
1. Age (in years)	389	12.69 (0.97)								
2. Narcissism baseline	388	1.01 (0.44)	.06							
3. Narcissism follow-up	201	1.02 (0.50)	.15*	.68**						
4. Self-esteem baseline	387	2.17 (0.52)	-.15**	.11*	.04					
5. Self-esteem follow-up	196	2.18 (0.59)	-.13	-.07	-.05	.75**				
6. Downward social comparisons	317	1.40 (0.47)	.06	.29**	.41**	.04	-.06			
7. Upward social comparisons	317	1.34 (0.43)	.13*	.09	.07	-.28**	-.39**	.39**		
8. Downward temporal comparisons	316	2.18 (0.70)	-.10	.15**	.21**	.14*	.04	.42**	.17**	
9. Upward temporal comparisons	316	1.28 (0.39)	.12*	.01	.04	-.25**	-.20**	.20**	.45**	.20**

Note. * $p < .05$, ** $p < .01$ (two-tailed).

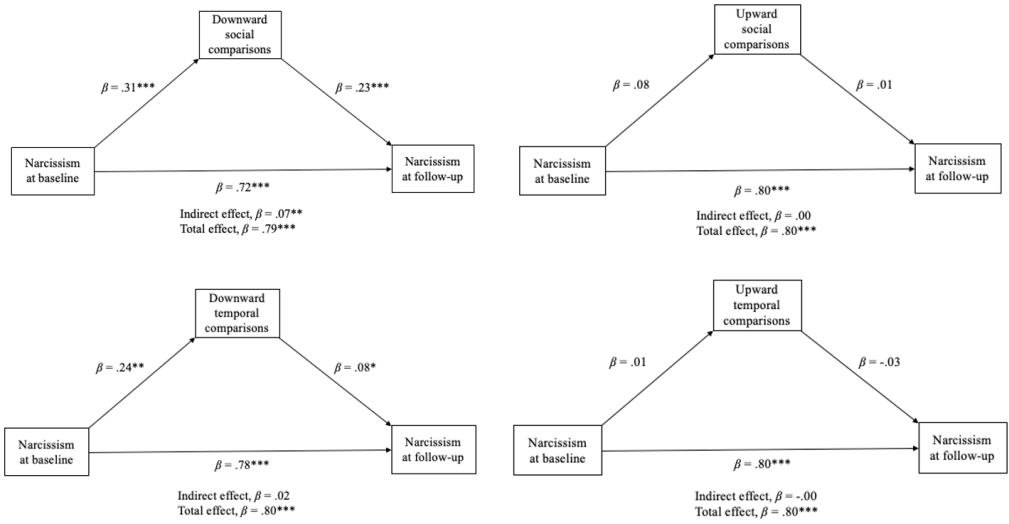


Figure 1. Mediation models for narcissism. $*p < .05$, $**p < .01$, $*** < .001$.

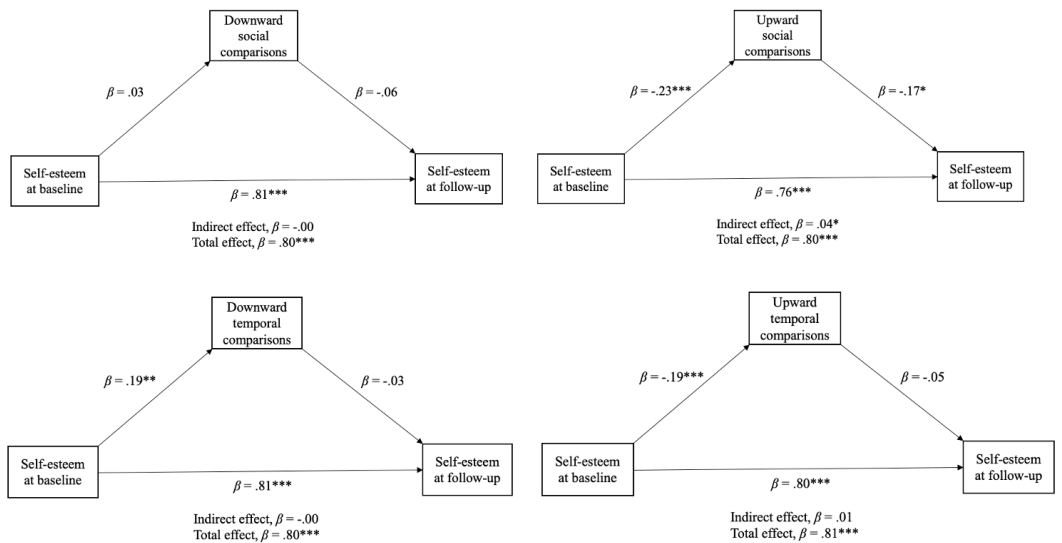


Figure 2. Mediation models for self-esteem. $*p < .05$, $**p < .01$, $*** < .001$.