Antecedents and outcomes of authentic leadership across culture: A meta-analytic review

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Abstract

Based on 214 primary studies (N = 196,300), the current study employed meta-analytical techniques to examine the antecedents and outcomes of authentic leadership, and whether cultural differences at the national level and research designs moderated the relationships between authentic leadership and all outcomes. Our findings revealed that leaders' emotional intelligence and the organizational ethical climate was significantly related to authentic leadership, and that authentic leadership was significantly related to a wide variety of subordinate-, leader-, and performance-related outcomes. Moreover, leader-member exchange and follower job satisfaction was found to mediate the relationship between authentic leadership and both follower job performance and OCB, and cultural differences (i.e., power distance and individualism) were found to moderate the relationships between authentic leadership and its outcomes. We also ran supplementary analysis to explore the influence of follower features and research design.

Keywords Authentic leadership · Outcomes · Power distance · Individualism · Meta-analysis

Since it was proposed by Luthans and Avolio (2003), the construct of authentic leadership has attracted a great deal of research interest. Authentic leadership has been defined as "a pattern of leader behaviour that draws upon and promotes both positive psychological capacities and a positive ethical climate, to foster greater self-awareness, an internalized moral perspective, balanced processing of information, and relational transparency on the part of leaders working with subordinates, fostering positive self-development" (Walumbwa et al., 2008). Numerous studies have found empirical evidence for the positive effects of authentic leadership on various organizational and personal outcomes such as work motivation (Giallonardo et al., 2010; van den Bosch &

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Taris, 2014), job satisfaction (Wong & Laschinger, 2013), job performance (Leroy et al., 2015; Wang et al., 2014), and organizational citizenship behavior (Shapira-Lishchinsky & Tsemach, 2014).

However, researchers have also questioned the effects authentic leadership on important outcomes. For example, Alvesson and Einola (2019) has challenged the contribution of authentic leadership research by warning that authentic leadership represents an "excessive positivity fashion" in leadership studies. Empirical studies have also provided inconsistent findings of the relationship between authentic leadership and outcomes. For example, some studies have found that authentic leadership was positively associated with work engagement (e.g., Alok & Israel, 2012; Cerne et al., 2014; Parr & Hunter, 2014), while others does not support this proposition (e.g., Seco & Lopes, 2013). Therefore, with the aim of resolving these controversies and expanding our knowledge we conducted a meta-analysis of the nomological network of constructs to which authentic leadership is related.

Although the current study is not the first meta-analysis of empirical research on authentic leadership, it is superior in terms of its theoretical model and analytical techniques. To the best of our knowledge, there are two published meta-analyses on authentic leadership, Miao, Humphrey and Qian (2018) which looks exclusively at the antecedents of authentic leadership, and Banks et al. (2016), which examines the bivariate relation between authentic leadership and its outcomes. The present study is superior in three main ways. First, rather than simply showing the bivariate relationship between authentic leadership and outcomes as in Banks et al. (2018), we use meta-analytic structural equation modelling (MASEM) to investigate two mechanisms leader-member exchange (LMX) and job satisfaction) through which authentic leadership has been argued to influence outcomes. We focus on LMX because many researchers have used social exchange theory to explain the positive effects of authentic leadership (e.g., Wang et al., 2014), and LMX is the most established concept that explicitly captures the quality of dyadic relationships between leaders and their followers. In addition, we focus on job satisfaction rather than other follower attitudinal variables, because it is the most studied attitudinal construct in applied psychology (Judge et al., 2017).

Furthermore, in order to explain why the influence of authentic leadership may vary across different studies, we examine the moderating effects of cultural differences. Although authentic leadership scholars have called for investigation of the effects of authentic leadership on people across diverse cultural backgrounds (Gardner et al., 2011), to our knowledge, the influence of culture has only been examined in a few empirical studies at individual level (e.g., traditionality in Li et al., 2014b). A meta-analysis provides an efficient way of investigating how cultural dimensions predict the influence of authentic leadership (Fig. 1).

Finally, given that empirical work on authentic leadership has increased in the past several years, our meta-analysis includes more recently published empirical studies than prior meta-analyses. Therefore, the number of effect sizes included in our study is significantly higher than both Miao et al. (2018) and Banks et al. (2016). For example, the k for work engagement increased from 11 to 37, and the k for job satisfaction increased from 16 to 34. In this way, we provide stronger evidence for the importance of authentic leadership.

Overall, our study contributes to the literature in two main ways. First, through the use of MASEM we examine the mechanisms through which authentic leadership

influences key outcomes. Second, we explore the influence of cultural differences such as power distance and individualism on the links between authentic leadership and its outcomes. In doing so we address the calls for more research which considers the role of national culture on the influence of different leadership styles (Yukl, 2010). Since the empirical studies in our sample are from different cultures, meta-analysis enables us to investigate whether specific features of primary samples (e.g., cultural background) account for systematic variations in effect sizes (Hunter & Schmidt, 2004).

Theories and Hypotheses

Antecedents: ethical climate and leaders' emotional intelligence

Organizational climate refers to employees' shared perceptions of organizational practices and procedures that help individuals determine what to do when making decisions related to the organization or its members (Victor & Cullen, 1988). Previous research suggests that the leadership styles adopted by leaders are shaped by the organizational settings in which they are situated (Gardner, 1993). Organizational climate has been proposed as a factor that shapes the development of authentic leadership (Gardner et al., 2005b).

In line with this logic, we argue that ethical climate is particularly relevant for the development of authentic leadership. Ethical climate refers to "a type of work climate that is best understood as a group of prescriptive climates reflecting the procedures, policies, and practices with moral consequences" (Martin & Cullen, 2006: 177). Research has suggested that ethical climate will act as a key predictor of authentic leadership through fostering a cooperative environment between leaders and subordinates, where there are high levels of transparency and high moral standards (Gardner et al., 2005). This environment makes it easier and safer for the leader to follow his/her own internal moral standards, process information in balanced way and act honestly with followers, all of which are characteristics of authentic leadership. Therefore, we hypothesize that:

> H1a: Ethical climate is positively related to authentic leadership.

Emotional intelligence (EI) is defined as an individual's capability to deal with their own or others' emotions, and includes four dimensions: (a) appraisal and expression of emotion in oneself; (b) appraisal and recognition of emotion in others; (c) regulation of emotion in oneself; and (d) use of emotion to facilitate performance (Davies et al., 1998; Wong & Law, 2002). Previous studies have found that individuals with higher EI are good at understanding their own emotions, assessing others' feelings, and supporting others to remain positive (George, 2000). In this way, high EI can foster self-awareness and facilitate relational transparency with others. Therefore, we suggest that leaders' EI is positively related to authentic leadership. In particular, leaders' EI should contribute to the development of their self-awareness by directing their conscious attention to aspects of the self, which is a core component of authentic leadership (Gardner et al., 2011). Meanwhile, EI helps leaders to consider others' feelings, instead of being ruled by emotion at a particular moment (Gardner et al., 2005a). As such, they can build transparent relationships with their subordinates. Therefore, we posit that:

H1b: Leaders' emotional intelligence (EI) is positively related to authentic leadership.

Outcomes of authentic leadership

Following the categorization of Eva et al. (2019), we classify the outcomes of authentic leadership into four groups: follower attitudinal outcomes, follower behavioral outcomes, leader-related outcomes, and performance outcomes.

Follower attitudinal outcomes

Drawing on social exchange theory (Blau, 1964), we propose authentic leadership to be positively related to employee psychological attachment to the organization. First, as authentic leaders who have high self-awareness know their strengths and weaknesses, they are more likely to recognize their subordinates' values and significance in the workplace. Therefore, authentic leaders tend to develop high-quality exchange relationships with their followers. Second, the internalized moral perspective of authentic leaders will make subordinates feel they are being treated fairly in the workplace, which will also contribute to high-quality exchange relationships. Third, authentic leaders who process information in a balanced way tend to involve their subordinates in decision-making. This will lead subordinates to feel that they are trusted by their leaders, and reciprocate in the form of positive work attitudes, as predicted by social exchange theory (Blau, 1964). Because prior empirical research has typically operationalized social exchange in the form of organizational commitment (e.g., Bishop & Scott, 2000; Randall et al., 1999), we include commitment as an important outcome variable of authentic leadership. In addition, we include turnover intention as an indicator of attachment, because meta-analyses have found that voluntary turnover captures psychological detachment from the organization (Griffeth et al., 2000; Tett & Meyer, 1993). Therefore, we propose that:

H2a: Authentic leadership is positively related to subordinates' organizational commitment.
H2b: Authentic leadership is negatively related to subordinates' turnover intention.

We also argue that authentic leadership is likely to enhance subordinates' positive psychological resources such as psychological empowerment, work engagement, psychological capital, psychological safety, job autonomy, and thriving. First, authentic leaders have high self-awareness, which means they know their own advantages and disadvantages. Therefore, they are less likely to make every relevant decision solely by themselves. Instead, authentic leaders tend to empower their subordinates to make a difference. They motivate their subordinates by facilitating two-way interaction, provide subordinates with autonomy, constructive feedback and mentoring, acknowledge subordinates' perspectives, and involve them in decision-making (Wong & Laschinger, 2013). This involvement provides followers with learning opportunities that may enhance thriving. Second, authentic leaders tend to process different information equally, including information from those that challenge their opinion (Walumbwa

et al., 2008). Therefore, they tend to seriously consider or even actively seek their subordinates' opinion. Third, authentic leaders are likely to develop transparent relationships with subordinates (Walumbwa et al., 2008). Finally, authentic leaders demonstrate consistency between their communications and actions, and thus earn more trust from their subordinates (Avolio & Gardner, 2005). These factors should ultimately build positive emotional states amongst followers and high levels of engagement with others at work (Avolio et al., 2004). For example, it has been found that authentic leaders tend to mobilize their subordinates by enabling them to accomplish their work in meaningful ways (i.e., structural empowerment) (Wong & Laschinger, 2013).

Another important indicator of psychological resources is psychological safety. It refers to employees' perceptions that it is safe for them to take interpersonal risks in the workplace. Those who experience psychological safety do not only perceive high levels of interpersonal trust, but also a work climate in which people feel safe to express their differences (Edmondson, 1999). For example, research has established that leaders play important roles in removing the constraints that often discourage subordinates from expressing their authentic ideas (Schaubroeck et al., 2011; Walumbwa & Schaubroeck, 2009). Authentic leaders also demonstrate consistency between their words and deeds (Avolio & Gardner, 2005), building and integrity with their subordinates by encouraging open communication and sharing critical information (Avolio et al., 2004). As a result, subordinates are more likely to feel safe to express their opinion with authentic leaders. Finally, since authentic leaders act in accordance with their fundamental moral standards and beliefs rather than external pressures or personal interests (Gardner et al., 2005), their subordinates tend to believe they will not be unfairly punished, even when interpersonal risk-taking leads to unfavourable outcomes. Thus, we hypothesize that:

> H3: Authentic leadership is positively related to subordinates' (a) psychological empowerment, (b) work engagement, (c) psychological capital, (d) psychological safety, (e) job autonomy, and (f) thriving.

In addition, authentic leadership is likely to have positive effects on subordinates' satisfaction with, and trust in, their work and leaders, because authentic leaders provide developmental rather than controlling feedback, and support followers' self-determination (Ilies et al., 2005). In support of such an assertion, Deci et al. (1989) found that leaders' support for self-determination is positively related to subordinates' general satisfaction at work. In particular, authentic leaders facilitate subordinates' job satisfaction by enhancing subordinates' self-determination in ways such as providing them with autonomy and non-controlling positive feedback, and acknowledging their opinions (Wong & Laschinger, 2013). Furthermore, Gardner et al. (2011) suggests through exhibiting transparency in relationships and consistency between their values, words, and deeds, authentic leaders enhance subordinates' trust in the leader. Therefore, we predict that:

> H4: Authentic leadership is positively related to (a) job satisfaction, (b) leader satisfaction and (c) workplace trust.

Authentic leadership is also likely to reduce followers' negative work attitudes such as cynicism, stress, and emotional exhaustion (Houkes et al., 2003; Laschinger et al.,

2013). First, scholars have argued that authentic leaders tend to "draw from the positive psychological states…such as confidence, optimism, hope and resilience, to model and promote the development of these states in others" (Gardner et al., 2005). Second, according to the conservation of resources theory (Hobfoll, 1989), social and instrumental support, which function as resources for subordinates, will reduce the likelihood of emotion exhaustion for employees (Houkes et al., 2003). Finally, as authentic leaders express their true opinion, their followers are less likely to have cynical opinion toward the leader and the organization. Empirical work generally supports such assertions. For example, authentic leadership has been found to decrease both emotional exhaustion and stress of subordinates over time (Laschinger et al., 2013; van den Bosch et al., 2014). The reason is that supportive leadership such as authentic leadership will protect employees against exhaustion and stress by building healthy work environments (Laschinger & Fida, 2014). Thus, the following hypotheses are proposed:

> H5: Authentic leadership is negatively related to (a) stress, (b) emotional exhaustion and (c) cynicism.

Follower behavioral outcomes

In addition to followers' attitudinal outcomes, researchers have also examined the effects of authentic leadership on two key work behaviors: organizational citizenship behaviors (OCB) and counterproductive work behaviors (CWB). These two sets of behaviors have been considered as opposite to each other. While the former benefits the organization, the latter harms it (Dalal, 2005).

First, we argue that authentic leadership is likely to increase subordinates OCB. OCB is defined as "individual behavior that is discretionary, not directly or explicitly recognized by the formal reward system, and that in the aggregate promotes the effective functioning of the organization" (Organ, 1988, p. 4). The positive effects of leadership on citizenship behaviors have been supported by numerous studies (Organ, Podsakoff & MacKenzie, 2006; Shapira-Lishchinsky & Tsemach, 2014). According to social cognitive theory (Bandura, 1986), leaders influence subordinates' behavior through role modelling appropriate behaviors. In other words, subordinates vicariously learn through observing their leaders' behavior and its consequences (Wood & Bandura, 1989). Authentic leadership is likely to foster citizenship behaviors from subordinates because of the leaders' high moral standards, integrity, and honesty. Their positive reputation cultivates positive expectations from subordinates, and thereby enhance subordinates' willingness to engage in cooperative behavior in the interests of the organization (Avolio et al., 2004). In addition, a few studies also propose that authentic leadership is positively associated with employee creativity. They argued that authentic leaders may facilitate employee creativity by improving employee thriving (Xu et al., 2017) or work passion (Qin et al., 2016a). Thus, the following hypotheses are proposed:

Second, we argue that authentic leadership is also likely to reduce negative behaviors such as CWB. CWB refers behavior that is "intended to have a detrimental effect on organizations and their members" (Fox et al., 2001). Authentic leaders are likely to reduce CWB because they tend to create a positive work environment and relationship with followers (Avolio et al., 2004). In this study, we test the influence of authentic

leadership on general CWB encompassing both active acts, such as aggression, theft and bullying, and passive acts such as tardiness and lateness. This leads us to:

> H6a: Authentic leadership is positively related to subordinates' OCB.
> H6b: Authentic leadership is negatively related to subordinates' CWB.

Leader-related outcomes

In addition to its influence on subordinates, we also propose that authentic leadership enhances the ability of leaders to perform their duties (leader effectiveness) and the quality of their exchange relationship with subordinates (LMX). Leadership effectiveness refers to a leader's ability to lead a group in aspects such as facilitating discussions, organising meetings, or speaking on behalf of a group (Ewen et al., 2013). It is usually operationalised as others' (particularly subordinates') perceptions of their performance along these aspects (e.g., Davis & Gardner, 2012). Balanced processing and authentic behaviours, as components of authentic leadership, will particularly influence subordinates' perceptions of leader effectiveness, as when leaders demonstrate balanced processing of information, they are more likely to develop high quality relationships with subordinates featured by high levels of mutual trust and respect (Avolio & Gardner, 2005). Furthermore, authentic leaders tend to be perceived as credible role models by demonstrating authentic behaviors (Gardner et al., 2005), which cultivates greater cooperation from subordinates. Thus, the following hypothesis is proposed:

> H7a: Authentic leadership is positively related to leader effectiveness.

Moreover, authentic leadership can facilitate LMX in several ways (Wang et al., 2014). First, by striving to achieve truthfulness and openness in their relationships with subordinates (Ilies et al., 2005), authentic leaders are likely to lead subordinates' positive feedback in the form of higher levels of loyalty and trust (Wang et al., 2014). Second, by demonstrating high levels of moral integrity (Michie & Gooty, 2005) authentic leaders will foster subordinates' willingness to communicate and cooperate with their leaders (Rousseau et al., 1998). Third, by sharing information transparently, authentic leaders cultivate intimacy with their subordinates (Wang et al., 2014). In short, authentic leaders tend to establish positive LMX relationships with their subordinates. Thus, we propose the following hypothesis:

> H7b: Authentic leadership is positively related to LMX.

Performance outcomes

Research on authentic leadership has paid much attention to employee job performance and creativity. Researchers have specified two mechanisms through which authentic leadership positively influences subordinate's job performance. First, authentic leadership improves job performance by facilitating high quality relationships between leaders and their subordinates (Wang et al., 2014). Specifically, authentic leaders tend

to develop high-quality relationships based on the principles of social exchange rather than economic exchange through empowerment to the subordinates (Ilies et al., 2005). According to social exchange theory (Blau, 1964), subordinates who perceive greater obligation to their leaders are likely to reciprocate the positive treatment from their leaders in the form of increased effort, which is likely to translate into higher levels of performance (Wang et al., 2014).

Second, authentic leaders also increase subordinates' performance by satisfying their basic psychological needs. Specifically, authentic leaders objectively analyse all relevant information, including information that challenges their opinions (Walumbwa et al., 2008). By doing so, authentic leaders satisfy their subordinates autonomy by acknowledging their subordinates' opinions, and providing meaningful and supportive feedback (Deci et al., 2001; Leroy et al., 2012a). In addition, a few studies also propose that authentic leadership is positively associated with employee creativity. They argued that authentic leaders may facilitate employee creativity by improving employee thriving (Xu et al., 2017 or work passion (Qin et al., 2016a). Thus, the following hypotheses are proposed:

> H8: Authentic leadership is positively related to subordinates' (a) job performance and (b) creativity.

Authentic leadership can also influence team performance (Hannah et al., 2011 Rego et al., 2013). Specifically, authentic leadership is likely to foster positive team contexts by practicing and supporting "good" habits, desires and actions (Rego et al., 2013), which further improves team performance. For example, recent work found that authentic leadership improves team productivity through enhancing team authenticity (Hannah et al., 2011). These findings are consistent with social learning theory (Bandura, 1977), which asserts that subordinates will identify and mimic behaviours when leaders demonstrate them consistently. As such when authentic behaviours become prototypical (demonstrated consistently by the leader), team members will model such behaviors themselves in order to be liked by other team members. This in turn will lead to higher quality work behaviors such as higher team performance (Hannah et al., 2011). Therefore, we propose the following hypothesis:

> H9: Authentic leadership is positively related to team performance.

The moderating effects of national cultural difference

National culture refers to the "collective programming of the mind which distinguishes the members of one human group from another" (Hofstede, 1980, p. 25). Although social scientists have proposed numerous cultural taxonomies (Clark, 1990), the most influential framework proposed by Hofstede suggests that there are five dimensions of cultural differences at the national level: power distance, individualism and collectivism, uncertainty avoidance, masculinity versus femininity, and long versus short-term orientation (Hofstede, 1980, 2001). Among these dimensions, leadership scholars have paid the most attention to power distance and individualism/collectivism (e.g., Jackson et al., 2013; Rabl et al., 2014). Therefore, our study examines the moderating effect of these two cultural moderators.

The influence of leadership is not universal. Some leadership behaviours are unique to a given culture (Berry, 1980), and not all leadership behaviors are equally effective across cultures (Dorfman et al., 1997). For instance, Dorfman et al. (1997) tested the effects of six leadership behaviours in five countries. They found that directive, participative, and contingent punishment among the six leadership behaviours will only lead to favourable outcomes in some cultures. Therefore, we propose that power distance and individualism are likely to moderate the influence of authentic leadership on outcomes.

More specifically, we propose that in a culture characterised by high levels of power distance, the influence of authentic leadership on outcomes will be stronger. Power distance is defined as the degree to which individuals accept and believe that power should be distributed unequally (Hofstede, 1980). As highlighted earlier authentic leaders tend to share critical information (Avolio et al., 2004) and empower their subordinates to make a difference. In high power distance culture, the unequal distribution of information and authority is institutionalized (Hofstede, 1980). As such, authentic leader behaviors will be particularly valued by subordinates because of the scarcity of these behaviors. Therefore, employees tend to demonstrate more positive attitudes and behaviors such as organizational attachment, work motivation, performance, and subjective well-being, and fewer negative intention behaviors such as turnover and CWB when working with authentic leaders.

Similarly, we propose that the relationship between authentic leadership and its outcomes will be stronger in a culture with high individualism. Individualism is defined as "a loosely knit social framework in which people are supposed to take care of themselves and of their immediate families only" (Hofstede, 1980: 45). In contrast, collectivism refers to "a tight social framework in which people distinguish between ingroups and outgroups, they expect their ingroup to look after them, and in exchange for that they feel they owe absolute loyalty to it" (Hofstede, 1980: 45). The behaviors adopted by authentic leaders such as communicating their values and goals, and emphasizing their subordinates' personal development and needs (Gardner et al., 2005), are consistent with the values placed by people in individualistic cultures on their personal interests. In other words, the personal needs which are particularly salient in individualistic cultures are satisfied by authentic leaders. Therefore, in such cultures, subordinates are more likely to demonstrate more positive and less negative outcomes. In comparison, in collectivistic cultures, subordinates are less likely to be influenced by authentic leadership due to the focus they place on the group over their own individual needs. Therefore, we suggest that:

> H10a: Power distance will accentuate the relationship between authentic leadership and its outcomes. Specifically, the relationship will be stronger when power distance is high.
> H10b: Individualism will accentuate the relationship between authentic leadership and its outcomes. Specifically, the relationship will be stronger when individualism is high.

The mediating role of LMX and job satisfaction

While investigating the bivariate relationships between authentic leadership and both follower and leader outcomes helps us to understand *what* outcomes authentic

leadership is related to, it does not enrich our understanding of *how* its influences unfold. Therefore, we investigate how authentic leadership relates to relevant outcomes using meta-analytic structural equation modelling (MASEM) (Cheung & Chan, 2005). MASEM can test a model with multiple independent, mediating and dependent variables, using the correlation matrix provided by meta-analysis of bivariate relationships.

Based on our literature review of authentic leadership, we explore the mediating role of LMX and job satisfaction. Researchers have adopted social exchange theory to explain the influence of authentic leadership (e.g., Wang et al., 2014). In this study, we use LMX, the most established proxy for the strength of the leader-follower relationship, as a mediator. Leadership researchers have found that social exchange, rather than economi exchange plays a positive mediating role between leadership and follower performance Kuvaas et al. (2012).

We also include job satisfaction as an parallel mediator for its theoretical and empirical importance in authentic leadership research. First, the extent research in social psychology has provided strong support for attitude–behavior link (e.g., Glasman & Albarracín, 2006). In management research, job satisfaction is the most studied attitudinal construct. For example, Judge et al. (2017) ran a content analysis of articles from PsycINFO and found that job satisfaction is most studied attitudinal variable since 1930. Secondly, job satisfaction is one of the most studied attitudinal variable in authentic leadership. As can be seen in Table 1A and B, among the five groups of outcomes, follower attitudes have received most research attention. The total k of bivarite relationships in this category is 263, which is much higher than other groups (54 for follower behavioral outcomes, 36 for leader-related outcomes, and 74 for performance outcomes). The k of job satisfaction is second highest (i.e., 34) in the attitudinal group. For outcome variables, we focus on OCB and job performance, because they are considered to the most widely researched employee behaviors in management research.

Thus, we propose the following hypotheses:

> H11a: LMX mediates the relationship between authentic leadership and (a) OCB and (b) job performance.
> H11b: Job satisfaction mediates the relationship between authentic leadership and (a) OCB and (b) job performance.

Method

Literature Search and Inclusion Criteria

We searched for literature on authentic leadership in five databases, including *Scopus, Web of Science (SSCI), EBSCO, CNKI (China National Knowledge Infrastructure) and ProQuest.* Following the practice of previous meta-analyses (e.g. Zhang & Bednall, 2016), we searched the title, keywords and abstract of articles for the term authentic leadership or leader authenticity. Specially, we obtained 772 articles in Scopus, 881 articles in Web of Science (SSCI), 50 articles in EBSCO and 117 articles in CNKI respectively. In addition, we also manually checked the reference list of other review

Table 1 Meta-analysis of relationships between authentic leadership and its antecedents, consequences

Variable	K	N	r	SD_{res}	ρ	$SD_ρ$	95% CI	80% CV
A								
Antecedents								
Ethical climate	7	1 725	.39	.08	.47	.09	[.39, .55]	[.36, .58]
Leader EI	9	2 914	.48	.17	.57	.17	[.45, .68]	[.35, .78]
Follower attitudinal consequences								
Positive attitudinal consequences	215	66 990	.45	.18	.52	.19	[.49, .55]	[.27, .77]
Organizational commitment	40	9 267	.42	.16	.48	.17	[.43, .54]	[.27, .70]
Psychological empowerment	21	6 384	.51	.14	.58	.13	[.52, .64]	[.41, .75]
Engagement	37	10 955	.41	.22	.46	.25	[.38, .55]	[.14, .78]
Psychological capital	27	9 370	.43	.14	.48	.16	[.42, .55]	[.28, .69]
Psychological safety	13	4 549	.31	.19	.37	.22	[.25, .49]	[.09, .65]
Autonomy	7	3 031	.37	.04	.43	.05	[.38, .48]	[.36, .50]
Thriving	8	2 386	.36	.08	.42	.07	[.36, .49]	[.33, .51]
Job satisfaction	34	10 704	.47	.12	.54	.12	[.49, .58]	[.38, .69]
Leader Satisfaction	8	2 994	.67	.10	.74	.10	[.67, .81]	[.61, .87]
Workplace trust	20	7 350	.58	.19	.67	.19	[.58, .75]	[.42, .91]
Negative attitudinal consequences	48	16 917	-.19	.22	-.22	.25	[-.29, -.15]	[-.54, .10]
Intention to turnover	20	8 192	-.18	.30	-.20	.33	[-.35, -.05]	[-.63, .23]
Stress	8	1 972	-.17	.22	-.21	.26	[-.40, -.02]	[-.55, .12]
Emotional exhaustion	14	4 887	-.21	.00	-.23	.00	[-.26, -.20]	[-.23, -.23]
Cynicism	6	1 866	-.25	.04	-.28	.04	[-.34, -.22]	[-.33, -.23]
B								
Follower behavioral consequence [a]								
OCB	44	15 066	.4	.15	.46	.17	[.41, .51]	[.24, .68]
CWB	10	5 416	-.23	.1	-.26	.1	[-.33, -.19]	[-.39, -.13]
Leader-related Consequences	36	10 771	.53	.25	.60	.26	[.51, .69]	[.26, .94]
Leader effectiveness	13	3 812	.59	.26	.69	.28	[.53, .84]	[.33, 1.04]
LMX	23	6 959	.49	.23	.55	.25	[.45, .65]	[.24, .87]
Performance Consequences	74	22 137	.38	.19	.43	.21	[.38, .48]	[.17, .70]
Job performance	32	8 987	.28	.17	.33	.19	[.26, .40]	[.08, .58]
Employee creativity	28	8 423	.4	.17	.45	.18	[.38, .52]	[.22, .69]
Team performance	14	4 727	.52	.15	.59	.16	[.50, .68]	[.38, .80]

k = number of studies contributing to meta-analysis; N = total sample size; r = mean observed correlation; SD_{res} = residual standard deviation of r; ρ = mean true-score correlation; $SD_ρ$ = residual standard deviation of ρ; CI = confidence interval around ρ; CV = credibility interval around ρ. Correlations corrected individually.

a: We did not calculate the correlation between authentic leadership and follower behavioral outcomes because OCB and CWB are opposite to each other.

papers so that we did not overlook any relevant study (Alvesson & Sveningsson, 2013; Banks et al., 2016; Gardner et al., 2011).

Regarding the unpublished studies, we searched for conference papers, research reports, dissertations, book chapters, working papers or conference papers regarding

authentic leadership in the database of *ProQuest*, *SCOPUS* and *Web of Science (SSCI)* to avoid the meta-analysis being contaminated by publication bias (Rothstein & Hopewell, 2009). Besides, we examined conference proceedings of the Academy of Management (AOM) and the Society of Industrial and Organizational Psychology (SIOP) to identify relevant papers. Moreover, we posted requests for working papers on authentic leadership on the listservs of the Human Resources and Organizational Behavior Divisions at the Academy of Management Conference (Fig. 1).

After these thorough searches, we selected studies based on the following criteria. First, the study had to measure authentic leadership empirically. Second, there needed to be at least one bivariate relationship of interest in the study. Third, there needed to be correlation statistics in the study. This procedure helped us identify 214 primary studies (N=196,300) for inclusion in the final meta-analysis, encompassing 161 journal articles and 53 unpublished papers.

Coding of Effect Sizes

We coded the observed correlations, sample sizes, coefficient alpha reliability estimates, the country of original samples and some bibliometric information of the primary articles. In addition, we transformed the observed correlations into the corrected correlation (Hunter & Schmidt, 2004). Two authors of this study coded all papers independently and double-checked when disagreements occurred, and a high agreement was achieved (Cohen's kappa = .92). When disagreements occurred both authors looked together at the data and came to a consensus. In addition, after coding all the information our meta-analysis focused on, we classified the variables with similar meanings into the same category of outcomes and antecedents of authentic leadership.

Analysis

We applied a random-effects model by using the psychometric meta-analysis approach of Hunter and Schmidt (2004) to test Hypothesis 1 to Hypothesis 9. The psychometric meta-analysis method of Hunter and Schmidt involves correction of artifactual
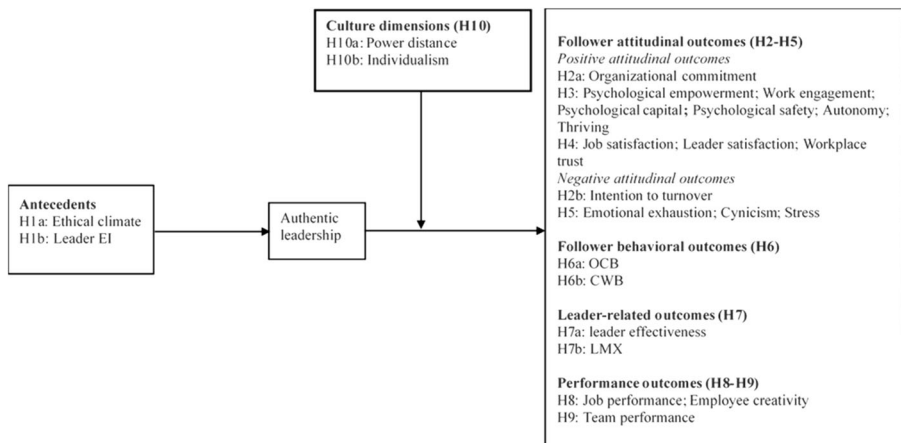

Fig. 1 Proposed conceptual model

variance, like measurement error, which causes the attenuation of observed effect sizes (Hunter et al., 2006). Thus, this method provides an estimation of the population correlation that is not biased by measurement error. Besides, unlike the fixed-effects model, the random-effects model can widen confidence intervals for testing effects, thus it is considered more conservative (Banks et al., 2014). In our research, we corrected for measurement error in authentic leadership and its outcomes. Eight important indexes were reported, including independent effect sizes (k); sample size (N); the weighted mean correlation (r); mean true-score correlation (ρ); observed standard deviation of corrected correlations (SD_{r_c}); residual standard deviation of ρ (SD_ρ); the 95% confidence interval for the main effect; and the variability of corrected effect size estimates by calculating 80% credibility intervals.

Besides, we ran meta-regression to test the moderating effects of two national cultural dimensions (Hypotheses 10) on the outcomes of authentic leadership in line with the recommendations provided by Borenstein et al. (2011). Specifically, we selected two variables to measure the characteristics of a country: power distance and individualism, using data from the World Values Survey conducted by Geert Hofstede (http://geert-hofstede.com/china.html). This method increases the accuracy of measuring cultural dimensions compared to the conventional approach of cross-cultural meta-analysis which operationalizes cultural orientation by using location as a proxy (Zhang & Liao, 2015). After selecting these two variables to measure the cultural orientation of countries, the next step is to code the countries of sampled organization in primary studies. If the coded countries were in the list of the survey, we assigned corresponding values of power distance and individualism to the samples. Finally, we adopted meta-regression to test the moderating effects of the two cultural dimensions in line with the recommendations provided by Borenstein et al. (2011).

In addition, because of the common method variance due to single source of data (Podsakoff et al., 2012), it is necessary to examine whether results differ among research with different data collection methods. In line with previous meta-analysis (e.g., Eatough et al., 2011; Martin et al., 2016; Paustian-Underdahl et al., 2014; Pletzer et al., 2019), we tested for the moderating effect of two methodological choices related to research design, including the time lag and rating source, using subgroup analysis of Hunter and Schmidt (2004). Specially, in the first subgroup analysis, we coded the samples based on cross-sectional design as 1, whereas we coded the sample based on time lag design as 0. In the second subgroup analysis, when data was collected from a single source it was coded as 1, whereas when the data was collected from different sources it was coded as 0. Then these two features of research design were used to categorize samples. In addition, we conducted a separate meta-analysis for each group. Finally, on the basis of the parameters from the above separate meta-analyses, we calculated z scores to examine the significance level of group difference (Hunter & Schmidt, 1990), the Z values over 1.96 indicates significant difference between groups. Finally, we drew on MASEM using Visweswaran and Ones's (1995) method in order to examine the mediating effects of LMX and job satisfaction on the relationship between authentic leadership and both job performance and OCB. In the first step, we coded the correlation matrix for each bivariate relationship in the SEM, see Table 1A and B. In the second step, as an observed variance-covariance matrix, the correlation matrix that was coded in last step is then entered into SEM.

Results

Main effects

The results of the meta-analyses for the antecedents and outcomes of authentic leadership are shown in Table 1A and B. Overall, there were significant correlations for all meta-analytic effects. Cohen's (1988) propose that correlation of .1, .3, .5 are considered as small, moderate, and large effect sizes respectively. Most effects in the results were in the moderate to large range.

First, the relationships between authentic leadership and its antecedents were examined. As shown in Table 1A, ethical climate ($\overline{\rho}$ = .47) and leader EI ($\overline{\rho}$ = .57) are significantly related to authentic leadership. Both 95% confidence intervals did not include zero. Therefore, Hypothesis 1a and 1b are supported.

The outcomes of AL are also presented in Table 1A and B. In Hypothesis 2 to 5, the relationships between authentic leadership and subordinates' attitudinal outcomes were examined. As can be seen in Table 1A, our findings show that authentic leadership was positively associated with all positive attitudinal outcomes, including organizational commitment ($\overline{\rho}$ = .48), psychological empowerment ($\overline{\rho}$ = .58), psychological safety ($\overline{\rho}$ = .37), work engagement ($\overline{\rho}$ = .46), psychological capital ($\overline{\rho}$ = .48) job autonomy ($\overline{\rho}$ = .43), thriving ($\overline{\rho}$ = .42), job satisfaction ($\overline{\rho}$ = .54), leader satisfaction ($\overline{\rho}$ = .74) and workplace trust ($\overline{\rho}$ = .67). Besides, negative relationships were found between authentic leadership and subordinates' negative attitudinal variables, including turnover intention ($\overline{\rho}$ = -.20), emotional exhaustion ($\overline{\rho}$ = -.23), cynicism ($\overline{\rho}$ = -.28), and stress ($\overline{\rho}$ = -.21). All 95% confidence intervals excluded zero, which indicated all the relationships between authentic leadership and subordinates' attitudinal outcomes were significant. Therefore, Hypothesis 2 to 6 were all supported.

Hypothesis 6a and 6b proposed that authentic leadership is significantly related to work behaviors such as OCB and CWB. Table 1B revealed that authentic leadership was positively related to OCB ($\overline{\rho}$ = .46) and negatively related to CWB ($\overline{\rho}$ = -.26). Both of the 95% confidence intervals excluded zero. Consequently, Hypothesis 6a and 6b were supported.

In addition, to test Hypothesis 7a and 7b, the relationships between authentic leadership and leader-related outcomes were examined. Table 1B showed that authentic leadership was positively related to both leader effectiveness ($\overline{\rho}$ = .69) and LMX ($\overline{\rho}$ = .55). Both the 95% confidence intervals excluded. Thus, both Hypothesis 7a and 7b were also supported.

Hypothesis 8a and 8b proposed that there were positive associations between authentic leadership and some performance outcomes. Our findings confirm that authentic leadership was positively related to subordinates' job performance ($\overline{\rho}$ = .33) and creativity ($\overline{\rho}$ = .45). In addition, the positive relationship between authentic leadership and team performance ($\overline{\rho}$ = .59) was also confirmed. Therefore, Hypothesis 8 and 9 were fully supported.

In addition, we test the relationship between authentic leadership and whole category of outcomes in our analysis. As shown in Table 1A and B, authentic leadership is positively related to positive attitudinal ($\overline{\rho}$ = .52, 95% CI [.49, .55]), leader-related ($\overline{\rho}$ = .60, 95% CI [.51 .69]) and performance outcomes ($\overline{\rho}$ = .43, 95% CI [.38, .48]), and is negatively related to negative attitudinal outcomes ($\overline{\rho}$ = -.22, 95% CI [-.29, -.15]).

Moderating Effects

In Hypothesis 10, we argued that national cultural differences, including levels of individualism and power distance, influenced the strength of the relationships between authentic leadership and its outcomes. In order to test Hypothesis 10a and 10b, we used meta-regression to examine the moderating effects. Hypothesis 10a stated that the association between authentic leadership and its outcomes would be stronger in countries with high versus low power distance. As shown in Table 2, six bivariate relationships were stronger in countries with high power distance including leader

Table 2 The moderating effect of individualism and power distance on authentic leadership -consequence relationships

	Individualism			Power Distance		
	K	B	SE	K	B	SE
Follower attitudinal consequences						
Organizational attachment						
Organizational commitment	32	.30***	.04	32	-.67***	.07
Psychological empowerment	20	-.21*	.05	20	.04	.06
Engagement	35	-.10***	.04	35	.01	.06
Psychological capital	25	.24***	.06	25	-.50	.07
Psychological safety	12	-.25***	.06	12	-.75***	.09
Autonomy	7	.11	.06	7	-.18	.10
Thriving	8	.08	.06	8	.08	.14
Job satisfaction	27	.32***	.04	27	-.45***	.08
Leader Satisfaction	6	-.27***	.10	6	.69***	.18
Workplace trust	18	.03	.05	18	.30***	.07
Negative attitudinal consequences						
Intention to turnover	16	-.75***	.04	16	.86***	.06
Stress	7	.60***	.09	7	.06	.15
Emotional exhaustion	11	.28	.05	11	-1.02***	.18
Cynicism	6	.59***	.18	6	-1.01***	.36
Follower behavioral consequences						
OCB	40	.16***	.05	40	-.18***	.05
CWB	10	.24***	.06	10	-.47***	.07
Leader-related Consequences						
Leader effectiveness	11	-.67***	.11	11	1.19***	.20
LMX	21	-.29***	.06	21	.14	.08
Performance Consequences						
Job performance	31	-.26***	.04	31	.64***	.07
Employee creativity	27	-.43***	.12	27	.24	.13
Team performance	12	-.35***	.06	12	.80***	.11

k = number of samples in regression analysis; B = regression coefficient for moderator; SE = standard error. *p < 0.1, **p < 0.05, ***p < 0.01.

satisfaction (b = .69, $p < .01$), workplace trust (b = .30, $p < .01$), turnover intentions (b = .86, $p < .01$), leader effectiveness (b = 1.19, $p < .01$), job performance (b = .64, $p < .01$) and team performance (b = .80, $p < .01$). In contrast, seven bivariate relationships were weaker in countries with high power distance, including organizational commitment (b = -.67, $p < .01$), psychological safety (b = -.75, $p < .01$), job satisfaction (b = -.45, $p < .01$), emotional exhaustion (b = -1.02, $p < .01$), cynicism (b = -1.01, $p < .01$), OCB (b = -.18, $p < .01$) and CWB (b = -.47, $p < .01$).

For Hypothesis 10b, in countries with high individualism, the relationship between authentic leadership and outcomes including organizational commitment (b = .30, $p < .01$), psychological capital (b = .24, $p < .01$), job satisfaction (b = .32, $p < .01$), stress (b = .60, $p < .01$), cynicism (b =.59, $p < .01$), OCB (b =.16, $p < .01$) and CWB (b =.24, $p < .01$). However, most of the other relationships were weaker in countries with high individualism, including the relationships between authentic leadership and outcomes including psychological empowerment (b = - .21, $p < .1$), work engagement (b = - .10, $p < .01$), psychological safety (b = - .25, $p < .01$), leader satisfaction (b = -.27, $p < .01$), intention to turnover (b = - .75, $p < .01$), leader effectiveness (b = -.67, $p < .01$), LMX (b = - .29, $p < .01$), job performance (b = - .26, $p < .01$), employee creativity (b =-.43, $p < .01$) and team performance (b =-.35, $p < .01$) are stronger.. For the remaining outcomes, the moderating effects were not significant. Thus, both Hypothesis 10a and 10b were partially supported.

MASEM Analysis of Mediating Effects

We applied MASEM to test the mediating effects of LMX and job satisfaction on the relationships between authentic leadership and both job performance and OCB. The results show that authentic leadership was positively related to LMX (β =.50, p<.01), and LMX was positively related to both OCB (β =.30, p<.01) and job performance (β =.29, p<.01). In addition, authentic leadership was significantly and positively related to job satisfaction (β=.47, p<.01), and job satisfaction was significantly and positively related to OCB (β=.04, p<.01) and job performance (β =.03, p<.01). Regarding mediation analysis, the results in Table 3 showed that the mediating effects of LMX on the relationship between authentic leadership and OCB was significant (β=.15, p<.01). Additionally, the mediating role of job satisfaction on the relationship between authentic leadership and OCB was significant, the indirect effects (β=.02, p<.01). For job performance, the indirect effect of authentic leadership via both LMX (β=.14,

Table 3 Results of mediation analyses

Mediation models	Path A		Path B		Indirect effect		95% CI	
	β	SE	β	SE	β	SE	LL	UL
Authentic Leadership →LMX → OCB	.50	.01	.30	.01	.15	.01	.14	.16
Authentic Leadership → Job Satisfaction → OCB	.47	.01	.04	.01	.02	.00	.01	.03
Authentic Leadership →LMX → Job performance	.05	.01	.29	.01	.14	.01	.13	.15
Authentic Leadership →Job Satisfaction →Job performance	.47	.01	.03	.01	.01	.00	.01	.02

B = regression coefficient for Mediator; SE = standard error. *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$; CI= 95% confidence interval

p<.01) and job satisfaction (β=.01, p<.01) were significant. Thus, Hypotheses 11a and 11b was supported.

Supplementary Analyses

In addition to the analysis of antecedents, outcomes, and cultural moderators of authentic leadership based on relevant theories, we also did exploratory analysis of the influence of followers' demographic variables (i.e., age, gender and education level) and research design. First, as shown in Table 4, employees' age ($\overline{\rho}$ =-.04; 95% CI [-.07, -.01]) and gender ($\overline{\rho}$ =.02; 95% CI [-.01, .04]) were slightly but significantly correlated with followers' perceptions of authentic leadership. However, the relation between education level ($\overline{\rho}$ =.04; 95% CI [.01, .07]) and followers' perceptions of authentic leadership is not significant.

In addition, we examined whether the influence of authentic leadership is contingent on the research design (i.e., rating sources and rating time consistency). It should be noted that some moderation effects were not tested because there was no more than one study in each group. Also, studies for some variables have very limited variation on some moderators. For instance, among the nine articles on leader EI and authentic leadership, only one used multiple-source design. Therefore, these bivariate relationships were not reported in subgroup analysis.

The moderating effects of rating sources are shown in Table 5A and B. Apart from autonomy (Z = 2.20), employee creativity (Z = 3.05), OCB (Z = 3.20), thriving (Z = 3.94), workplace trust (Z = 2.27) and team performance (Z = 3.37), other relationships did not seem to vary much between samples that used different rating sources and the same rating source. Thriving showed a significantly stronger correlation using data from the same source (ρ = .47) than using data from different sources ($\overline{\rho}$ = .32). The same held for autonomy (($\overline{\rho}$ = .46 vs $\overline{\rho}$ = .38), workplace trust ($\overline{\rho}$ = .71 vs $\overline{\rho}$ = .52), OCB ($\overline{\rho}$ = .51 vs $\overline{\rho}$ = .36), employee creativity ($\overline{\rho}$ = .53 vs $\overline{\rho}$ = .34) and team performance ($\overline{\rho}$ = .66 vs $\overline{\rho}$ = .37).

The moderating effects of cross-sectional versus time-lagged designs (rating time consistency) are presented in Table 6A and B. The rating time consistency did not moderate relationships between authentic leadership and its attitudinal and behavioral outcomes. Regarding the relationships between authentic leadership and leader-related outcomes, apart from leader effectiveness (Z =5.23) and LMX (Z =2.27), the rating time consistency did not moderate relationships between authentic leadership and other outcomes. Specially, both leader effectiveness ($\overline{\rho}$ = .75 vs. $\overline{\rho}$ = .24) and LMX ($\overline{\rho}$ = .60 vs. $\overline{\rho}$ = .38) showed a significantly stronger correlation with samples obtained using cross sectional designs than time lagged designs. Besides, the subgroup analysis revealed that the rating time

Table 4 Meta-analysis of relationships between authentic leadership and follower demographic variables

Variable	K	N	r	SD_{res}	ρ	SD_ρ	95% CI	80% CV
Age	68	23 134	-.04	.10	-.04	.11	[-.07, -.01]	[-.19, .10]
Education	47	16 777	.04	.08	.04	.09	[.01, .07]	[-.08, .16]
Gender	59	19 092	.01	.07	.02	.08	[-.01, .04]	[-.09, .12]

k = number of studies contributing to meta-analysis; N = total sample size; r = mean observed correlation; SD_{res} = residual standard deviation of r; ρ = mean true-score correlation; SD_ρ = residual standard deviation of ρ; CI = confidence interval around ρ; CV = credibility interval around ρ. Correlations corrected individually.

Table 5 The moderating effect of rating source on authentic leadership-consequence relationships

Moderator	k	N	r	ρ	$SD_ρ$	95% CI		Z
						LL	UL	
A								
Follower attitudinal consequences								
Positive attitudinal consequences								
Organizational commitment								
1. Different source	7	1597	.33	.41	.12	.30	.52	
2. Same source	29	6653	.43	.49	.17	.42	.56	1.23
Psychological empowerment								
1. Different source	2	677	.45	.51	.09	.37	.65	
2. Same source	19	5707	.52	.59	.13	.52	.65	.98
Engagement								
1. Different source	5	1206	.32	.40	.17	.24	.55	
2. Same source	31	9643	.42	.47	.26	.38	.56	.82
Psychological capital								
1. Different source	8	2856	.39	.43	.16	.32	.54	
2. Same source	19	6514	.45	.51	.16	.44	.58	1.17
Psychological safety								
1. Different source	5	2072	.28	.32	.20	.14	.51	
2. Same source	8	2477	.34	.42	.22	.25	.58	.74
Autonomy								
1. Different source	2	955	.35	.38	.00	.35	.40	
2. Same source	5	2076	.37	.46	.06	.39	.52	2.20
Thriving								
1. Different source	3	838	.26	.32	.00	.30	.35	
2. Same source	5	1548	.42	.47	.06	.40	.53	3.94
Job satisfaction								
1. Different source	5	1181	.50	.55	.15	.41	.69	
2. Same source	27	9193	.47	.54	.12	.49	.58	.21
Leader Satisfaction								
1. Different source	3	617	.63	.72	.13	.56	.88	
2. Same source	5	2377	.69	.75	.09	.66	.83	.28
Workplace trust								
1. Different source	6	1624	.46	.52	.15	.39	.65	
2. Same source	14	5726	.62	.71	.18	.61	.80	2.27
Negative attitudinal consequences								
Emotional exhaustion								
1. Different source	2	1256	-.20	-.22	.00	-.22	-.21	
2. Same source	11	3604	-.21	-.23	.03	-.27	-.19	.85
B								
Follower behavioral consequences								
CWB								

Table 5 (continued)

Moderator	k	N	r	ρ	SD_ρ	95% CI		Z
						LL	UL	
1. Different source	3	2022	-.28	-.32	.10	-.44	-.20	
2. Same source	7	3394	-.20	-.23	.08	-.30	-.15	1.36
OCB								
1. Different source	15	4435	.31	.36	.11	.29	.42	
2. Same source	27	10231	.44	.51	.17	.44	.57	3.20
Leader-related consequences								
Leader effectiveness								
1. Different source	4	439	.60	.71	.26	.44	.97	
2. Same source	7	3086	.59	.68	.29	.47	.90	.14
LMX								
1. Different source	7	2546	.48	.54	.24	.36	.72	
2. Same source	13	3640	.50	.56	.23	.43	.69	.12
Performance consequences								
Job performance								
1. Different source	12	4147	.23	.27	.16	.17	.37	
2. Same source	20	4840	.32	.37	.21	.28	.47	1.49
Employee creativity								
1. Different source	10	3823	.31	.34	.14	.25	.43	
2. Same source	17	4363	.48	.53	.17	.45	.61	3.05
Team performance								
1. Different source	8	1003	.32	.37	.20	.22	.52	
2. Same source	4	3524	.60	.66	.07	.59	.73	3.37
Demographic variables								
Employ age								
1. Different source	12	4502	-.02	-.03	.02	-.06	.01	
2. Same source	55	18334	-.04	-.05	.13	-.09	-.01	.86
Employ education								
1. Different source	7	3602	.05	.05	.00	.02	.09	
2. Same source	40	13175	.03	.04	.10	.00	.08	.64
Employ gender								
1. Different source	11	3630	.03	.04	.00	.02	.07	
2. Same source	47	15164	.01	.01	.09	-.02	.05	1.34

k: the number of participants in each analysis; N: the number of independent effect sizes included in each analysis; r: mean correlation corrected for sampling error; ρ: mean correlation corrected for sampling error and attenuation; CI: 95% confidence interval for r; Z: result of the significance test on the difference in r between two moderator levels.

consistency moderates the relationships between authentic leadership and several performance outcomes, including employee creativity (Z =3.42) and team performance (Z =2.04), both of which show a significantly stronger correlation for cross-sectional research designs as opposed to time lagged designs.

Table 6 The moderating effect of rating time consistence on authentic leadership-consequence relationships

Moderator	k	N	r	ρ	SD_ρ	95% CI		Z
						LL	UL	
A								
Follower attitudinal consequences								
Positive attitudinal consequences								
Organizational commitment								
1. Time lag	10	2359	.42	.49	.15	.39	.60	
2. Cross section	26	5891	.42	.47	.18	.40	.54	.31
Psychological empowerment								
1. Time lag	8	2351	.44	.52	.08	.45	.59	
2. Cross section	13	4033	.55	.61	.14	.53	.69	1.74
Engagement								
1. Time lag	8	1818	.46	.56	.25	.38	.73	
2. Cross section	28	9031	.40	.45	.25	.35	.54	1.07
Psychological capital								
1. Time lag	7	2030	.46	.53	.26	.33	.73	
2. Cross section	20	7340	.43	.47	.12	.42	.53	.54
Psychological safety								
1. Time lag	4	1401	.28	.35	.16	.18	.52	
2. Cross section	9	3148	.33	.38	.24	.22	.54	.30
Thriving								
1. Time lag	4	1133	.32	.40	.10	.28	.51	
2. Cross section	4	1253	.40	.44	.03	.38	.50	.68
Job satisfaction								
1. Time lag	8	1635	.53	.58	.16	.46	.70	
2. Cross section	23	8337	.45	.52	.10	.47	.56	1.00
Leader Satisfaction								
1. Time lag	4	657	.63	.71	.11	.59	.82	
2. Cross section	4	2337	.69	.75	.09	.65	.84	.57
Workplace trust								
1. Time lag	7	2111	.69	.75	.11	.67	.83	
2. Cross section	13	5239	.54	.63	.21	.52	.74	1.71
Negative attitudinal consequences								
Intention to turnover								
1. Time lag	4	1085	-.03	-.04	.25	-.30	.22	
2. Cross section	14	6853	-.20	-.22	.34	-.40	-.04	1.11
Stress								
1. Time lag	2	231	-.21	-.25	.00	-.27	-.23	
2. Cross section	6	1741	-.17	-.21	.28	-.44	.02	.37
Emotional exhaustion								
1. Time lag	6	2418	-.21	-.23	.00	-.25	-.20	
2. Cross section	7	2442	-.21	-.23	.05	-.28	-.17	.02

Table 6 (continued)

Moderator	k	N	r	ρ	SD_ρ	95% CI		Z
						LL	UL	
B								
Follower behavioral consequences								
CWB								
1. Time lag	4	1290	-.16	-.20	.11	-.32	-.07	
2. Cross section	6	4126	-.25	-.28	.09	-.36	-.20	1.08
OCB								
1. Time lag	16	4589	.34	.41	.16	.32	.49	
2. Cross section	26	10077	.43	.48	.17	.42	.55	1.45
Leader-related Consequences								
Leader effectiveness								
1. Time lag	4	534	.18	.24	.00	.19	.28	
2. Cross section	7	2991	.66	.75	.25	.56	.93	5.23
LMX								
1. Time lag	4	1421	.33	.38	.14	.24	.53	
2. Cross section	16	4765	.54	.60	.23	.48	.72	2.27
Performance Consequences								
Job performance								
1. Time lag	10	3158	.31	.37	.16	.26	.48	
2. Cross section	22	5829	.26	.30	.21	.21	.39	.98
Employee creativity								
1. Time lag	9	3075	.28	.31	.13	.22	.41	
2. Cross section	18	5111	.47	.52	.16	.45	.60	3.42
Team performance								
1. Time lag	6	977	.39	.46	.11	.35	.57	
2. Cross section	6	3550	.57	.63	.15	.51	.76	2.04
Demographic variables								
Employ Age								
1. Time lag	14	5274	-.02	-.02	.04	-.06	.01	
2. Cross section	52	16768	-.05	-.05	.13	-.09	-.01	1.11
Employ education								
1. Time lag	11	4545	.06	.07	.04	.03	.12	
2. Cross section	35	11438	.03	.04	.10	.00	.08	1.19
Employ gender								
1. Time lag	13	4340	.04	.05	.07	.00	.10	
2. Cross section	44	13660	.01	.02	.08	-.02	.05	1.09

k: the number of participants in each analysis; N: the number of independent effect sizes included in each analysis; r: mean correlation corrected for sampling error; ρ: mean correlation corrected for sampling error and attenuation; CI: 95% confidence interval for r; Z: result of the significance test on the difference in r between two moderator levels.

Discussion

Since the model of authentic leadership development was proposed by Luthans and Avolio (2003), academic research on authentic leadership has proliferated rapidly. In order to examine the nomological network between authentic leadership and its antecedents/outcomes, we conducted a meta-analytic review of prior empirical work. Our findings largely support our hypotheses. As we expected, leaders' emotional intelligence and organizational ethical climate predicted authentic leadership and authentic leadership was significantly related to various subordinates' attitudinal, behavioral, leader-related, and performance outcomes. In addition, authentic leadership increase OCB and job performance through LXM and job satisfaction. Finally, the effects of authentic leadership on subordinate-related outcomes were also contingent upon two dimensions of national culture; namely power distance and individualism. Nevertheless, the findings on the moderating effects of cultural dimensions went partially against our expectations, as explained below. Finally, we found that the research design had a significant influence on empirical findings.

Theoretical implications

Our study contributes to the literature in the following ways. First, the present meta-analysis focused on two key antecedents of authentic leadership; organizational ethical climate and leaders' emotional intelligence. Our results confirmed that they were both highly correlated to authentic leadership in line with the assertions of Luthans and Avolio (2003), who argued that the organizational context and leaders' personal psychological capabilities will lead them to act in an authentic manner. Our results imply that researchers should place greater attention on the organizational ethical climate and leaders' EI when exploring the emergence of authentic leadership.

Second, our findings reveal strong relationships between authentic leadership and various desirable outcomes such as work attitudes, behavior and performance. Although scholarship on authentic leadership has recently been challenged by scholars "warning" against excessive positivity (Alvesson & Einola, 2019), our quantitative review of prior empirical work does not support this argument. The overall positive effects of authentic leadership identified suggests that being an authentic leader does more good than harm. In doing so, this study is superior to previous meta-analysis (e.g., Banks et al., 2016) in that it looks at more bivariate relationships and includes larger sample sizes. For example, we included an additional outcome of psychological safety and found that it is positively related to authentic leadership. Building on recent meta-analytical work which revealed that psychological safety is positively related to inclusive and transformational leadership style (Frazier et al., 2017), our results also demonstrate its connection with authentic leadership. In addition, we found a positive relationship between authentic leadership and work engagement, while Banks et al. (2016) revealed no significant relationship. This finding implies that the relationship between authentic leadership and engagement may be more complex, and dependent on other conditions, which could be explored by future research.

Third, the present study contributes to the literature by examining the boundary conditions between authentic leadership and its outcomes. In doing so we address the calls of researchers to consider the role of culture in explaining the effects of leadership

(Den Hartog et al., 1999; Dickson et al., 2003), which has largely been ignored in the authentic leadership literature. Our results suggest that for many outcomes, the influence of authentic leadership is stronger when individualism is high (e.g., affective commitment and turnover intention) or when power distance is high (e, g., affective commitment and LMX). However, it should be noted that some of the results are contrary to what was hypothesized. For example, our results show that when power distance is high, the effects of authentic leadership on psychological capital, turnover intention, CWB, and OCB was weaker. A possible explanation is that the relationships between authentic leadership and certain outcomes may be more complex than we expected. Our results indicate that more research is needed to investigate the effectiveness of authentic leadership across different cultural contexts.

Fourth, we found that LMX and job satisfaction mediated the relationship between authentic leadership and two desirable outcomes: OCB and job performance. The mediating effects of LMX and job satisfaction provides strong evidence for both the importance of relational and cognitive perspectives in explaining the influence of authentic leadership (Lord et al., 2017; Judge et al., 2017).

Finally, we ran supplementary analysis to explore the moderating effect of follower demographics and the research designs adopted by researchers. The slight but significant impact of employee age, education and gender suggest that it is necessary to control for these demographic variables in research on authentic leadership. The results also suggest that the influence of authentic leadership rarely differs between cross-sectional and time lagged designs. However, the use of different rating sources sometimes impacted on the strength of the relationship between authentic leadership and its outcomes. For example, when the team performance data was from the same source as the data on authentic leadership, the correlation coefficient was significantly higher. It suggests that when examining the relationship between authentic leadership and team or group performance, researchers should avoid using data from the same source.

Practical implications

Over the past decade, the public has repeatedly witnessed scandals within multinational companies, with recent examples including fuel test cheating by Volkswagen and Mitsubishi (Hotten, 2015; Mullen, 2016). Many business leaders have failed to fulfil their obligations to build trustworthy organizations that provide good products to customers and a fair return to investors in a sustainable way. As such, business leaders have been facing the challenge of declining confidence from the public.

By highlighting the positive effect of authentic leadership, our research shows the need for organizations to invest in leadership training programmes that foster authentic leaders. We found that authentic leadership is strongly correlated with follower commitment, work motivation and work satisfaction. More importantly, it increases positive work performance (i.e., job performance, OCB, creativity) and reduces negative performance (i.e., CWB). Therefore, the introduction of authentic leadership training in organizations would benefit both employees and employers.

In addition, the results reveal that the strength of the influence of authentic leadership depends on the national culture in which it is enacted. For example, in high power distance countries such as China, the effect of authentic leadership on affective commitment and leader satisfaction was stronger. This suggests that authentic leadership may be more useful

in East Asia countries which are high in power distance. But again, the results should be interpreted cautiously and more primary studies are needed to validate this finding.

Limitations and future research

There are a number of limitations of this meta-analysis. First, the k number for some bivariate relationships is relatively low. Although research on authenticity can be dated back to the early 1900s, its application to the leadership field only began as a result of Luthans and Avolio (2003) seminal work. Since then, work on authentic leadership has grown rapidly. However, the number of studies on some bivariate relationships is limited. Given the relatively short history of this topic, more empirical work is needed to validate the relationships proposed in various models of authentic leadership (Gardner et al., 2005; Ilies et al., 2005). Second, because there are not enough primary studies that provide bivariate relationship between authentic leadership and cultural dimensions, we coded the moderator variables (i.e., individualism and power distance) according to the country in which the sample was obtained. The inaccuracy of this measure which was not collected directly from participants could therefore influence the validity of our results. Finally, we did not test all the proposed mechanisms that link authentic leadership to its outcomes. Future meta-analysis could contribute to the literature by doing so, but this would require enough empirical studies that provide correlation coefficients between authentic leadership and mediators, and its mediators and outcomes.

Conclusion

The topic of authentic leadership has drawn much research attention in the past decade. In this study, we tested the antecedents and outcomes of authentic leadership using meta-analytical techniques. The results established a link between leader's emotional intelligence and the organizational ethical climate and authentic leadership, and confirmed a positive link between authentic leadership and many important outcomes. We also found that LMX and job satisfaction mediate the effects on authentic leadership on OCB and job performance. Finally, we investigated the moderating effects of cultural differences and research design on these bivariate relationships, and the mediating effects of two widely examined variables. Our meta-analysis provides important implications to both literature and practice. We hope our research spurs future research to advance the literature on authentic leadership.

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