

High Self-Esteem Prospectively Predicts Better Work Conditions and Outcomes

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Abstract

We examined the reciprocal prospective relations between self-esteem and work conditions and outcomes, including justice at work, support at work, work stressors, job satisfaction, job success, and counterproductive work behavior. Data came from two independent longitudinal studies, including five assessments over an eight-month period ($N = 663$, age 16 to 62 years) and three assessments over a two-year period ($N = 600$, age 22 to 51 years), respectively. Across both studies, high self-esteem prospectively predicted better work conditions and outcomes, whereas nearly all of the reverse effects (i.e., work conditions and outcomes predicting self-esteem) were nonsignificant. The results held for both male and female participants. If future research supports the causality of the self-esteem effects, interventions aimed at improving self-esteem might be useful in increasing an individual's well-being and success at work, which consequently might be beneficial for employers.

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High Self-Esteem Prospectively Predicts Better Work Conditions and Outcomes

Does self-esteem lead to more satisfaction and success in work life? Or, alternatively, is self-esteem merely an epiphenomenon or a consequence of positive work-related outcomes? At present, there is an ongoing debate about whether self-esteem—which is defined as “a person’s appraisal of his or her value” (Leary & Baumeister, 2000, p. 2)—has a significant impact on important life domains, including work (Baumeister, Campbell, Krueger, & Vohs, 2003; Boden, Fergusson, & Horwood, 2008; Krueger, Vohs, & Baumeister, 2008; Orth, Robins, & Widaman, 2012; Swann, Chang-Schneider, & McClarty, 2007, 2008; Trzesniewski et al., 2006). With regard to the work domain, the available evidence on possible effects of self-esteem is still inconclusive. Although previous research suggests that self-esteem is correlated with work success (e.g., job satisfaction and job performance, Judge & Bono, 2001), this research does not demonstrate that self-esteem actually predicts increases in career success over time.

Therefore, the goal of the present research is to systematically examine the longitudinal relations between self-esteem and important work conditions and outcomes. Few previous studies have tested for prospective effects between self-esteem and work-related outcomes (e.g., Judge, Hurst, & Simon, 2009; Kammeyer-Mueller, Judge, & Piccolo, 2008; Orth et al., 2012; Salmela-Aro & Nurmi, 2007; Trzesniewski et al., 2006). For example, Trzesniewski et al. (2006) followed a large sample of individuals from adolescence to adulthood and found that low self-esteem in adolescence predicted work-related problems more than 10 years later when the adolescents had become adults. Similarly, Salmela-Aro and Nurmi (2007) found that a person’s level of self-esteem during their college years predicted career characteristics such as job satisfaction, employment status, and salary 10 years later. In a study by Orth et al. (2012), self-

esteem prospectively predicted job satisfaction, occupational status, and salary across several waves of data, whereas these work-related outcomes did not prospectively predict self-esteem.

However, nearly all previous studies suffer from at least one of the following two important limitations. First, in most studies the self-esteem effects on work outcomes could not be controlled for the prior level of the outcomes (because on the first occasion when self-esteem was measured, participants were still adolescents or students and not yet involved in working life; see the studies by Judge, Bono, & Locke, 2000; Judge & Hurst, 2007, 2008; Judge, Hurst & Simon, 2009; Salmela-Aro & Nurmi, 2007; Trzesniewski et al., 2006). However, when the prior level of an outcome is not statistically controlled for the evidence on prospective effects is confounded by the concurrent relation between the constructs and, consequently, estimates of prospective effects can be strongly misleading (Cole & Maxwell, 2003; Finkel, 1995). Second, most previous studies did not test for effects in the opposite direction, that is, whether work-related outcomes predict subsequent change in self-esteem (see the studies by Judge, Bono, & Locke, 2000; Judge & Hurst, 2007, 2008; Judge, Hurst & Simon, 2009; Salmela-Aro and Nurmi, 2007; Trzesniewski et al., 2006). Self-esteem might be a consequence of job satisfaction and job success, rather than a causal factor if people derive their self-esteem from competences and successes (Crocker & Wolfe, 2001; Tafarodi & Swann, 1995). It is important to note that the hypothesized directions of effects are not mutually exclusive, because both processes (i.e., self-esteem influencing positive work outcomes and positive work outcomes influencing self-esteem) might operate simultaneously. To our knowledge, only one study did not suffer from these limitations (Orth et al., 2012); however, that study examined only three work-related variables and, consequently, it is important to examine a larger and more comprehensive set of variables.

Therefore, further research is needed to examine the prospective link between self-esteem and work-related outcomes. Whether self-esteem is a cause, epiphenomenon, or consequence of positive work conditions and work outcomes is a critical question because a causal effect of self-esteem implies that improving self-esteem would have a beneficial effect on a person's work-related well-being and career success and also on their organizational functioning and success. The present study addresses this gap in the literature by using data from two independent longitudinal studies that provide measures of work conditions (i.e., justice at work, support at work, and work stressors) and work outcomes (i.e., job satisfaction, job success, and counterproductive work behavior). Importantly, in all analyses we tested for prospective effects in both directions (i.e., self-esteem predicting work conditions and outcomes, and work conditions and outcomes predicting self-esteem) and controlled for the confounding effects of prior levels of the constructs.

Method

Data Set 1

Data came from a web-based German-language longitudinal survey, which included five assessments at two-month intervals (Kuster, Orth, & Meier, 2012).

Participants. The sample included 663 individuals (51% female). At Wave 1, mean age of participants was 32.4 years ($SD = 10.5$, range 16-62). Twenty-three percent were married, 45% were unmarried but in a close relationship, 28% were single, and 4% were divorced or widowed. Nine percent had completed the obligatory 9 school years or less, 52% had completed secondary education (approximately 12 years), 14% had a Bachelor's degree, 23% had a Master's degree, and 2% had a doctoral degree. Ninety-six percent lived in Switzerland, 3% in Germany, and 1% in other countries.

Measures. *Self-esteem* was assessed with the 10-item Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1965; for the German version see von Collani & Herzberg, 2003), the most commonly used and well-validated measure of global self-esteem (Robins, Hendin, & Trzesniewski, 2001). Item examples are: “I take a positive attitude toward myself” and “I am able to do things as well as most other people.” Responses were measured on a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*), with $M = 4.20$ ($SD = 0.59$) averaged across the five waves. The internal consistency of the RSE ranged from .88 to .90 across waves.

Job satisfaction was assessed using one item from the Instrument for Stress Oriented Task Analysis (ISTA; Semmer, Zapf, & Dunckel, 1995): “All things considered, how satisfied were you with your job situation within the last 30 days?” Responses were measured on a 7-point scale (1 = *extremely dissatisfied*; 7 = *extremely satisfied*), with $M = 4.75$ ($SD = 1.09$) averaged across waves.

Supervisor status was assessed with one item: “Do you directly supervise others?” (0 = *no*; 1 = *yes*).

Instigated workplace incivility was assessed with a 7-item scale (Blau & Andersson, 2005; e.g., “I ignored or excluded someone from professional camaraderie”). Responses were measured on a 7-point scale (1 = *never*; 7 = *very often*), with $M = 1.83$ ($SD = 0.65$) averaged across waves. The internal consistency ranged from .80 to .85 across waves.

Interpersonal deviance was assessed with a 7-item scale, which captures deviant behaviors directly harmful to other individuals within the organization (Bennett & Robinson, 2000; e.g., “I acted rudely toward someone at work”). Responses were measured on a 7-point scale (1 = *never*; 7 = *very often*), with $M = 1.31$ ($SD = 0.43$) averaged across waves. The internal consistency ranged from .77 to .80 across waves.

Organizational deviance was assessed with a 12-item scale, which captures deviant behaviors directly harmful to the organization (Bennett & Robinson, 2000; e.g., “I put little effort into my work”). Responses were measured on a 7-point scale (1 = *never*; 7 = *very often*), with $M = 1.36$ ($SD = 0.39$) averaged across waves. The internal consistency ranged from .75 to .80 across waves.

Coworker justice was measured using the 4-item Interpersonal Justice Scale by Colquitt (2001) with reference to the person’s coworkers (e.g., “Have your coworkers treated you with dignity?”). Responses were measured on a 5-point scale (1 = *not at all*; 5 = *extremely*), with $M = 4.49$ ($SD = 0.50$) averaged across waves. The internal consistency ranged from .61 to .68 across waves.

Supervisor justice was measured using the 4-item Interpersonal Justice Scale with reference to the person’s supervisor (e.g., “Has your supervisor treated you with dignity?”). Responses were measured on a 5-point scale (1 = *not at all*; 5 = *extremely*), with $M = 4.46$ ($SD = 0.57$) averaged across waves. The internal consistency ranged from .51 to .64 across waves.

Effort-reward imbalance was assessed using a 6-item scale by van Yperen (1996; e.g., “I invest more in my job than I receive in return”). Responses were measured on a 7-point scale (1 = *completely disagree*; 7 = *completely agree*), with $M = 2.71$ ($SD = 1.13$) averaged across waves. The internal consistency ranged from .90 to .94 across waves.

Time pressure was assessed using four items (e.g., “inability to take breaks as usually because of high workload”) from the ISTA. Responses were measured on a 5-point scale (1 = *very rarely/never*; 5 = *very often/all the time*), with $M = 3.01$ ($SD = 0.78$) averaged across waves. The internal consistency ranged from .81 to .86 across waves.

Organizational constraints were assessed using the 11-item Organizational Constraint Scale (Spector & Jex, 1998, e.g., “How often is it difficult or impossible to do your job because of interruptions by others?”). Responses were measured on a 5-point scale (1 = *very rarely/never*; 5 = *very often/all the time*), with $M = 2.00$ ($SD = 0.57$) averaged across waves. The internal consistency ranged from .84 to .89 across waves.

Experienced ostracism was assessed using the 10-item Workplace Ostracism Scale by Ferris, Brown, Berry, and Lian (2008; e.g., “Others left the area when you entered”). Responses were measured on a 7-point scale (1 = *never*; 7 = *always*), with $M = 1.22$ ($SD = 0.35$) averaged across waves. The internal consistency ranged from .81 to .87 across waves.

Experienced workplace incivility was assessed with seven items (e.g., “Someone ignored or excluded me from professional camaraderie”), using the Workplace Incivility Scale by Blau and Andersson (2005). Responses were measured on a 7-point scale (1 = *never*; 7 = *very often*), with $M = 1.73$ ($SD = 0.67$) averaged across waves. The internal consistency ranged from .85 to .90 across waves.

Experienced interpersonal deviance was assessed with seven items (e.g., “Someone acted rudely toward me at work”), using the Interpersonal Deviance Scale by Bennett and Robinson (2000). Responses were measured on a 7-point scale (1 = *never*; 7 = *very often*), with $M = 1.34$ ($SD = 0.49$) averaged across waves. The internal consistency ranged from .82 to .88 across waves.

Data Set 2

Data came from the Longitudinal Study of Dual-Earner Couples (LSDEC; Barnett, 1993), which was conducted in the greater Boston metropolitan area. The study includes three waves of data collected at one-year intervals.

Participants. The sample consisted of 600 individuals (50% female). At Wave 1, mean age of participants was 34.6 years ($SD = 4.6$, range 22-49). Ninety-seven percent were married and 3% were cohabiting. Twenty-six percent had completed high school or less, 63% had completed college, and 11% had an advanced degree (i.e., master's degree or Ph.D.). The racial composition of the sample was 97% Caucasian, 1% Hispanic, 1% African American, and 1% Native American or other.

Measures. *Self-esteem* was assessed with the 10-item RSE. Responses were measured on a 4-point scale (1 = *strongly disagree*; 4 = *strongly agree*), with $M = 3.43$ ($SD = 0.44$) averaged across waves. The internal consistency ranged from .83 to .86 across waves.

Job satisfaction was assessed using one item: "All things considered, how satisfied are you with your current job?" Responses were measured on a 7-point scale (1 = *completely dissatisfied*; 7 = *completely satisfied*), with $M = 4.97$ ($SD = 1.05$) averaged across waves.

Job rewards were measured with a 32-item scale (e.g., "How much of a reward is: doing work you consider significant?"). Responses were measured on a 4-point scale (1 = *not at all*; 4 = *extremely*), with $M = 2.88$ ($SD = 0.40$) averaged across waves. The internal consistency ranged from .90 to .94 across waves.

Job concerns were measured with a 28-item scale (e.g., "How much of a concern is: having too much to do?"). Responses were measured on a 4-point scale (1 = *not at all*; 4 = *extremely*), with $M = 1.68$ ($SD = 0.32$) averaged across waves. The internal consistency ranged from .87 to .88 across waves.

Employment status was assessed with one item: "Are you currently employed?" (0 = *no*; 1 = *yes*).

Supervisor status was assessed with one item: “Do you directly supervise anyone?” (0 = *no*; 1 = *yes*).

Income was assessed with a 9-point measure, ranging from 1 (*less than \$20,000 per year*) to 9 (*over \$200,000 per year*). The mean was 3.75 ($SD = 1.75$) averaged across waves.

Support by coworkers was measured with a 4-item scale (e.g., “How much does someone else at your work make your work life easier?”) Responses were measured on a 4-point scale (1 = *not at all*; 4 = *very much*), with $M = 3.25$ ($SD = 0.52$) averaged across waves. The internal consistency ranged from .77 to .81 across waves.

Support by supervisor was measured with a 4-item scale (e.g., “When you have a difficult situation at your job, how easy is it to talk with your supervisor?”). Responses were measured on a 4-point scale (1 = *not at all*; 4 = *very much*), with $M = 2.97$ ($SD = 0.68$) averaged across waves. The internal consistency ranged from .88 to .90 across waves.

Statistical Analyses

The analyses were conducted with the Mplus 6.1 program (Muthén & Muthén, 2010). To deal with missing values, we employed full-information maximum likelihood estimation to fit models directly to the raw data (Allison, 2003; Schafer & Graham, 2002). Model fit was assessed by the comparative fit index (CFI), the Tucker–Lewis index (TLI), and the root-mean-square error of approximation (RMSEA), based on the recommendations of Hu and Bentler (1999) and MacCallum and Austin (2000). Hu and Bentler (1999) suggest that good fit is indicated by values greater than or equal to .95 for the TLI and CFI and less than or equal to .06 for RMSEA. In addition, we report chi-square values and the 90% confidence interval for RMSEA. To test for differences in model fit, we used the test of small difference in fit recommended by MacCallum, Browne, and Cai (2006, Program C).

Results

To test for prospective effects between self-esteem and work conditions and outcomes, we used cross-lagged regression analyses based on structural equation modeling (e.g., Finkel, 1995; Little, Preacher, Selig, & Card, 2007). Figure 1 provides a generic illustration of the models. The cross-lagged paths indicate the prospective effect of one variable on the other (e.g., effect of self-esteem at Wave 1 on a work outcome at Wave 2), after controlling for their stabilities across time (e.g., effect of work outcome at Wave 1 on work outcome at Wave 2). For both data sets, the models tested were identical except that the models for Data Set 1 included five waves and the models for Data Set 2, three waves of data. We accounted for variance due to specific measurement occasions by correlating the residual variances within waves (cf. Cole & Maxwell, 2003). For multi-item measures (e.g., self-esteem), we used item parcels as indicators because they produce more reliable latent variables than individual items (Little, Cunningham, Shahar, & Widaman, 2002; following the recommendations by Little et al. we aggregated the items into three parcels). For single-item measures, parceling was not possible: supervisor status and employment status were examined as categorical variables (and appropriately defined in Mplus) and job satisfaction and income were examined as continuous variables.

For each outcome variable we tested the fit of two models. In the first model, all structural coefficients were estimated freely. In the second model, we constrained the structural parameters to be invariant across waves (e.g., the stability path of self-esteem from Wave 1 to Wave 2 was set equal to the stability path of self-esteem from Wave 2 to Wave 3 and so on). If the constrained model does not fit worse than the unconstrained model, then the constraints are empirically justified and increase the precision and validity of the structural parameters. For each outcome variable, the difference in fit between the two models was nonsignificant.

Consequently, we favored the more parsimonious model and retained the longitudinal constraints.

As shown in Table 1, all models fit the data well. Table 2 reports the estimates for the cross-lagged and stability coefficients. Overall, the cross-lagged effects showed a consistent pattern of results: Self-esteem prospectively predicted the outcome variables, whereas the outcome variables did not prospectively predict self-esteem. The only exceptions were the effects of self-esteem on time pressure (Data Set 1) and on supervisor status and income (Data Set 2), which were nonsignificant, and the effects of job satisfaction and job rewards on self-esteem (Data Set 2), which were significant (these effects were, however, smaller than the reverse effects of self-esteem on job satisfaction and job rewards). The stability effects were significant for all constructs. For self-esteem, stability coefficients were large, ranging from .83 to .94. Thus, overall the results are consistent with the hypothesis that self-esteem positively influences work conditions and outcomes, whereas the hypothesis that work conditions and outcomes influence self-esteem is not supported by the data.

We also tested for gender differences in stability and cross-lagged effects, using multiple-group analysis. For all work conditions and outcomes, a model allowing different coefficients for male and female participants did not significantly improve model fit relative to a model with constraints across gender, indicating that the coefficients did not significantly differ between men and women. For both male and female participants, the estimates of the coefficients were similar to the estimates for the total sample.

Finally, we tested whether the effect of self-esteem on work conditions and outcomes held for the self-liking and self-competence dimensions of self-esteem proposed by Tafarodi and Swann (1995). If self-liking (i.e., a sense of social worth) shows effects that are as strong as the

effects of self-competence (i.e., a sense of personal efficacy), then this finding would strengthen the conclusion that global self-esteem (and not only the competence-related component of self-esteem) predicts work outcomes. For the analyses, we used the RSE subscales suggested by Tafarodi and Milne (2002). The results showed that the pattern of effects was identical for self-liking and self-competence. All coefficients that were significant for the full RSE were significant for both subscales and all effects that were nonsignificant for the full RSE were nonsignificant for both subscales. Moreover, the mean difference between the two subscales was .001 for the effects of self-esteem on work variables and .004 for the effects of work variables on self-esteem. We therefore concluded that self-liking and self-competence did not differ meaningfully in their prospective relations with work conditions and outcomes.

Discussion

In this research, we examined the reciprocal prospective relations between self-esteem and work conditions and outcomes, including justice at work, support at work, work stressors, job satisfaction, job success, and counterproductive work behavior. Data came from two longitudinal studies with large samples, including five assessments over an eight-month period (Data Set 1) and three assessments over a two-year period (Data Set 2), respectively. Across both studies, self-esteem prospectively predicted positive change in most of the work conditions and outcomes, whereas nearly all of the reverse effects (i.e., work conditions and outcomes predicting self-esteem) were nonsignificant. The results held for both male and female participants.

As reviewed in the Introduction, nearly all previous studies on prospective effects of self-esteem on work outcomes were not conclusive because of methodological shortcomings, specifically because prior levels of the outcomes were not controlled for in the analyses.

Therefore, the present research systematically controlled for autoregressive effects of the constructs and replicated the results in two independent data sets. Moreover, by aggregating the effects across multiple waves of data (which significantly increases the precision and validity of the estimates), the present research yielded more valid estimates of the effects than had been available through previous research. Thus, the present research provides much needed empirical information relevant for the debate on whether self-esteem has any effect on real-life outcomes or whether high and low self-esteem are mere epiphenomena of success and failure in important life domains (Baumeister et al., 2003; Swann et al., 2007). The findings are consistent with the hypothesis that self-esteem has a significant prospective impact on work-related well-being and career success. Although the prospective effects of self-esteem on work conditions and outcomes were of only small to medium size, we believe that the effects are important because they may accumulate over longer periods and can make a difference for an individual's overall success in the work domain.

The pattern of results is consistent with studies on the relation between self-esteem and outcomes in other (i.e., non-work) life domains (Orth, Robins, Trzesniewski, Maes, & Schmitt, 2009; Orth et al., 2012; Trzesniewski et al., 2006). In these studies, self-esteem prospectively predicted life outcomes such as relationship satisfaction, health, and depression, but none of these life outcomes significantly predicted self-esteem (or, if significant, the coefficients were very small). Thus, although the hypothesis that positive experiences in important life domains influence self-esteem has intuitive appeal, the available evidence suggests that self-esteem is a predictor rather than a consequence of success and well-being in the work, relationship, and health domain. A possible reason for this pattern of results is that self-esteem is a very stable characteristic of individuals, similar to major personality traits such as the Big Five

(Trzesniewski, Donnellan, & Robins, 2003; Kuster & Orth, in press). However, although the self-esteem effects in the work domain, as suggested by the present research, match the pattern of results found for other life domains, we believe that the present research provides important information. First, as discussed above, there is an ongoing, and highly controversial, debate about whether self-esteem has a significant impact on important life domains; conclusions about the work domain should therefore be based on studies that were specifically designed to assess the relation between self-esteem and outcomes in the work domain. Second, it is important to assess not only the direction but also the size of predictive effects between the constructs; it is possible that effect sizes differ significantly across life domains.

A limitation of the present research is that the study designs do not allow for strong conclusions regarding the causal influence of self-esteem. As in all passive observational designs, effects between variables may be caused by third variables that were not assessed (Finkel, 1995). However, the longitudinal models employed in this research are useful because they can indicate whether the data are consistent with a causal model of the relation between the variables by establishing the direction of the effects and ruling out some, although admittedly not all, alternative causal hypotheses. Nevertheless, future research should control for theoretically-relevant third variables that might simultaneously affect both self-esteem and work conditions and outcomes. Also, future research should employ, whenever possible, experimental designs, which would allow for strong conclusions about the causality of the relation between self-esteem and work conditions and outcomes. Another limitation is that the variables were assessed by self-report. Therefore, future research may benefit from using informant-reports of the variables (e.g., by supervisors and coworkers) and objective measures of work conditions and outcomes. A problem is that intercorrelations among measures that are based on the same method (e.g., self-

report) can be artificially inflated and would need to be corrected for the effect of shared method variance. We note, however, that shared method variance cannot account for the cross-lagged effects because shared method variance has already been statistically removed by controlling for concurrent relations and for previous levels of each construct. We also note that future research would benefit from examining additional measures of work conditions and outcomes. For example, although the present research included measures of counterproductive work behavior, we could not examine measures of organizational citizenship behavior, which is an important category of positive work behavior (Spector & Fox, 2002).

The findings of the present research raise the important question of why self-esteem predicts changes in important work conditions and work outcomes over time. At present, we can only speculate about the mediating mechanisms that account for the prospective effects. For example, high self-esteem prospectively predicts a decrease in negative affect (Orth et al., 2012), which might consequently lead to higher satisfaction with one's job. Second, a possible behavioral pathway is that low self-esteem motivates social avoidance and withdrawal (Murray, Holmes, & Griffin, 2000), thereby impeding practical and emotional support by coworkers and supervisors; moreover, avoidance and withdrawal likely hamper being successful at work and climbing the career ladder. Third, research suggests that low self-esteem is a prospective risk factor for depression (e.g., Kuster et al., 2012; Orth, Robins, Trzesniewski, et al., 2009; Sowislo & Orth, in press). Individuals suffering from depression are, in turn, more likely to seek negative feedback from others (including coworkers and supervisors), which might result in rejection and less support at work (cf. Swann, Wenzlaff, & Tafarodi, 1992). Furthermore, individuals with low self-esteem tend to be more vulnerable when receiving negative feedback about their work and may interact less efficiently with coworkers and supervisors (see Salmela-Aro & Nurmi, 2007),

which, in turn, may lower job satisfaction and career success. An important task for future research is to test these hypotheses on the mediating processes linking self-esteem and success in the work domain.

The present findings have important practical implications. First, companies and organizations might benefit from selecting employees with healthy self-esteem because, overall, self-esteem is linked to better professional functioning, less uncivil and deviant behavior, higher job satisfaction, and more job success. Second, companies and organizations should seek to enhance, through appropriate psychological interventions, the self-esteem of their employees. Protecting and improving the self-esteem of employees might benefit both the well-being of each individual and the welfare of the organization as a whole.

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Table 1

Fit of Cross-Lagged Regression Models of Self-Esteem and Outcome Variables

Outcome variable	χ^2	<i>df</i>	CFI	TLI	RMSEA [90% CI]
Job satisfaction					
Job satisfaction (DS1)	256.3*	144	.99	.98	.034 [.027, .041]
Job satisfaction (DS2)	79.7*	45	.99	.99	.036 [.022, .049]
Job rewards (DS2)	177.1*	118	.99	.99	.029 [.020, .037]
Job concerns (DS2)	219.3*	118	.99	.98	.038 [.033, .046]
Job success					
Employment status (DS2)	39.9	35	1.00	.99	.015 [—, —]
Supervisor status (DS1)	224.5*	144	.99	.99	.029 [—, —]
Supervisor status (DS2)	43.4	45	1.00	1.00	.000 [—, —]
Income (DS2)	96.7*	45	.99	.99	.044 [.032, .056]
Counterproductive work behavior					
Instigated incivility (DS1)	503.2*	352	.99	.98	.025 [.020, .030]
Interpersonal deviance (DS1)	636.9*	352	.97	.97	.035 [.031, .039]
Organizational deviance (DS1)	552.8*	352	.98	.98	.029 [.025, .034]
Justice at work					
Coworker justice (DS1)	627.7*	352	.98	.97	.034 [.030, .039]
Supervisor justice (DS1)	627.2*	352	.98	.97	.034 [.030, .039]
Effort-reward imbalance (DS1)	541.1*	352	.99	.98	.028 [.024, .033]
Support at work					
Support by coworkers (DS2)	166.7*	118	.99	.99	.026 [.016, .035]
Support by supervisor (DS2)	178.9*	118	.99	.99	.029 [.020, .038]
Work stressors					
Time pressure (DS1)	496.1*	352	.99	.99	.025 [.020, .030]
Organizational constraints (DS1)	491.5*	352	.99	.99	.024 [.019, .029]
Experienced ostracism (DS1)	703.6*	352	.97	.96	.039 [.035, .043]
Experienced incivility (DS1)	605.3*	352	.98	.97	.033 [.028, .037]
Experienced interpersonal deviance (DS1)	676.8*	352	.97	.97	.037 [.033, .042]

Note. Dashes indicate that the confidence interval was not available for the model. CFI =

comparative fit index; TLI = Tucker–Lewis index; RMSEA = root-mean-square error of

approximation; CI = confidence interval; DS1 = Data Set 1; DS2 = Data Set 2.

* $p < .05$.

Table 2

Cross-Lagged and Stability Effects of Self-Esteem (SE) and Outcome Variables (Y)

Outcome variable	Cross-lagged effects		Stability effects	
	SE → Y	Y → SE	SE → SE	Y → Y
Job satisfaction				
Job satisfaction (DS1)	.13*	.01	.92*	.37*
Job satisfaction (DS2)	.14*	.06*	.84*	.40*
Job rewards (DS2)	.08*	.07*	.83*	.65*
Job concerns (DS2)	-.11*	-.03	.85*	.65*
Job success				
Employment status (DS2)	.17*	.11	.87*	.59*
Supervisor status (DS1)	.06*	.00	.94*	.92*
Supervisor status (DS2)	.04	-.01	.88*	.77*
Income (DS2)	.02	.03	.85*	.88*
Counterproductive work behavior				
Instigated incivility (DS1)	-.07*	-.02	.91*	.74*
Interpersonal deviance (DS1)	-.05*	.00	.92*	.77*
Organizational deviance (DS1)	-.06*	-.01	.91*	.86*
Justice at work				
Coworker justice (DS1)	.16*	.01	.92*	.34*
Supervisor justice (DS1)	.11*	.01	.92*	.48*
Effort-reward imbalance (DS1)	-.08*	.00	.92*	.73*
Support at work				
Support by coworkers (DS2)	.07*	-.03	.86*	.55*
Support by supervisor (DS2)	.13*	.02	.85*	.50*
Work stressors				
Time pressure (DS1)	-.01	-.02	.92*	.76*
Organizational constraints (DS1)	-.07*	-.02	.91*	.79*
Experienced ostracism (DS1)	-.11*	.00	.92*	.62*
Experienced incivility (DS1)	-.12*	-.02	.91*	.66*
Experienced interpersonal deviance (DS1)	-.11*	-.01	.92*	.61*

Note. The table shows standardized regression coefficients. DS1 = Data Set 1; DS2 = Data Set 2.

* $p < .05$.

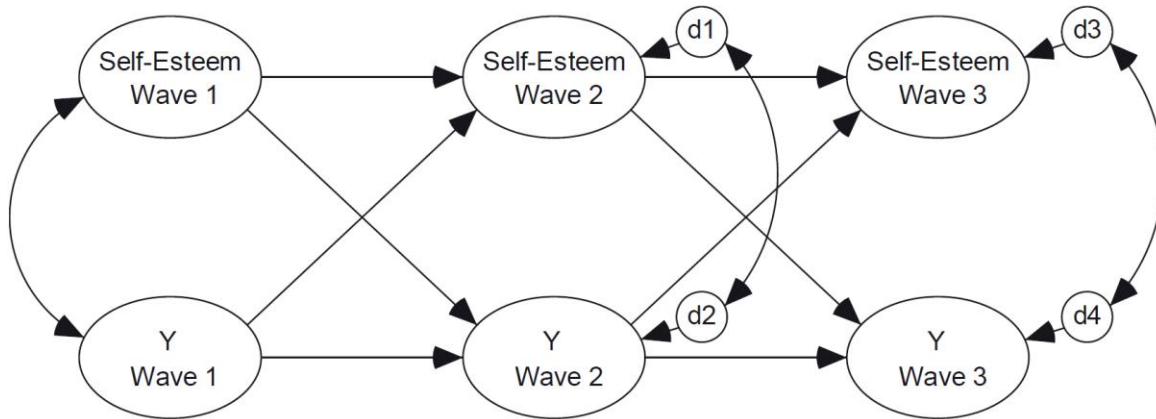


Figure 1. The figure illustrates the cross-lagged regression model of self-esteem and an outcome variable (Y), for a three-wave study design as in Data Set 2 (the models for Data Set 1, which included five waves of data, were specified accordingly). Residual variances (i.e., disturbances) are denoted as $d1$ through $d4$.