



A meta-analysis of core self-evaluations and employee performance: Investigating the mediating role of intrinsic motivation

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Abstract: This study utilized meta-analysis to examine the mediating effect of intrinsic motivation in the relationship between core self-evaluations (CSE) and employee performance. We extracted 82 independent studies encompassing a total sample size of 26,903 participants for analysis. Inclusion criteria were: (a) empirical studies using workplace samples; (b) reported zero-order correlations between CSE and performance; (c) individual-level analysis; (d) direct measurement of CSE; and (e) English-language publications. Exclusion criteria included student samples, non-empirical papers, and studies without sufficient effect sizes. The analysis included 103 correlations and meta-analytic structural equation modeling (MASEM) controlling for age, sex, tenure. The findings of this study are as follows: (1) Higher CSE is associated with task performance ($\rho = 0.32$), organizational citizenship behavior (OCB) ($\rho = 0.26$), creative performance ($\rho = 0.36$), and voice behavior ($\rho = 0.26$); and (2) Intrinsic motivation played a significant mediating role in the relationships of CSE with task performance, OCB, and creative performance; (3) Research design exhibited a significant moderating effects with self-reported data compared to other-reported performance data. These meta-analysis findings add to self-determination theory propositions of how core self-evaluations satisfy the three basic psychological needs of autonomy, competence and relatedness to promote intrinsic motivation, and further enhance employee task performance, organizational citizenship behavior and creative performance. HR managers should consider CSE and performance, along with practical implications for human resource management practices, such as recruitment and selection.

Keywords: core self-evaluations; self-determination theory; intrinsic motivation; employee performance; meta-analysis

Introduction

How employees self-perceive or core self-evaluations (CSE) influences their work performance (e.g., Li & Ding, 2022; Son & Pak, 2024; Khudozhnikova et al., 2026). However, some studies have reported low correlations ($r < 0.1$) (Cable & Kay, 2012; Gardner & Pierce, 2010), while others have found medium to high correlations ($0.1 < r < 0.5$) (Ding et al., 2022; Okorie et al., 2023; Grant & Wrzesniewski, 2010). A less well-studied variable in this relationship is intrinsic motivation. However, high-CSE individuals often exhibit a strong promotion focus for positive outcomes and perform better (Ferris et al., 2011). Our meta-analysis study aimed to address this gap in the evidence.

CSE and employee performance

Following prior meta-analyses on employee performance (Hoch et al., 2018; Lee et al., 2020b), we examined four key types: task performance, OCB, creative performance, and voice behavior. Task performance focuses on core work tasks required by the position (Motowidlo & Kell, 2003, p. 40–41), whereas organizational citizenship behavior (OCB) is defined as “voluntary, non-rewarded behaviors that enhance organizational effectiveness” (Organ, 1988, p. 4), such as helping colleagues and complying with organizational norms beyond formal requirements; creative performance involves “employees’ intentional use of new ideas/methods in work” (Yuan

& Woodman, 2010, p. 324), emphasizing the generation and application of innovative solutions; and voice behavior refers to “voluntary communication of work-related suggestions to improve organizational functioning” (Morrison, 2011, p. 375), including both promotive suggestions for improvement and prohibitive feedback on problems. These four performance dimensions are distinct yet complementary, covering in-role, extra-role, innovative, and constructive communication behaviors, which comprehensively reflect employee performance in modern workplaces.

Prior research indicates CSE predicts task performance (Chang et al., 2012), OCB (Debusscher et al., 2016; Xu & Yu, 2019), creative performance (Zhang et al., 2020), and voice behavior (Gardner & Pierce, 2010), as well as critical occupational outcomes such as burnout and well-being (Saei et al., 2024), yet the mechanism linking CSE to outcomes remains unclear.

Intrinsic motivation mediation

Intrinsically motivated individuals excel in diverse tasks (e.g., creativity, cognitive flexibility, conceptual understanding) and engage in OCB (Gagné & Deci, 2005). Prior research has linked intrinsic motivation positively to task performance (Cerasoli et al., 2014), OCB (Lazauskaite-Zabielske et al., 2015), creative performance (Saether, 2020), and voice behavior (Hao et al., 2021). Specifically, intrinsic motivation enhances task performance by fostering deep engagement and skillful execution of core



responsibilities (Cerasoli et al., 2014). It also strengthens OCB, as intrinsically motivated individuals demonstrate greater willingness to contribute voluntarily beyond their formal roles (Lazauskaite-Zabielske et al., 2015). Furthermore, intrinsic motivation promotes creative performance by encouraging individuals to explore and generate novel ideas in pursuit of intrinsic satisfaction (Saether, 2020). Finally, it stimulates voice behavior by empowering individuals to autonomously express improvement-oriented suggestions, even when doing so involves perceived risk (Hao et al., 2021).

Theoretical basis

We propose SDT as the theoretical foundation to explain this CSE-performance link. SDT, a prominent motivation theory, posits that intrinsic motivation (stemming from natural interest in novel, challenging activities; Deci et al., 2010) arises when three basic psychological needs are met: autonomy (the urge to act with ownership and psychological freedom; Deci et al., 2010), competence (the need to be capable and effective; Sheldon & Prentice, 2019), and relatedness (the need for social connection; Baumeister & Leary, 1995). As a leading contemporary framework, SDT continues to evolve, with recent scholarship highlighting its expanding applications across diverse organizational and developmental contexts (Howard et al., 2026).

Building on SDT, we propose that employees with high CSE exhibit inherently stronger intrinsic motivation, supported by three key mechanisms. First, high-CSE individuals exhibit traits such as an internal locus of control. This trait reflects a perceived autonomy over life outcomes (Ng et al., 2006) and fosters a sense of empowerment and behavioral ownership, directly aligning with SDT's need for autonomy. Second, their elevated self-esteem and generalized self-efficacy reinforce a sense of competence, as meta-analytic evidence confirms robust correlations between these traits and competence needs (Van den Broeck et al., 2016). Third, driven by emotional stability (operationalized as low neuroticism), high-CSE employees actively cultivate positive workplace relationships, thereby fulfilling their relatedness needs (Malouff et al., 2010). By satisfying SDT's three core psychological needs—autonomy, competence, and relatedness—high-CSE employees are inherently predisposed to intrinsic motivation, which in turn drives their behavior and performance.

CSE (Judge et al., 1997) is a higher-order latent trait integrating four personality traits: self-esteem (affective self-appraisal; Leary & Baumeister, 2000), locus of control (belief in personal destiny control; Ng et al., 2006), generalized self-efficacy (belief in coping/succeeding; Judge & Bono, 2001), and emotional stability (calmness/composure; Peeters et al., 2006). Those with high CSE consistently rate themselves positively across contexts, viewing themselves as competent, worthy, and life-controllers (Judge et al., 1997; Judge & Bono, 2001; Judge & Kammeyer-Mueller, 2012), and typically exhibit high levels of these four traits (Judge et al., 2003). Recent meta-analytic evidence further suggests that this positive self-regard is a robust phenomenon, with negligible overall sex differences (Gang et al., 2025).

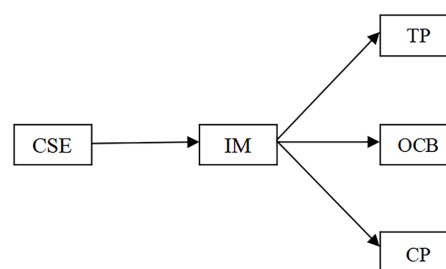


Figure 1. Research model. *Note.* CSE = Core Self-Evaluations; IM = Intrinsic Motivation; TP = Task Performance; OCB = Organizational Citizenship Behavior; CP = Creative Performance.

Given that CSE is a higher-order personality factor, Judge et al. (2003)'s 12-item direct scale has been widely adopted; recent studies have further confirmed its high reliability in predicting job outcomes within various research contexts (Akosile & Ekemen, 2022; Raza et al., 2023). As the sub-traits contribute unequally to CSE and factor analysis reveals them as a single latent construct, a reflective direct measurement approach is recommended for CSE assessment (Judge & Kammeyer-Mueller, 2012).

The present study

We aimed to quantify the true-score relationships between CSE and four dimensions of employee performance and to examine the mediating role of intrinsic motivation in the CSE-performance relationship using SDT. Based on our conceptual model (see Figure 1), we put forth the following hypotheses:

Hypotheses 1: CSE is associated with higher (a) task performance, (b) organizational citizenship behavior, (c) creative performance, and (d) voice behavior.

Hypotheses 2: Intrinsic motivation mediates the relationship between CSE and (a) task performance, (b) organizational citizenship behavior, (c) creative performance, and (d) voice behavior to be higher.¹

Methods

Study approach

This systematic review and meta-analysis was reported in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 statement (Page et al., 2021). To achieve our research objectives, we conducted a comprehensive meta-analysis of the CSE literature, employing meta-analytic structural equation modeling (MASEM) and meta-regression techniques. By doing so, this study makes noteworthy contributions to the existing CSE literature in several key areas. Firstly, we meticulously assess the actual score correlations between CSE and four performance outcomes, namely task performance, OCB, creative performance, and voice behavior. This rigorous evaluation provides a precise and reliable understanding of the relationships within the CSE literature. Secondly, we put forth and empirically test the proposition that intrinsic motivation serves as a mediating mechanism in the relationships between CSE and

¹ H2d is exploratory due to the scarcity of prior empirical evidence on the intrinsic motivation-voice behavior link.

employee performance, shedding light on the underlying mechanisms connecting CSE to its performance outcomes. Finally, we thoroughly investigate the potential moderating effects of age, sex, tenure, and research design, enriching our comprehension of the contextual factors that influence the relationships within the CSE literature. The research model is presented in [Figure 1](#).

In order to achieve our research goals, we employ the Hunter-Schmidt method of random-effects meta-analysis. This methodology was chosen because it can simultaneously correct for sampling error and measurement error (via scale reliability) to generate true score correlation coefficients ρ , and its results are comparable across different meta-analyses ([Aguinis et al., 2011](#)). This methodology allows us to comprehensively evaluate the relationships between CSE and various performance outcomes. Furthermore, we examine the mediating effect of intrinsic motivation, as well as the potential moderating effects of age, sex, tenure, research design, and publication bias, thereby ensuring the stability and robustness of our results.

Literature search

To identify relevant studies for our meta-analysis, we employed multiple strategies. We focused on papers published between 2000 and 2022². We conducted a systematic search across prominent databases such as Google Scholar, Web of Science, and PsycINFO. These databases were selected because they cover core literature in management and psychology: Web of Science and PsycINFO include high-quality peer-reviewed empirical studies, and Google Scholar can supplement grey literature (e.g., unpublished manuscripts), minimizing retrieval omissions.

Building upon previous meta-analyses on the topic ([Chang et al., 2012](#); [Judge & Ilies, 2002](#)), we established two sets of keywords to guide our search. The first set of keywords pertained to Core Self-Evaluations (CSE) and included terms such as “core self-evaluations” and “CSE.” These keywords were chosen to ensure the identification of studies specifically focused on the construct of CSE. The second set of keywords focused on various employee performance outcomes. These terms encompassed a range of performance indicators, including “performance,” “behavior,” “job performance,” “task performance,” “in-role performance (behavior),” “OCB,” “contextual performance,” “extra-role performance (behavior),” “creative performance (behavior),” “creativity,” “innovative behavior (performance),” “voice behavior,” and “speaking up.” By incorporating these keywords, we aimed to capture studies investigating the relationships between CSE and diverse dimensions of employee performance. Additionally, the search was limited to English-language studies, and non-English publications were excluded due to language accessibility constraints. By utilizing these comprehensive keyword sets, we aimed to identify all relevant studies exploring the association between CSE and the four employee outcomes of interest.

Inclusion criteria

We established the following inclusion criteria: (1) Samples were drawn from the workplace (student samples excluded); (2) Studies reported zero-order correlations or sufficient data to calculate them (bivariate correlations between CSE and each of the four performance outcomes are required); (3) Analyses were conducted at the individual level (group/team-level studies excluded); (4) CSE was measured directly using validated scales (e.g., [Judge et al., 1998/2003](#)’s 12-item scale); (5) Studies were published in English (due to language accessibility limitations); (6) Studies were empirical (reviews, theoretical papers excluded). We provided a PRISMA flowchart to help readers understand the process of literature searching and including (See [Figure 2](#)), which details the number of records identified ($n = 340$, including 155 from Web of Science; 47 from PsycINFO; 138 from Google Scholar), duplicates removed ($n = 115$), excluded at full-text stage ($n = 33$, with reasons: lack effect sizes, $n = 5$; student samples, $n = 28$), and finally included ($n = 82$).

Coding procedure

First, for these studies that did not report the overall correlations but rather some dimensions of CSE and its outcomes, we used average correlations. This approach follows the meta-analytic convention of [Hoch et al. \(2018\)](#), ensuring data availability while reducing information bias caused by sub-dimension splitting, as it aggregates sub-dimension correlations to reflect the overall relationship between CSE and performance. Additionally, this approach ensures data independence—a core requirement of meta-analysis—by preventing a single sample from contributing multiple redundant effect sizes. Second, we only considered the studies that measured CSE directly. Third, since some constructs have different labels (e.g., contextual performance is usually seen as organizational citizenship behavior), in this study, following previous meta-analyses ([Liu et al., 2016](#); [Young et al., 2021](#)), we defined (1) task performance to include in-role performance (behavior) and task performance; (2) organizational citizenship behavior to include organizational citizenship behavior, contextual performance and extra-role performance (behavior); (3) creative performance to include creative performance, creativity and innovation behavior; and (4) voice behavior to include voice behavior, promotive voice, and prohibitive voice. Fourth, two researchers independently coded the following information: bibliographic references (author and publication year), description information of the sample (sample size, country, mean age, sex ratio (% female) and mean tenure), research design/sampling strategy, effect sizes (correlations) and the reliabilities of all scales (Cronbach’s α) for measurement error correction ([Hunter & Schmidt, 2004](#)). The average intercoder percentage of agreement across the study variables was 95%. We discussed all the differences in coding information until a consensus was reached. The detailed coding information for each performance outcome (creative performance, task performance, OCB, voice behavior, and the correlation between OCB and intrinsic motivation) is presented in Tables S4–S8 (see Supplemental Material).

²This timeframe (2000–2022) was selected to capture the primary growth of empirical research following the development of the standard CSES ([Judge et al., 2003](#)), providing a theoretically saturated sample of 82 independent studies sufficient for robustly estimating the proposed mediation mechanisms.

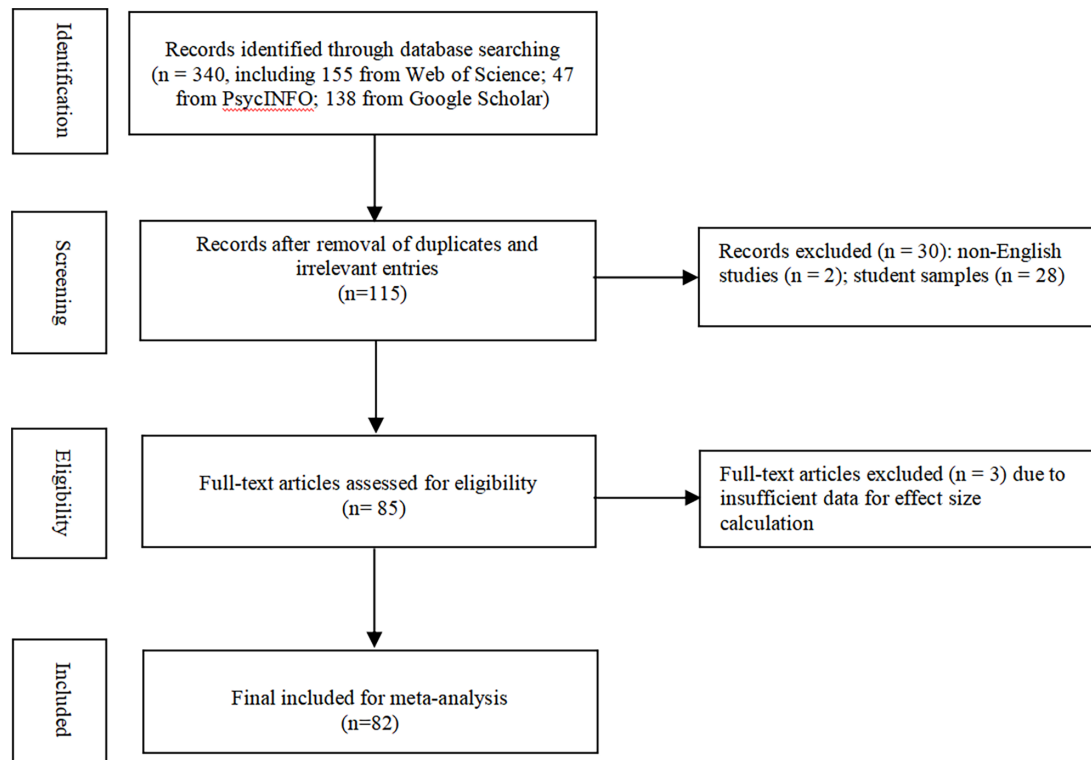


Figure 2. PRISMA flowchart

Table 1. Results for the relationship between CSE and employee behavior and performance

Variable	k	N	r	SDr	ρ	SD ρ	95% CI	80% CR
TP	45	11,681	0.28	0.20	0.32	0.23	[0.25, 0.40]	[0.03, 0.62]
OCB	26	5091	0.21	0.20	0.26	0.23	[0.16, 0.35]	[−0.04, 0.55]
CP	12	3338	0.30	0.19	0.36	0.22	[0.21, 0.50]	[0.06, 0.65]
VB	6	1380	0.21	0.07	0.26	0.02	[0.18, 0.35]	[0.24, 0.29]

Note. k = number of correlations; N = total sample size; r = weighted mean correlation; SDr = standard deviation for weighted mean correlation; ρ = correlation for population estimate corrected for attenuation due to measurement error and sampling error; SD ρ = standard deviation for population estimate; 95% CI = 95% confidence interval; 80% CR = 80% credibility interval; TP = Task performance; OCB = Organizational citizenship behavior; CP = Creative performance; VB = Voice behavior.

Analytical approach

First, based on the Hunter-Schmidt method (Hunter & Schmidt, 2004), we conducted a meta-analysis using the “Psychmeta” package (Dahlke & Wiernik, 2019) in R. This method corrects for sampling error and measurement error using scale reliability (Cronbach’s α of CSE and performance scales; Luan et al., 2023) to obtain true score correlations (ρ). Hypothesis testing was based on corrected ρ values, as they more accurately reflect the true population correlation by eliminating the influence of measurement unreliability and sampling bias. The results in Table 1 include a weighted mean of the raw correlation (r), a true correlation (ρ) that has been corrected for sampling error and unreliability, a 95% confidence interval for ρ and an 80% credibility interval for ρ .

Second, to test the mediating effects of intrinsic motivation, we utilized MASEM (Bergh et al., 2016; Viswesvaran & Ones, 1995). We needed to build

a meta-analytic correlation matrix. However, we were unable to locate a meta-analysis that includes the correlations between intrinsic motivation and voice behavior and between intrinsic motivation and OCB. For intrinsic motivation and OCB, we conducted an original meta-analysis. For intrinsic motivation and voice behavior, we did not conduct an original meta-analysis since few studies have researched their relationship. The matrix is presented in Table 2.

Third, based on the meta-analytic correlation matrix, we used Mplus 8.3 to test our hypotheses. The results of the coefficients for the mediation model are shown in Figure 3 and Table 3. The mediation model is just-identified, meaning the number of free parameters equals the number of observed variances/covariances. Because just-identified models always yield a perfect fit (e.g., CFI = 1.00, SRMR = 0.00), these fit indices are uninformative for model evaluation. Therefore, interpretation

Table 2. Meta-analytic correlation matrix

	CSE	IM	TP	OCB	CP
CSE	1				
IM		1			
ρ	0.33 ^a				
(K, N)	(12, 2351)				
TP			1		
ρ	0.32	0.34 ^c			
(K, N)	(45, 1681)	(42, 13543)			
OCB				1	
ρ	0.26	0.47	0.51 ^e		
(K, N)	(26, 5091)	(14, 5413)	(46, 13965)		
CP					1
ρ	0.36	0.24 ^b	0.55 ^d	0.56 ^d	
(K, N)	(12, 3338)	(16, 3417)	(28, 7760)	(19, 4352)	

Note. CSE = Core Self-Evaluations; IM = Intrinsic motivation; TP = Task performance; OCB = Organizational citizenship behavior; CP = Creative performance; ρ = correlation for population estimate corrected for attenuation due to measurement error and sampling error; ^aChang et al. (2012); ^bHammond et al. (2011); ^cCerasoli et al. (2014); ^dHarari et al. (2016); ^ePodsakoff et al. (2009); unlabeled correlations came from the current meta-analysis.

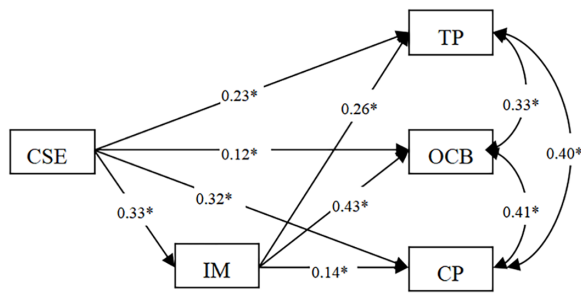


Figure 3. Estimated mediation model. *Note.* CSE = Core Self-Evaluations; IM = Intrinsic motivation; TP = Task performance; OCB = Organizational citizenship behavior; CP = Creative performance; * $p < 0.01$. $N = 4004$ (Harmonic mean), Chi-Square = 4749.57, $df = 10$, CFI = 1.00, TLI = 1.00, SRMR = 0.00. This model is just-identified and fits perfectly. We do not want to remove any path to make this model become an over-identified model since every path in our model is necessary and reasonable theoretically.

should focus primarily on the significance and magnitude of the path coefficients. Following previous meta-analysis (Young et al., 2021), to test for the significance of the indirect effects of CSE and its employee outcomes, we used the Monte Carlo method (Preacher & Selig, 2012) to obtain the 95% confidence intervals of the indirect effect. Monte Carlo CIs were available from the guidance of Selig & Preacher (2008) using R. The conclusions of the indirect effect are shown in Table 4.

Moderator analysis

Self-reported performance and other-reported performance may have different correlations with CSE. Drawing on subgroup analyses, we test whether sources of performance ratings have a significant moderating effect. ANOVA analyses were used to test the significance between subgroups. Moreover, we used meta-regression to test the potential moderating effects of sample sex

Table 3. Coefficients for mediation model

Path	Estimate	SE	95% CI	p
CSE→IM	0.33	0.01	[0.29, 0.34]	<0.000
IM→TP	0.26	0.01	[0.24, 0.29]	<0.000
IM→OCB	0.43	0.01	[0.41, 0.46]	<0.000
IM→CP	0.14	0.01	[0.11, 0.16]	<0.000
CSE→TP	0.23	0.01	[0.21, 0.26]	<0.000
CSE→OCB	0.12	0.01	[0.09, 0.14]	<0.000
CSE→CP	0.32	0.01	[0.29, 0.34]	<0.000

Note. CSE = Core Self-Evaluations; IM = Intrinsic motivation; TP = Task performance; OCB = Organizational citizenship behavior; CP = Creative performance; SE = Standard Error; 95% CI = 95% confidence interval.

Table 4. Indirect effects for mediation model

Mechanism	Point estimate	95% monte carlo CI
CSE→IM→TP	0.09	[0.07, 0.10]
CSE→IM→OCB	0.14	[0.13, 0.16]
CSE→IM→CP	0.05	[0.04, 0.06]

Note. CSE = Core Self-Evaluations; IM = Intrinsic motivation; TP = Task performance; OCB = Organizational citizenship behavior; CP = Creative performance; Point Estimate was created by Mplus. 20,000 repetitions inputted for simulation were used to build a 95% Monte Carlo confidence interval drawing on R.

ratio, mean age, and mean tenure. For sex, a meta-analysis by Zuckerman et al. (2016) found very weak but significant gender differences in self-esteem, a sub-trait of CSE. For age, Twenge and Keith (2001) found self-esteem scores among young Americans increased with age. As a sub-trait of CSE, self-esteem could reflect CSE to some extent. For tenure, it seems that employees low in tenure may not

have enough work experience to perform well. We want to test whether employees' age, sex, and tenure would have significant moderating effects. The results are shown in the Tables S1 and S2 (see Supplemental Material).

Publication bias

Publication bias, reflecting the tendency that statistically significant results are published more frequently than studies without significant results (Dickersin, 1990), would harm the stability and robustness of meta-analysis. We used several methods to test whether publication bias was serious in our meta-analysis. Using the "metaphor" package (Viechtbauer, 2010) in R, we utilized the trim-and-fill method (Duval & Tweedie, 2000) with a funnel plot, Egger's regression test (Egger et al., 1997), and the fail-safe K (Rothstein et al., 2005) to analyze publication bias (see Table S3, and Figures S1–S5, supplemental material).

Results

First, we found positive relationships between core self-evaluations and task performance ($\rho = 0.32$, 95% CI [0.25, 0.40], $k = 45$), between core self-evaluations and OCB ($\rho = 0.26$, 95% CI [0.16, 0.35], $k = 26$), between core self-evaluations and creative performance ($\rho = 0.36$, 95% CI [0.21, 0.50], $k = 12$) and between core self-evaluations and voice behavior ($\rho = 0.26$, 95% CI [0.18, 0.35], $k = 6$), as shown in Table 1. In addition, the 95% confidence interval did not include zero, thus, Hypotheses 1a–d were accepted.

Second, the results of path analysis are shown in Table 3 and Figure 3. On the one hand, CSE could influence employee performance and behavior directly. Positive relationships were found between CSE and task performance ($\beta = 0.21$, 95% CI [0.21, 0.26]), between CSE and OCB ($\beta = 0.12$, 95% CI [0.09, 0.14]) and between CSE and creative performance ($\beta = 0.32$, 95% CI [0.29, 0.34]). On the other hand, CSE could influence employee performance and behavior via intrinsic motivation. We found that the relationship between CSE and intrinsic motivation was positive ($\beta = 0.33$, 95% CI [0.29, 0.34]). In addition, the relationships between intrinsic motivation and task performance ($\beta = 0.26$, 95% CI [0.24, 0.29]), OCB ($\beta = 0.43$, 95% CI [0.41, 0.46]) and creative performance ($\beta = 0.14$, 95% CI [0.11, 0.16]) were all positive.

Third, the significance of the indirect effect is shown in Table 4. We found that intrinsic motivation had a positive influence from CSE to task performance (estimate = 0.09, 95% CI [0.07, 0.10]), OCB (estimate = 0.14, 95% CI [0.13, 0.16]), and creative performance (estimate = 0.05, 95% CI [0.04, 0.06]). Thus, Hypotheses 2a–c were accepted. In this study, we cannot test Hypothesis 2d since the correlation between intrinsic motivation and voice behavior is not available. We encourage future studies to pay attention to the relationships between CSE and voice behavior via intrinsic motivation.

Fourth, subgroup analyses revealed that correlations were higher when performance was self-reported (see Table S1). For example, the correlations between CSE and task performance were higher when performance was self-reported ($\rho = 0.52$) than other-reported ($\rho = 0.17$). Similarly, correlations between CSE and OCB were

$\rho = 0.37$ (self-reported) and $\rho = 0.14$ (other-reported); for CSE and creative performance, they were $\rho = 0.56$ and $\rho = 0.26$, respectively. The ANOVA analyses showed the differences between self-reported and other-reported performance were significant in some groups (e.g., $F = 35.20$, $p < 0.05$) while not significant in some groups (e.g., $F = 0.48$, $p > 0.05$).

Fifth, meta-regression showed that sex, age, and tenure did not have significant moderating effects (see Table S2). All estimates of meta-regressions were not significant ($p > 0.05$). For instance, when sex moderated the relationship between CSE and task performance, the z value is -1.617 ($p > 0.05$).

Sixth, we conducted a thorough analysis to examine the presence of publication bias in our study, and our findings suggest that publication bias is not a significant concern. To start, we performed Egger's regression method to assess publication bias, and all p -values were greater than 0.050, indicating no statistically significant evidence of publication bias (Table S3). Then, according to the guidelines proposed by Rothstein et al. (2005), if the Fail-Safe K value is less than $5k + 10$, it suggests the presence of serious publication bias. However, in our study, the Fail-Safe K value for the relationship between CSE and job performance was 11,520, which is greater than $5k + 10$ ($5 \times 43 + 10 = 225$). This indicates that publication bias is not a major concern in our analysis. Next, we utilized the trim-and-fill method to visually inspect the symmetry of the funnel plots (Figures S1–S5). The absence of severe asymmetry in these figures suggests that publication bias is not a prominent issue in our study. In summary, we employed multiple approaches to assess publication bias, and all the methods consistently indicated that publication bias is not a significant concern in our meta-analysis.

Discussion

Our study aims to achieve three primary objectives. Firstly, we examined the relationships between CSE and employee performance. Secondly, we investigated the mediating effects of intrinsic motivation in the link between CSE and performance outcomes. Lastly, we explored potential moderating factors that may influence the relationship between CSE and performance. In addition to these objectives, we will discuss the practical implications of our findings for organizations and provide recommendations for future research.

Our findings depart from earlier work in three key respects. First, whereas Chang et al. (2012) concentrated only on task performance and omitted voice behavior, we systematically verified CSE's predictive effect across four performance dimensions, confirming its cross-domain validity. Second, our mediation results demonstrate that intrinsic motivation explains the CSE-performance connection more comprehensively than the Self-Consistency Theory (SCT) or Regulatory Focus Theory (RFT) frameworks that dominated prior research. Third, we identified research design (self-reported vs. other-reported performance) as a significant moderator of the CSE-performance correlation—a finding that helps reconcile divergent results in earlier studies (e.g., the low correlations reported

by Cable and Kay (2012) versus the medium-high correlations reported by Ding et al. (2022)).

Theoretical implications

Our meta-analysis examined the relationship between CSE and four key employee outcomes: task performance ($\rho = 0.32$), OCB ($\rho = 0.26$), creative performance ($\rho = 0.36$), and voice behavior ($\rho = 0.26$). We identified consistent, significant CSE-performance correlations (ranging from 0.26 to 0.36), positioning CSE as a robust predictor. While prior research often relied on Big Five personality traits (e.g., conscientiousness as a prime performance predictor; Barrick & Mount, 1991; Chiaburu et al., 2011), Judge and Bono (2001) found CSE sub-traits correlated with task performance similarly to conscientiousness. Notably, our CSE-task performance correlation ($\rho = 0.32$) exceeded Chang et al.'s (2012) student-sample estimate ($\rho = 0.19$), suggesting workplace contexts amplify this link, possibly due to reduced reliance on intelligence-driven performance in students. By demonstrating that CSE predicts multiple workplace outcomes (task performance, OCB, creative performance, and voice behavior), this meta-analysis advances the field of personality-performance research.

Notably, voice behavior showed a weaker correlation with CSE ($\rho = 0.26$) compared to creative performance ($\rho = 0.36$) and task performance ($\rho = 0.32$). This may be because voice behavior depends not only on personal traits (CSE) but also significantly on organizational contextual factors (e.g., leadership openness, voice climate) (Morrisson, 2011). Such contextual constraints can attenuate the predictive power of CSE. In contrast, task and creative performance are more directly driven by individual intrinsic motivation, which is more strongly influenced by CSE.

Additionally, our study offers a nuanced explanation for why employees with high CSE tend to have higher performance levels. SDT (Ryan et al., 2019) posits that intrinsic motivation—stemming from the fulfillment of psychological needs for autonomy and competence—drives performance. Building on this framework, we hypothesized that high-CSE employees, due to their positive self-appraisals, are more intrinsically motivated, which in turn enhances their performance outcomes. Our findings revealed that intrinsic motivation, a key construct in SDT, mediated the relationships between CSE and task performance, OCB, and creative performance. This is consistent with Ekmekcioglu et al.'s (2025) and Raza et al.'s (2023) mediation evidence, further validating SDT's explanatory power across diverse performance types. By demonstrating that intrinsic motivation mediates these relationships, this study extends SDT by integrating trait-based individual differences (CSE) into its motivational model, thereby elucidating how psychological traits predict workplace performance via intrinsic motivation.

Finally, our study advances CSE research by clarifying its boundary conditions in performance contexts, identifying underexplored moderators to inform future longitudinal and multi-level research. Consistent with Lee et al. (2018, 2020a), self-reported performance yielded stronger correlations, underscoring its value in capturing actual performance levels. To mitigate common method

bias, future studies should use multi-source data or time-lagged designs. Regarding moderators, we found no significant effects for sex, age, or tenure. While prior research suggests males may report higher CSE-linked self-esteem (Kling et al., 1999), this sex difference did not translate into a significant moderating effect on the CSE-performance relationship in our meta-analysis, possibly because the effect is too weak to be detected via meta-regression. Similarly, the non-significant effects for tenure and age may be due to their nonlinear relationships with performance (Sturman, 2003) or their interaction with organizational context. Future research may further explore gender differences in CSE, the nuanced role of tenure and age in shaping CSE-performance dynamics, and how organizational contextual factors interact with these individual-level variables. Overall, further investigation is warranted to better understand the potential moderating effects of sex, age, and tenure in the relationship between CSE and performance outcomes.

Practical implications

Our study has practical implications for human resource management practice. It provides insights into why employees with high CSE tend to perform well across different situations. This understanding can be valuable in the recruitment process, where managers can prioritize candidates who exhibit high CSE traits. For example, in interviews, managers can use situational questions to assess CSE sub-dimensions: “describe an experience facing work challenges” to evaluate self-efficacy, or “how do you view autonomous decision-making at work” to assess internal locus of control. By assessing sub-traits of CSE, such as emotional stability and locus of control, during interviews, managers can gain insights into a candidate's potential for high performance. Managers can create a supportive work climate that activates CSE and enhances employee performance. This can be achieved by fostering autonomy, promoting a growth mindset, providing feedback and recognition, and encouraging learning and development.

Furthermore, our findings shed light on the importance of intrinsic motivation in employee performance. Managers can leverage this knowledge to effectively manage employees who are intrinsically motivated. Concrete strategies include granting employees autonomy in project design, providing skill development training to satisfy competence needs, and building supportive team relationships to fulfill relatedness needs—for example, launching cross-departmental collaboration projects that allow employees to independently design work processes. By providing necessary support and creating an environment that nurtures intrinsic motivation, leaders can facilitate continuous self-motivation among their followers, leading to sustained high performance. Overall, our research contributes to the practical understanding of how CSE and intrinsic motivation impact employee performance, offering guidance to managers in talent acquisition and motivation strategies.

Strengths, limitations and future directions

Our meta-analysis diverges from and expands upon prior work by Judge and Bono (2001) and Chang et al. (2012). Unlike Judge and Bono's (2001) narrow focus on CSE sub-traits and task performance, ours assesses CSE's overall measurement and a wider array of performance outcomes. Similarly, Chang et al. (2012) omitted intrinsic motivation's mediating role, the CSE-voice behavior link, and the moderating effects of age, sex, and tenure—all included in our study. In essence, our meta-analysis advances CSE research by comprehensively evaluating its relationships with performance outcomes and integrating additional variables to deepen insights into CSE's predictive role in employee performance.

There are some limitations in this paper. First, the majority of included studies employed a cross-sectional design, which precludes causal inference regarding the relationships between CSE, intrinsic motivation, and performance outcomes. We can only infer correlation rather than causation, and reverse causality (e.g., high performance enhancing CSE) cannot be ruled out. Future research should adopt longitudinal or experimental approaches—such as CSE intervention training—to establish causal pathways.

Second, due to accessibility constraints, only English-language publications were included, potentially introducing language bias and omitting relevant evidence from non-English sources. Subsequent meta-analyses should incorporate multi-language literature to enhance the comprehensiveness and generalizability of findings.

Third, Hypothesis 2d—regarding the mediating role of intrinsic motivation in the CSE-voice behavior relationship—remains untested, as few studies to date have examined this pathway. Future work should accumulate further empirical evidence to clarify this mediating mechanism.

Finally, while this study examined moderators such as performance rating source, sex, age, and tenure, it did not account for contextual variables (e.g., organizational culture, leadership style) that may interact with CSE to shape performance. Integrating such contextual and additional individual-level moderators in future research would help delineate the boundary conditions of the CSE-performance relationship.

In addition to the valuable insights gained from our meta-analysis, it is important to consider future research directions that can further expand our understanding of the relationships between CSE, intrinsic motivation, and employee performance. We have identified several areas that warrant exploration.

Firstly, future studies should use longitudinal or experimental designs to better establish the causal chain from CSE to intrinsic motivation to performance. This would shed light on the underlying mechanisms through which CSE influences intrinsic motivation and subsequent performance outcomes. Additionally, exploring the unique impact of each sub-trait of CSE on basic psychological needs could provide nuanced insights into the differential effects of these traits on motivational processes. Furthermore, future research could conduct a year-wise trend analysis or longitudinal surveys to explore the evolution

of CSE-performance research over time. Such investigations would help identify shifts in theoretical frameworks, methodological approaches, and key emerging findings, thereby offering a more dynamic perspective on how the field has matured and developed.

Secondly, our findings highlight the mediating role of intrinsic motivation in the relationship between CSE and performance outcomes. However, it would be beneficial to integrate perspectives from SDT and RFT. Specifically, future survey studies could consider both intrinsic motivation and approach focus motivation as mediators, providing a comprehensive understanding of how these motivational factors collectively influence performance outcomes. This integration would enhance our understanding of the underlying motivational processes and provide a more nuanced view of the CSE-performance relationship.

Thirdly, while our meta-analysis focused on the outcomes and mediating mechanisms of CSE, there is a need to explore the antecedents of CSE itself. Investigating the factors that contribute to the development and maintenance of high CSE levels would provide valuable insights for both researchers and practitioners. Additionally, employing cross-temporal meta-analysis techniques to study the changes in CSE over time would further enhance our understanding of its dynamics. Previous studies have utilized this approach to investigate related constructs such as self-esteem and locus of control, and extending it to examine CSE would be a fruitful direction for future research.

Fourthly, future research should explore contextual moderators such as organizational culture (e.g., innovative culture, empowering culture) and leadership style (e.g., transformational leadership, humble leadership) to test whether they enhance or weaken the impact of CSE on performance. For example, innovative culture may strengthen the relationship between CSE and creative performance, adding boundary conditions to the theoretical model.

By addressing these future research directions, we can deepen our understanding of the complex relationships between CSE, intrinsic motivation, and employee performance. This knowledge will contribute to the development of effective strategies for talent management and organizational success.

Conclusions

Our meta-analysis provides valuable insights into the relationships between CSE and employee performance outcomes. We found positive associations between CSE and task performance ($\rho = 0.32$), OCB ($\rho = 0.26$), creative performance ($\rho = 0.36$), and voice behavior ($\rho = 0.26$). Furthermore, intrinsic motivation was identified as a significant mediator between CSE and task performance, OCB, and creative performance. We observed that age, sex, and tenure did not moderate the links between CSE and performance, while research design had a partial moderating effect, particularly with higher correlations found when performance was self-reported. This study contributes to the existing literature on CSE and has practical implications for management.

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