

RESEARCH REPORT

Personality and Leadership: Meta-Analytic Review of Cross-Cultural Moderation, Behavioral Mediation, and Honesty-Humility

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We advance the trait approach to leadership by leveraging a large multinational database on leader emergence ($k = 120$ samples, $N = 32,579$) and leader effectiveness ($k = 116$, $N = 42,487$) to extend Judge et al.'s (2002) classic meta-analysis of Big Five personality and leadership. By testing novel hypotheses rooted in culturally endorsed implicit leadership theory and socioanalytic theory, we offer three unique insights. First, in collectivist societies (cultures that value interdependence with one's group), the five factor model traits—and leader Extraversion and Agreeableness in particular—are stronger predictors of leader effectiveness, consistent with the theorized need for enhanced social coordination in such cultures. Second, a theoretical model is proposed to specify that leader Big Five trait effects are mediated by leader behavior (confirming that Consideration mediates Extraversion and Agreeableness, whereas Initiating Structure mediates Conscientiousness, Extraversion, and Openness). Third, trait Honesty-Humility robustly predicts leader effectiveness beyond the Big Five traits, expanding the trait approach. New implications for understanding when and why personality traits predict leadership are discussed.

Keywords: leadership, personality, Big Five, collectivism, HEXACO

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Judge et al.'s (2002) influential meta-analysis of five factor model (FFM) traits and leadership has been pivotal in generating scholarly consensus and revitalizing the trait approach to leadership. It is among the most-cited articles in the 100-year history of the *Journal of Applied Psychology* and in Organizational Behavior textbooks (Aguinis et al., 2019), because it leveraged an ascendant personality framework—the FFM (Goldberg, 1990; Tupes & Christal, 1961)—to examine a classic idea in leadership (Carlyle, 1907; Galton, 1869), with intriguing results that overturned a half-century of pessimism about leader traits (Jenkins, 1947; Mann, 1959; Murphy, 1941; Stogdill, 1948, 1974). In short, Judge et al. (2002) showed that a leader's FFM traits, as an optimally weighted set, correlated at Multiple $R = .39$ with leader effectiveness, and Multiple $R = .53$ with leader emergence. The value of the trait approach to leadership is considered firmly settled, using the FFM personality framework.

While FFM trait effects on leadership are empirically well established, their universality, comprehensiveness, and mechanisms are not yet known. For instance, the milestone meta-analytic database from a quarter century ago that cemented the robust FFM trait–leadership relationships also precluded the examination of national culture as a moderator.¹ This is an artifact of the data available at that time, as much of the leadership research was conducted in Western contexts (Yukl, 2002). However, leadership is a global phenomenon (House et al., 2004; Yukl, 2006), and peoples' leadership perceptions vary across countries (Gerstner & Day, 1994), with some countries (e.g., South Korea) favoring interdependent, collaborative leaders; and others (e.g., Italy) valuing “independent, strong-willed, and forceful” leaders (Gelfand et al., 2004, p. 462). Despite the strong conceptual rationale for examining national culture effects on leadership perceptions (e.g., House et al., 2004; Hunt et al., 1990) and findings from the past two decades indicating cross-cultural differences in leadership (Aktas et al., 2016; Den Hartog et al., 1999; Gelfand et al., 2004), we lack a comprehensive review of whether and how much FFM–leadership relationships vary across national cultures, inviting open questions about the extent of generalizability of the leader trait approach. We here address the call to study “the way in which leadership is enacted in various cultures” (House, 1995, pp. 443–444).

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¹ Of the 78 primary studies in Judge et al.'s (2002) database, at least 65 studies (83%) used samples from the United States, and only five other countries were represented (Austria [one], Canada [five], India [five], Israel [one], Netherlands [one]).

Further, the longstanding quest to identify mechanisms through which FFM traits beget leadership outcomes—illuminating the black box of trait research—continues (Badura et al., 2020; Barrick et al., 2013; Ng et al., 2008). Scholars have theorized that FFM traits elicit socioanalytic motives (i.e., *getting along* and *getting ahead*; J. Hogan & Holland, 2003). We thus draw upon socioanalytic theory (R. Hogan, 1991) to address this mystery by specifying an explanatory model of the behavioral mechanisms for FFM trait–leadership effects. Moreover, Judge et al. (2002) predated the HEXACO personality model (Ashton et al., 2004), which includes trait *Honesty-Humility* (H-H). H-H holds major theoretical relevance *beyond the FFM* (Oh et al., 2014) due to H-H leaders’ propensity to avoid exploitation (Ashton et al., 2014; K. Lee et al., 2005), enhance others (Morris et al., 2005), and be considerate of followers (de Vries, 2008).

Overall, our current work seeks to make three contributions. First, we draw upon culturally endorsed implicit leadership theory (House et al., 2002, 2004) to hypothesize that relations between leader traits and effective leadership vary between national cultures. We posit interpersonal traits of Extraversion and Agreeableness will exhibit stronger relations with leader effectiveness in collectivist cultures, asserting the validity of the leader trait approach depends on culture. Second, we propose and test a socioanalytic theoretical model (J. Hogan & Holland, 2003; Oh & Berry, 2009) specifying behavioral mechanisms for trait effects on leader effectiveness. Finally, we meta-analyze HEXACO traits (K. Lee & Ashton, 2004) in the leadership domain. Results suggest a strong, unique role for trait *Honesty-Humility* in predicting leader effectiveness, beyond the FFM. Altogether, these results encourage a new scholarly emphasis within the trait approach, by pointing up the need to now consider collectivism, leader behavior, and *Honesty-Humility* when discussing FFM–leadership effects.

The Leader Trait Approach

Attributing leadership to the leader’s personal characteristics, a once-popular practice (Carlyle, 1907; Galton, 1869; Terman, 1904; Zaccaro, 2007), was cast into doubt in the mid-to-late 20th century (Conger & Kanungo, 1998; House & Aditya, 1997) echoing Stogdill’s (1948) empirical summary and criticism, “if there are general traits which characterize leaders, the patterns of such traits are likely to vary with the leadership requirements of different situations” (p. 61). However, following the advent of psychometric meta-analysis (Schmidt & Hunter, 1977), Lord et al. (1986) found empirical support for the leader trait approach, while conceptualizing leadership as both emergence (who is perceived to be leaderlike) and effectiveness (how well the leader performs). Judge et al. (2002) advanced Lord et al.’s (1986) meta-analytic work by leveraging a validated personality framework (the FFM) to show leaders’ FFM traits together predict leader emergence and leader effectiveness.

Theoretically, FFM traits have survived eons of socioecological pressures encountered by human ancestors, who chose leaders that could facilitate cooperative behavior (Darwin, 1859; Gurven et al., 2013; Van Vugt et al., 2008; von Rueden et al., 2015; see review by Judge et al., 2009). People are thus equipped to recognize others’ potential for effective leadership. Under implicit leadership theory (Lord et al., 1984) individuals use cognitive categorization (Rosch, 1978)—clustering similar entities to reduce

complexity (Den Hartog et al., 1999). When categories lack clear boundaries (as with leadership) individuals must rely on prototypes (Cantor & Mischel, 1979). Leadership prototypes “include leader behaviors, values, attitudes, and personality traits” (House et al., 2004, p. 59). In theory, a match between potential leaders’ perceived attributes and the prototype of effective leaders forms the basis for evaluations of effective leadership (Den Hartog et al., 1999; Foti & Luch, 1992; Offermann et al., 1994). This theorization supports relationships between leadership and all five FFM traits.

Specifically, *Extraverted* individuals (assertive, energetic, and social; Costa & McCrae, 1992) are motivated to get ahead (Barrick et al., 2002) and motivated to lead (e.g., Badura et al., 2020). Extraverted leaders can enact assertive, charismatic (e.g., Frieder et al., 2018), and inspirational behaviors (Rubin et al., 2005). *Agreeable* individuals (kind, caring, empathetic, and interpersonally sensitive; Costa & McCrae, 1992) can develop warm and vibrant relationships (Nahrgang et al., 2009), display prosocial and helping behaviors (e.g., Graziano et al., 2007; E. M. Hunter et al., 2013; Ilies et al., 2009), and avoid deviant behavior (Berry et al., 2007; Pletzer et al., 2019)—handling interpersonal work demands that are hallmarks of leadership. *Conscientious* individuals (industrious, self-disciplined, orderly) tend to perform well in tasks across contexts (Connelly et al., 2022; J. Hogan & Holland, 2003; Oh et al., 2011) including managerial roles (Barrick & Mount, 1991). Conscientious leaders seek achievement (Barrick et al., 2013) and set performance expectations (Ilies et al., 2009). *Emotionally Stable* individuals (with less negative emotion: e.g., anxiety, guilt, sadness—Costa & McCrae, 1992, McCrae & Costa, 2008) can navigate stressful situations (Costa & McCrae, 1992; Kammeyer-Mueller et al., 2009), better regulate emotion (Le et al., 2011), and deal with complex social situations or unexpected change (Huang et al., 2014; Yukl, 2012) found in leadership roles. Finally, *Open* individuals are curious, imaginative (Costa & McCrae, 1992), creative (Mathisen et al., 2012), innovative (Connelly et al., 2014), and willing to consider others’ ideas (Detert & Burris, 2007). Open leaders can circumvent organizational turbulence (Herold et al., 2007), execute agendas (Frieder et al., 2018), and improve firm performance (Mathisen et al., 2012). In sum, each FFM trait should predict both who will emerge as a leader and who will perform effectively in the role.

Interpersonal Traits

Interpersonal theory (Pincus & Ansell, 2013; Wiggins, 1979, 1996; Wiggins & Trapnell, 1996) identifies stable traits structured around an interpersonal circumplex (Leary, 1957; Wiggins, 1979, 1991, 1997). This model arrays individuals on two orthogonal dimensions: *agency* (i.e., dominance, or emphasis on independent features of behavior) and *communion* (i.e., nurturance, or emphasis on interdependent features of behavior). In the FFM, *Extraversion* and *Agreeableness* have long been described as interpersonal traits (e.g., Barrick et al., 1998; B. Bass & Bass, 2008; Crowe et al., 2018; Graziano & Eisenberg, 1997; Hofstee et al., 1992; Judge et al., 2014; McCrae & Costa, 1989; Wiggins & Trapnell, 1996), variously linked to behaviors of cooperativeness, sensitivity, warmth, and social coordination. Interestingly, these interpersonal FFM traits—Extraversion and Agreeableness—appear to be 45° rotations of the agency and communion axes of the interpersonal circumplex (McCrae & Costa, 1989; also see Graziano & Eisenberg, 1997).

Wiggins and Trapnell (1996) highlight that these two dimensions (agency/dominance/Extraversion and communion/nurturance/Agreeableness) are among the best represented psycholexical traits (i.e., Factor I [Extraversion] and Factor II [Agreeableness] have the largest eigenvalues; Goldberg, 1990; Goldberg & Saucier, 1998). As leadership is an interpersonal phenomenon, we emphasize these interpersonal traits, and posit that their centrality to effective leadership is influenced by culture.

Moderating Effects of Culture

In modern societies, *culture*² functions as a potent socio-ecological force that shapes peoples' leadership perceptions (Gerstner & Day, 1994; House et al., 2002, 2004; Hunt et al., 1990). Culturally endorsed implicit leadership theory (House et al., 2002; see Eden & Leviatan, 1975; Hunt et al., 1990; Offermann et al., 1994) extends implicit leadership theory by adopting an *emic* (culture-specific; Triandis, 1964, 1972) approach to propose that observers' evaluations of effective leadership vary based on the culture in which they are embedded. Individuals learn category formation (i.e., leadership prototypes) from cultural features encoded in language (Rosch, 1978) and reinforced via norms (Hunt et al., 1990). On the basis of culturally endorsed implicit leadership theory and Judge et al.'s (2009) theorizing, we propose societal culture influences trait effects on leader effectiveness.

We highlight cultural collectivism in the leader trait approach. Collectivism broadly refers to the degree to which individuals are interdependent with their groups (Triandis, 1989). Gelfand et al. (2004) note that collectivism has, "been manifested in cultural institutions for thousands of years" (p. 438), and has roots in many disciplines (e.g., sociology—Durkheim, 1933; anthropology—Hofstede, 1980; psychology—Triandis, 1995). Much of human evolution has occurred in contexts in which humans were in collectives, enduring environmental threats via cooperative behavior (Gurven et al., 2013; R. B. Lee & Daly, 1999; Van Vugt et al., 2008). We conceptualize collectivism here via societal-level institutional collectivism practices, capturing collectivism as it is (rather than as it should be; see Gelfand et al., 2004).

Importantly, interpersonal traits are adaptive in collectivist cultures. Collectivism provides cues that encourage interpersonal harmony, social coordination, and interdependence with groups (Triandis, 1995); and would thus support leadership prototypes characterized by encouraging interdependence, relationship maintenance, group coordination, and survival (Gelfand et al., 2004). Interpersonally oriented leaders may express behaviors well-suited for collectivism. That is, ideal leaders in collectivist cultures have group-oriented attributes. Such interpersonal traits will manifest behaviors compatible with observers' prototypes of effective leadership in these cultures, supporting an evaluation as a proficient leader (House et al., 2002).

Moreover, Extraverted leaders are assertive, energetic, warm, optimistic, and display positive emotional tendencies, which are advantageous qualities in socially oriented work contexts (Wilmot et al., 2019). Extraverted leaders are also likely to hold strong status-striving and *getting ahead* motives (Barrick et al., 2002, 2013). That is, they are able to take charge, communicate more effectively with followers, and solve group problems (Grant et al., 2011), which facilitate social coordination, and in turn promote group survival.

Extraversion³ should thus be more advantageous for leaders in collectivist cultures.

Hypothesis 1a: Collectivism moderates the Extraversion–leader effectiveness relationship, such that the positive link between leader Extraversion and leader effectiveness is stronger in collectivist cultures.

Within collectivist cultures, Agreeable leaders may be favored for being kind, caring, and interpersonally sensitive—all characteristics that emphasize social coordination and interpersonal harmony. Templer's (2012) findings reveal that in collectivist cultures, "agreeable individuals are encouraged and rewarded for engaging in harmonious relationships at work" (p. 125). Agreeable leaders strive to get along with others in their society and to refrain from conflict (see Graziano et al., 1996). They avoid deviant behavior and endeavor to conform to established social norms and practices (Roccas et al., 2002), likely improving group survival. Therefore, those in collectivist cultures should construe highly agreeable leaders as more effective.

Hypothesis 1b: Collectivism moderates the Agreeableness–leader effectiveness relationship, such that the positive link between leader Agreeableness and leader effectiveness is stronger in collectivist cultures.

Explanatory Model of FFM Traits and Leader Effectiveness

Next, we direct attention to the question: *Why* do FFM traits beget leadership? Leveraging socioanalytic theory (R. Hogan, 1991), we echo J. Hogan and Holland (2003) in noting that the *getting along* and *getting ahead* socioanalytic motives are behaviorally manifested in leader Consideration and Initiating Structure, respectively (the two broad factors of leader behavior; Fleishman, 1973; Stogdill, 1950). As such, these leader behavior factors should transmit the effects of leaders' FFM traits onto leader effectiveness. Briefly, the Consideration dimension of leader behavior captures the "human

² Culture refers to, "shared motives, values, beliefs, identities, and interpretations or meaning of significant events that result from common experiences of members of collectives that are transmitted across generations" (House et al., 2004, p. 15).

³ Extraversion has two lower order dimensions—dominance/assertiveness and sociability/enthusiasm (e.g., Judge et al., 2002; see DeYoung et al., 2007; Judge et al., 2013). Both aspects should enhance effective leadership in collectivist contexts. Regarding *leader dominance*, interpersonal complementarity occurs when there is "sameness on the affiliation dimension and oppositeness on the dominance dimension" between two parties (Sadler et al., 2011, p. 126; Grijalva & Harms, 2014). Extraverted leaders exhibit dominant and assertive behaviors, whereas followers in collectivist cultures can be characterized by submission to authorities (Altemeyer, 1981; Gelfand et al., 1996; Kimmelmeier et al., 2003), so they are likely to exhibit complementarity with dominant leaders (Carson, 1969; Grijalva & Harms, 2014; Hu & Judge, 2017). Regarding *leader sociability/enthusiasm*, these leaders tend to engage in more social interactions (Hofstede & McCrae, 2004; Lucas et al., 2000). Extraverted leaders desire to work with others, valuing "social skills that facilitate effective interactions with teammates" (Cogliser et al., 2012, p. 757), and help maintain harmony, respect, and group norms (Lucas et al., 2000), which facilitate leader effectiveness under collectivism (see Hofstede & McCrae, 2004; Triandis, 2001). In sum, followers in collectivist cultures should respond more positively to Extraverted leaders, due to both dominance and sociability of the leader.

relations” aspect (leaders’ consideration of workers’ feelings), whereas the Initiating Structure dimension captures the task-focused aspect of leadership (facilitating goal attainment; Fleishman, 1953, p. 154).

Also drawing on socioanalytic theory, Oh and Berry (2009) proposed that the following FFM traits contribute to the *getting along* motive: Extraversion (e.g., due to its sociability facet; Hofstede & McCrae, 2004), Agreeableness (as an indicator of interpersonal communion; Wiggins & Trapnell, 1996), Conscientiousness (dutyfulness and self-discipline can elicit trust from others; Marinova et al., 2013), and Emotional Stability (reduced negativity). Additionally, they proposed the following FFM traits contribute to the *getting ahead* motive: Extraversion (as an indicator of interpersonal agency; Wiggins & Trapnell, 1996), Conscientiousness (responsible and hardworking; Barrick & Mount, 1991, 2000), Emotional Stability (coping with stress; Barrick & Mount, 1991; Connor-Smith & Flachsbart, 2007), and Openness (positive orientation toward learning a new task; see Oh & Berry, 2009). In turn, Consideration (getting along) and Initiating Structure (getting ahead) predict leader effectiveness. Considerate leaders show concern, respect, and support for followers (B. M. Bass, 1990); and by building trust and collaborative work environments establish positive relationships that increase follower perceptions of leader effectiveness (Judge et al., 2004). Initiating Structure captures a leader’s core duties (Fleishman, 1973) that undergird leader job performance (Judge et al., 2004). Altogether, we propose a mediation model in which Consideration and Initiating Structure serve as behavioral mechanisms through which FFM traits influence leader effectiveness.

Hypothesis 2: Leader behavior (Consideration) mediates the effects of trait: (a) Extraversion, (b) Agreeableness, (c) Conscientiousness, and (d) Emotional Stability on leader effectiveness.

Hypothesis 3: Leader behavior (Initiating Structure) mediates the effects of trait: (a) Extraversion, (b) Conscientiousness, (c) Emotional Stability, and (d) Openness on leader effectiveness.

The HEXACO Model and Honesty-Humility

At the turn of the century, personality scholars implemented a psycholexical approach across seven to 12 languages to develop a more globally representative personality framework, the HEXACO model (Ashton & Lee, 2007; Ashton et al., 2004; K. Lee & Ashton, 2004). HEXACO dimensions bear empirical resemblance to the FFM, although they incorporate a sixth factor labeled *Honesty-Humility* (H-H; see Ashton et al., 2014). Interestingly, while the H-H dimension is empirically distinct from FFM traits (Ashton et al., 2014), it may also codify interpersonally oriented personality content (e.g., Ashton & Lee, 2007; Barford et al., 2015; Crowe et al., 2018; DeYoung et al., 2007).⁴ H-H “represents the tendency to be fair and genuine in dealing with others, in the sense of cooperating with others even when one might exploit them without suffering retaliation”; while high levels of H-H confer “gains from cooperation (mutual help and nonaggression)” (Ashton & Lee, 2007, p. 156). Ashton et al. (2014) explained that individuals who score highly on trait H-H tend to be “unwilling to manipulate others ... [or] take advantage of other individuals or of society at large” (p. 142). Drawing upon implicit leadership theory (Lord et al., 1984), we thus reason that

followers will perceive a stronger leader prototype match for H-H leaders, and they will thus evaluate their honest and humble leaders as being more effective.⁵

Hypothesis 4: Honesty-Humility is positively associated with leader effectiveness.

Next, we propose that collectivism provides favorable conditions for H-H leaders to exhibit cooperative behavior, given the H-H emphasis on fair and genuine interpersonal relations (Ashton et al., 2014) that are valued in collectivist cultures. H-H leaders tend to prioritize others over themselves (e.g., Morris et al., 2005), promote group cohesion (Zeigler-Hill et al., 2015), admit their mistakes and seek feedback (e.g., Sosik et al., 2019; Vera & Rodriguez-Lopez, 2004), and refrain from counterproductive work behavior (Marcus et al., 2007). Because these manifestations of H-H are advantageous for achieving the collective’s goals and securing its survival, people in collectivist cultures should perceive H-H leaders more favorably.

Hypothesis 5: Collectivism moderates the Honesty-Humility–leader effectiveness relationship, such that the positive link between leader Honesty-Humility and leader effectiveness is stronger in collectivist cultures.

Method

Transparency and Openness

We adhered to the *Journal of Applied Psychology* methodological checklist. Analyses used metafor (Viechtbauer, 2010) and lavaan (Rosseel, 2012) in R 4.2.0 (R Core Team, 2021). Supplemental Material lists all coded studies (Supplemental Appendix B [FFM]; Appendix C [HEXACO]) and R scripts.

Literature Review

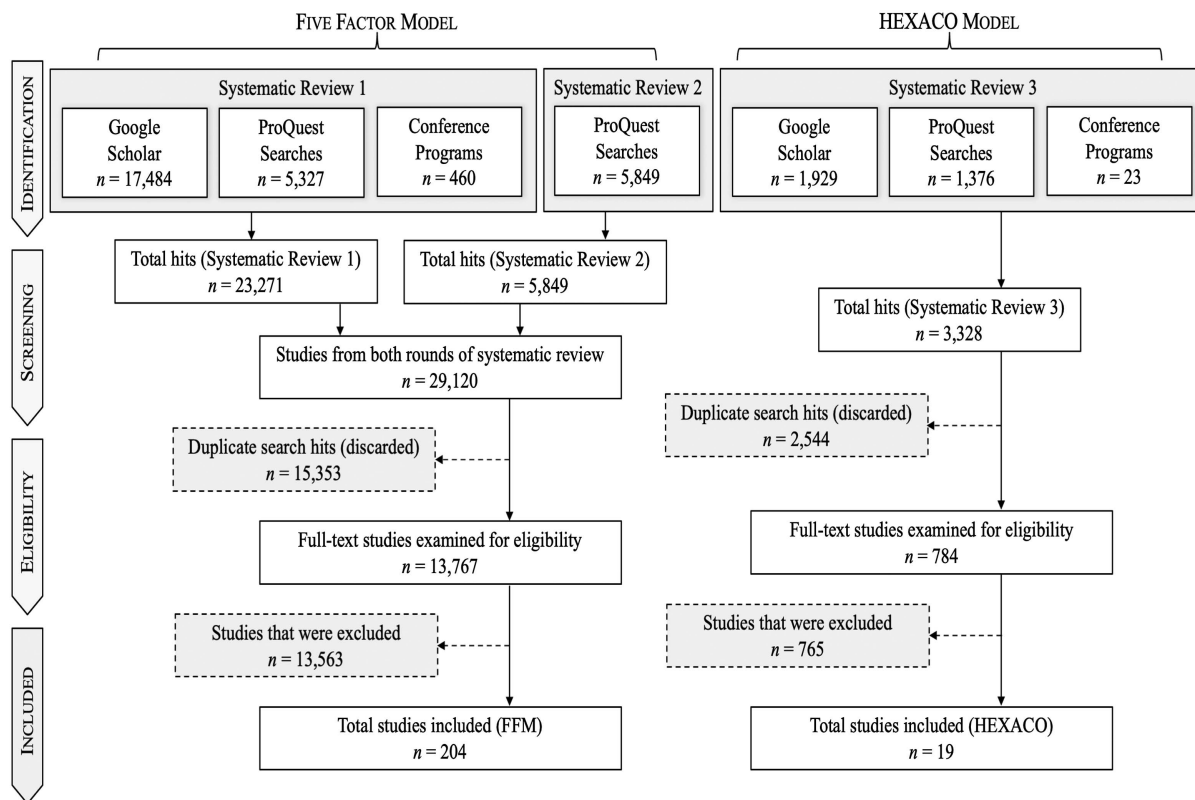
To locate primary studies on personality and leadership, we conducted three systematic reviews (see Preferred Reporting Items for Systematic Reviews and Meta-Analyses [PRISMA] chart in Figure 1): (a) a search of articles that cited validated FFM scales, (b) a replication of the search methods from Judge et al. (2002), and (c) a keyword and validated scales search for HEXACO–leadership studies. We began on Google Scholar using citations of 23 validated FFM inventories (22 inventories from Judge et al.’s, 2013, Appendix A, plus the International Personality Item Pool [IPIP]). We used two types of searches for cited inventories. First, if an identifiable source article (i.e., the original validation study that is cited when an inventory is used) was available (as it was for 14 of the 23 FFM inventories),⁶ we searched within the “cited-by” link in Google Scholar, using the *leadership keyword list* (imitating Grijalva et al., 2015): “leader” OR

⁴ Barford et al. (2015) have shown that H-H can also be located in the Interpersonal Circumplex.

⁵ Consistent with the above theorizing, we further expect the H-H effect on leader effectiveness is mediated by leader Consideration, however, we lack sufficient primary studies at present to test this hypothesis ($k < 3$ studies for H-H-Consideration).

⁶ Please refer to the Supplemental Material for a list of inventories with and without identifiable source articles.

Figure 1
PRISMA-Style Flowchart for the FFM and HEXACO Meta-Analyses



Note. PRISMA = Preferred Reporting Items for Systematic Reviews and Meta-Analyses; FFM = five factor model.

“supervisor” OR “leadership” OR “leaderless group” OR “assessment center” OR “executive,” for each identifiable source article. Second, for the remaining nine inventories without a consistently cited source article, we searched using the inventory’s name (e.g., “Adjective Checklist” AND [leadership keyword list]). Next, we conducted keyword searches on APA PsycInfo using the search terms: “NEO-FFI” AND (leadership keyword list). We also searched “IPIP” AND (leadership keyword list) within all databases on ProQuest. Subsequently, we searched Society for Industrial and Organizational Psychology and Academy of Management conference programs from the past decade, and citations found in primary articles (snowball procedure; Lipsey & Wilson, 2001; e.g., Ensari et al., 2011; Hoffman et al., 2011). Altogether, this first systematic review produced 23,271 potentially relevant studies (including redundant studies), with 17,484 from Google Scholar, 5,327 from APA PsycInfo and ProQuest, and 460 from conference programs.

In the second systematic review, we attempted an exact replication of Judge et al.’s (2002) procedures. We searched APA PsycInfo using pairs of keywords: each FFM trait in conjunction with leadership (e.g., “extraver*” AND “leadership”), for the terms “extraver*,” “agreeable*,” “conscientious*,” “neurotic*,” “openness*,” and “personality.” These six searches resulted in 5,849 studies. Adding them to the 23,271 studies obtained above yielded 29,120 hits. Removing duplicates produced 13,767 distinct studies, which we downloaded for review.

HEXACO

To obtain HEXACO–leadership studies, we first searched using citations of six validated HEXACO measures.⁷ For each measure, we searched within the “cited-by” link on Google Scholar, using the leadership keyword list. We further searched all databases on ProQuest for: “HEXACO” AND (leadership keyword list). Finally, we examined Society for Industrial and Organizational Psychology and Academy of Management conferences from the past decade. These searches yielded 3,328 relevant hits (including redundant studies), with 1,929 from Google Scholar, 1,376 from ProQuest, and 23 from conference programs. Removing duplicates produced 784 HEXACO primary studies for review.

Exclusion Criteria

Upon downloading the 13,766 (FFM) and 784 (HEXACO) full-text documents, we applied six exclusion criteria. We excluded studies without: (a) at least one dimension or facet of an FFM or HEXACO trait, (b) observer-rated (e.g., supervisor-, follower-, coworker-rated) leader effectiveness or emergence, or an objective criterion (e.g., unit performance), (c) a correlation of personality with leadership, and (d) being written in English. Also, we excluded

⁷ These inventories include: Ashton and Lee (2009, 2010), de Vries (2013), and K. Lee and Ashton (2004, 2006, 2018).

vignette studies (“paper people”), and when two studies used the same data, we excluded the older study.⁸ This resulted in 204 (FFM) and 19 (HEXACO) unique primary studies.

Coding Procedures

For the *FFM meta-analyses*, undergraduate and masters-level research assistants (RAs) performed the first round of coding, with at least two RAs coding each article. To ensure accuracy, the first and third authors independently re-coded these studies and corrected any errors. Initial agreement between these two coders = 96.23% for leader emergence studies and 98.91% for leader effectiveness studies. For *HEXACO*, the first and third authors had initial agreement = 98.21% for leader emergence studies and 97.43% for leader effectiveness studies. Next, we coded the country in which each primary study occurred (only if explicitly reported) and used collectivism scores for each country from GLOBE (House et al., 2004).⁹ Based on the previous leadership meta-analyses (e.g., Badura et al., 2018; Eagly et al., 1995; Grijalva et al., 2015; Koenig et al., 2011; Lacerenza et al., 2017; Paustian-Underdahl et al., 2014), we coded many moderators (see Appendix).¹⁰

We examined two criteria: (a) *leader emergence*—operationalized as ratings of leadership potential, preferred leader, leadership ratings after assessment center exercises, or leadership ratings after leaderless group discussions (Grijalva et al., 2015)—and (b) *leader effectiveness*. We operationalized leader effectiveness as leader effectiveness ratings (as done by Judge et al., 2002)¹¹ and unit performance.

Analyses

Overall Meta-Analysis and Moderator Analyses

Following Schmidt and Hunter (2015), we corrected each effect size for measurement error in both the predictor (FFM or HEXACO traits) and criterion (leadership outcomes), using Cronbach’s α reported in each primary study. When α was not reported, we used the mean of α s from all relevant primary studies of that trait–leadership relationship (e.g., H-H and leader emergence) to impute these missing values.¹² We used $\alpha = 1$ for objective measures of leadership (e.g., financial indicators of firm performance). When more than one measure of a construct—or facet measures—was reported, we computed composite correlations (equation 7-13—Ghiselli et al., 1981, p. 164) and Spearman–Brown composite α (equation 10.14—J. E. Hunter & Schmidt, 2004, p. 438). If facet/measure intercorrelations were not reported, we used correlations between personality facets, leadership measures, or personality raters (from Connelly & Ones, 2010; Johnson, 2005; Shaffer et al., 2016).¹³ We use the metafor approximation of the Hunter–Schmidt method (method = “HS”). Continuous moderators (e.g., national culture) were tested using random-effects meta-regression with the Knapp and Hartung (2003) adjustment and inverse sampling variance, denoted $(n - 1)/(1 - \rho^2)^2$, as a weighting factor (Gonzalez-Mulé & Aguinis, 2018).¹⁴

Multiple R and the Explanatory Theoretical Model

To estimate Multiple *R* for FFM traits predicting leadership outcomes, we needed meta-analytic intercorrelations among FFM traits, ideally from a sample of leaders. Because available meta-analytic FFM intercorrelations (Park et al., 2020) do not focus on leaders (cf. Oh, 2020), we conducted 10 original meta-analyses of

pairs of FFM traits, based upon 114 total primary studies identified from our literature review. Estimates from these 10 original meta-analyses appear in Table 1. Additionally, we estimated Multiple *R* of the HEXACO traits predicting leadership outcomes, using the *N*-weighted averages of disattenuated HEXACO trait correlations from Moshagen et al. (2019; their Table 1), and the disattenuated meta-analytic HEXACO trait–leadership correlations estimated in the present study. To examine incremental validity of H-H we used disattenuated meta-analytic correlations for H-H with FFM traits (Y. Lee et al., 2019), and correlations of H-H and FFM traits with leader effectiveness from our meta-analyses. To test our explanatory model (Figure 2), we used the meta-analytic correlations in Table 1. Mediation analyses entailed: (a) a joint significance test, assessing whether both paths (e.g., $X \rightarrow M$ and $M \rightarrow Y$) were significant; and (b) indirect effects test, with Monte Carlo 95% CIs (Preacher & Selig, 2012; Selig & Preacher, 2008).¹⁵

Results

FFM Trait–Leadership Relationships

We observed statistically significant relationships (95% CIs exclude zero) in the expected directions between all FFM traits and leadership outcomes (Table 2). Leader emergence was positively related to Extraversion ($\hat{\rho} = .22$, $k = 93$, 95% CI [.18, .26]), Agreeableness ($\hat{\rho} = .11$, $k = 60$, 95% CI [.06, .15]), Conscientiousness ($\hat{\rho} = .15$, $k = 75$, 95% CI [.09, .20]), Emotional Stability ($\hat{\rho} = .16$, $k = 63$, 95% CI [.11, .20]), and Openness ($\hat{\rho} = .16$, $k = 54$, 95% CI [.11, .20]); replicating the directions (but not the magnitudes) of findings from Judge et al. (2002). Importantly, the leader emergence links with Conscientiousness, Emotional Stability, Openness, and Extraversion were all notably smaller than those reported by Judge et al. (2002; see our Table 2). In contrast, our effect size for Agreeableness–leader

⁸ Except for Olls (2016); Olls (2014) had the same data but included more relevant variables and was coded instead.

⁹ Our FFM meta-analytic database includes 21 unique countries, of which 19 have available collectivism scores in GLOBE. GLOBE collectivism scores were not available for Armenia or unified Germany.

¹⁰ Categorical moderators: (a) type of organization, (b) hierarchical level, (c) study setting, and (d) social complexity (whether the task requires interpersonal interaction for successful completion; Eagly & Karau, 1991, p. 690). For leader emergence, we also coded (a) basis for appointing leader, (b) number of interactions, and (c) emergence measure. Methodological moderators: (a) publication type, (b) validated versus nonvalidated personality measure, (c) rating source of personality, (d) rating source of leader emergence/effectiveness, (e) common source (for personality and leadership), and (f) cross-sectional versus time-lagged.

¹¹ Judge et al. (2002, p. 769) explain, “Specifically, ratings were coded as measures of leader effectiveness in cases in which a leader’s effectiveness was assessed. There were no cases in which group performance was the effectiveness measure. The predominant measure of leader effectiveness was assessment by subordinates or supervisors.”

¹² Reliabilities of x and y were not significantly correlated with collectivism or English being the sample’s native language.

¹³ Please refer to Supplemental Appendix E for detailed description of procedures.

¹⁴ We also examined publication bias (Kepes et al., 2012; Egger’s test followed by trim and fill) and second-order sampling error (Schmidt & Oh, 2013) for 22 effects [11 Traits (FFM + HEXACO) \times 2 Criteria (emergence, effectiveness)] and found no evidence of publication bias affecting the direction or statistical significance of results (see Supplemental Appendix D).

¹⁵ We used *lavaan* (Rosseel, 2012) to conduct all path analyses and developed a custom function in R 4.2.0 (R Core Team, 2021) based on Badura et al. (2018) code to construct Monte Carlo 95% confidence intervals.

Table 1
Meta-Analytic Correlation Matrix

Variable	1	2	3	4	5	6	7	8	9
1. Extraversion	—								
2. Agreeableness	.26 (.27) ^a [88/24,919]	—							
3. Conscientiousness	.25 (.25) ^a [93/23,902]	.35 (.21) ^a [83/22,478]	—						
4. Emotional Stability	.35 (.24) ^a [88/23,289]	.35 (.25) ^a [77/21,686]	.43 (.26) ^a [86/22,675]	—					
5. Openness	.43 (.20) ^a [86/22,922]	.27 (.20) ^a [82/22,904]	.17 (.25) ^a [75/20,018]	.19 (.22) ^a [78/21,869]	—				
6. Honesty-Humility	-.09 (.12) ^b [43/12,636]	.54 (.13) ^b [50/15,692]	.23 (.12) ^b [44/14,445]	.13 (.13) ^b [44/14,341]	.07 (.14) ^b [36/10,768]	—			
7. Consideration	.12 (.02) ^b [7/1,058]	.15 (.16) ^a [7/1,054]	.02 (.02) ^a [7/1,041]	.04 (.21) ^a [7/1,069]	.12 (.00) ^b [7/1,091]	.12 (.00) ^b [7/1,091]	—		
8. Initiating Structure	.32 (.11) ^a [8/1,174]	.04 (.18) ^a [8/1,170]	.22 (.21) ^a [7/1,041]	.12 (.08) ^a [7/1,016]	.28 (.32) ^a [7/1,091]	.17 (.33) ^c [181/26,295]	.17 (.33) ^c [181/26,295]	—	
9. Leader Effectiveness	.11 (.11) ^a [86/37,449]	.13 (.08) ^a [69/34,663]	.12 (.12) ^a [81/33,537]	.11 (.12) ^a [70/19,868]	.16 (.12) ^a [62/15,641]	.25 (.10) ^a [8/1,045]	.52 (.26) ^c [20/1,605]	.39 (.21) ^c [20/1,960]	—

Note. Each cell contains the weighted average meta-analytic effect size corrected for unreliability in both predictor and criterion, and the estimated standard deviation of true-score correlations in parentheses (SD_p); brackets contain k/N , where k = number of samples; N = number of participants. The SD_p for leader effectiveness with Consideration and Initiating Structure was not reported in Judge et al. (2004), so we used SD_p values for overall leadership (p . 40) in FIMASEM. When estimating the meta-analytic intercorrelations among FFM traits, we omitted one outlier (A. Allen, 2016; N = 14,343; for which Extraversion–Agreeableness composite r = .66, Extraversion–Conscientiousness composite r = .81, and Agreeableness–Conscientiousness r = .40). Correlations of Honesty-Humility with Consideration and Initiating Structure are omitted due to too few primary studies being available ($k < 3$). FFM = five factor model; FIMASEM = full-information meta-analytic structural equation modeling.

^a Present study original meta-analyses. ^b Lee et al. (2019, p. 1540). ^c Judge et al. (2004, pp. 40, 43).

emergence ($\hat{\rho}$ = .11; k = 60) was twice as large as Judge et al.’s (2002; $\hat{\rho}$ = .05; k = 23). Multiple R for all FFM traits together predicting leader emergence was R = .26 (R^2 = .07).

Leader effectiveness was positively related to Extraversion ($\hat{\rho}$ = .11, k = 86, 95% CI [.02, .21]), Agreeableness ($\hat{\rho}$ = .13, k = 69, 95% CI [.07, .19]), Conscientiousness ($\hat{\rho}$ = .12, k = 81, 95% CI [.02, .21]), Emotional Stability ($\hat{\rho}$ = .11, k = 70, 95% CI [.06, .16]), and Openness ($\hat{\rho}$ = .16, k = 62, 95% CI [.10, .21]). This concurs with Judge et al.’s (2002) directional findings, although our magnitudes were smaller (Table 2), and our current meta-analyses were based on three times as many available primary studies. We also found Multiple R = .20 (R^2 = .04) for all FFM traits together predicting leader effectiveness, which was smaller in magnitude compared to Judge et al.’s Multiple R = .39 (R^2 = .15) reported over two decades ago.¹⁶

We now turn our attention to the FFM 80% credibility values (CVs) in Table 2. For leader emergence, the 80% CVs all excluded zero (with the single exception of Agreeableness–leader emergence), and all five 80% CVs were at least 1.5 times as large as the corresponding effect sizes. For leader effectiveness, the 80% CVs for all FFM trait–leader effectiveness relationships included zero (except Agreeableness), and all five 80% CVs were at least 1.5 times as large as the corresponding effect sizes (see Table 2).

Moderating Effect of Collectivism

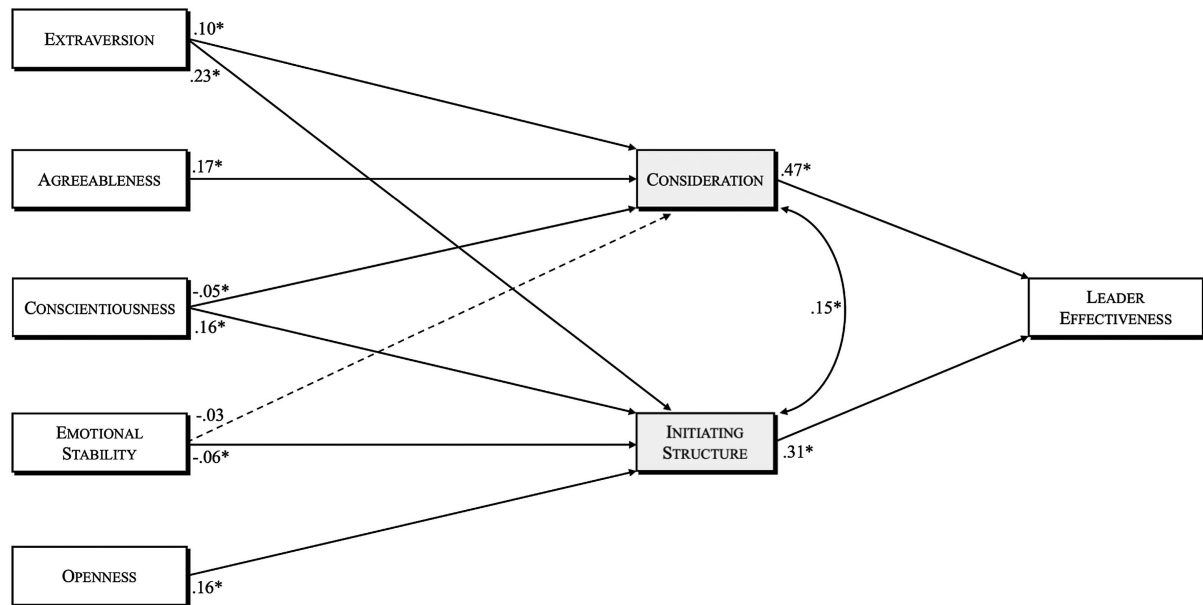
We next tested whether collectivism moderated the relationships between leader effectiveness and two interpersonal traits: Extraversion and Agreeableness. Results support collectivism moderating both Extraversion–leader effectiveness (H1a; b = .20, k = 68, 95% CI [.02, .37]), and Agreeableness–leader effectiveness (H1b; b = .14, k = 53, 95% CI [.01, .26]). In both cases, the personality–leader effectiveness relationship was stronger in collectivist cultures.^{17,18} To convey the

¹⁶ Current effect size magnitudes (Tables 2 and 3) may differ from Judge et al. (2002) for several reasons. First, we had a roughly 3 times larger database of primary studies available. Second, Judge et al. (2002) categorized a wide range of measures as indicators of FFM traits (e.g., locus of control [Hiers & Heckel, 1977]; optimism [Wunderley et al., 1998]; intelligence [Lonetto & Williams, 1974]) and included some primary studies with self-rated leader effectiveness (e.g., Christie, 1981; Huffty, 1979); we targeted validated personality inventories and measures with similar item content (Judge et al., 2013, Appendix A) while excluding self-rated leader effectiveness. Third, Judge et al. (2002) corrected for attenuation due to interrater reliability, whereas we used Cronbach’s α . To conduct an apples-to-apples comparison, we re-disattenuated Judge et al.’s (2002) results using Cronbach’s α . As shown in Table 2, our effect size ρ s were still smaller than Judge et al. (2002) re-disattenuated ρ s.

¹⁷ A reviewer suggested our rationale for collectivism moderating both Extraversion and Agreeableness effects on leader effectiveness could similarly be extended to leader emergence. Neither of these moderating effects is supported in our data set.

¹⁸ A reviewer recommended we also examine cultural dimensions beyond collectivism. We did this for the Hofstede (1980) dimensions of power distance, uncertainty avoidance, and masculinity–femininity (indexed by cultural practices scores from GLOBE; House et al., 2004), in addition to cultural tightness–looseness (Gelfand et al., 2011). Across these 40 additional moderator tests (i.e., 4 Cultural Dimensions \times 5 FFM Traits \times 2 Dependent Variables), we observed only three additional statistically significant findings: (a) the Agreeableness–leader emergence correlation was stronger in higher power distance countries (b = .46; k = 49; 95% CI [.15, .78]), (b) the Openness–leader emergence correlation was stronger in collectivist countries (b = .21; k = 44; 95% CI [.003, .42]), and (c) the Extraversion–leader effectiveness correlation was stronger in high uncertainty avoidance countries (b = .14; k = 68; 95% CI [.01, .27]). Future research should elaborate these post hoc findings.

Figure 2
 Personality–Leadership Behavioral Mediation Model



Note. Harmonic mean $N = 2,525$. RMSEA = .067, CFI = .95, TLI = .88, and SRMR = .024. Standardized path coefficients. Dotted line represents path that is not statistically significant ($p > .05$). This is a full mediation model. RMSEA = root-mean-square error of approximation; CFI = comparative fit index; TLI = Tucker–Lewis index; SRMR = standardized root-mean-square residual.

* $p < .05$.

magnitude of collectivism moderation effects, we also report each bivariate relationship at both high and low collectivism (see Table 2: Extraversion $\hat{\rho}_{\text{Collectivist}} = .24$, $\hat{\rho}_{\text{Individualist}} = .14$; Agreeableness $\hat{\rho}_{\text{Collectivist}} = .19$, $\hat{\rho}_{\text{Individualist}} = .12$). We further estimated Multiple R^2 for all FFM traits together predicting leader effectiveness, to show $R^2_{\text{Collectivist}} = .10$ and $R^2_{\text{Individualist}} = .03$ (Table 3).

HEXACO Trait–Leadership Relationships

HEXACO trait–leadership relationships are reported in Table 2. The correlations with leader emergence were not statistically significant (95% CIs included zero) for Honesty–Humility ($\hat{\rho} = .01$, $k = 11$, 95% CI $[-.07, .09]$), Emotional stability ($\hat{\rho} = .05$, $k = 11$, 95% CI $[-.01, .11]$), Agreeableness ($\hat{\rho} = -.02$, $k = 8$, 95% CI $[-.08, .03]$), Conscientiousness ($\hat{\rho} = .08$, $k = 10$, 95% CI $[-.003, .15]$), or Openness ($\hat{\rho} = .06$, $k = 8$, 95% CI $[-.01, .13]$), but the leader emergence correlation was significant for eXtraversion ($\hat{\rho} = .12$, $k = 8$, 95% CI $[-.07, .17]$). All HEXACO traits together exhibited Multiple $R = .15$ ($R^2 = .02$) with leader emergence. For leader effectiveness, we found positive associations (all 95% CIs excluded zero) with Honesty–Humility ($\hat{\rho} = .25$, $k = 8$, 95% CI $[-.15, .35]$; supporting H4), Emotional stability ($\hat{\rho} = .16$, $k = 6$, 95% CI $[-.04, .27]$), eXtraversion ($\hat{\rho} = .30$, $k = 6$, 95% CI $[-.11, .49]$), and Conscientiousness ($\hat{\rho} = .38$, $k = 6$, 95% CI $[-.19, .58]$), but nonsignificant associations for Agreeableness ($\hat{\rho} = .09$, $k = 7$, 95% CI $[-.10, .29]$), and Openness ($\hat{\rho} = .14$, $k = 6$, 95% CI $[-.02, .29]$). For all six HEXACO traits together, Multiple $R = .51$ ($R^2 = .26$) with leader effectiveness. Next, collectivism did not moderate the Honesty–Humility–leader effectiveness relationship ($b = -.02$,

$k = 5$, 95% CI $[-.22, .18]$), refuting H5. Further, H–H explained additional variance in leader effectiveness beyond the FFM: Honesty–Humility increased R^2 from .04 to .10 (Table 3).

Path Analyses and Mediator Analyses

Finally, we tested whether Consideration and Initiating Structure mediated the FFM trait–leader effectiveness associations. The explanatory model (Figure 2; $\chi^2(7) = 87.41$, RMSEA = .067, CFI = .95, TLI = .88, SRMR = .024) supported positive paths ($ps < .05$) from both Consideration ($\beta = .47$) and Initiating Structure ($\beta = .31$) to leader effectiveness. Consideration was predicted ($ps < .05$) by Extraversion ($\beta = .10$) and Agreeableness ($\beta = .17$), but not by Emotional Stability ($\beta = -.03$, *ns*), and was negatively predicted by Conscientiousness ($\beta = -.05$, $p < .05$). We now report *Leader Personality* → *Behavior* → *Effectiveness* indirect effects for Figure 2 (95% CIs of estimated indirect effects [e.g., $X \rightarrow M$ path \times $M \rightarrow Y$ path] were constructed via Monte Carlo simulations with 5,000 replications). The indirect FFM effects via Consideration were significant for Extraversion (indirect effect = .047, 95% CI $[-.027, .066]$) and Agreeableness (indirect effect = .079, 95% CI $[-.059, .100]$), but were negative for Conscientiousness (indirect effect = $-.023$, 95% CI $[-.044, -.003]$) and not statistically significant for Emotional Stability (indirect effect = $-.015$, 95% CI $[-.036, .006]$). Results for Consideration mediating FFM trait effects on leader effectiveness are thus supported for H2a (Extraversion) and H2b (Agreeableness), but neither H2c (Conscientiousness) nor H2d (Emotional Stability).

Table 2
Meta-Analytic Summary of Personality Traits and Leadership Outcomes

FFM traits	<i>k</i>	<i>N</i>	\bar{r}	<i>SD_r</i>	$\hat{\rho}$	<i>SD_ρ</i>	95% CI	80% CV
Leader emergence								
Extraversion								
Judge et al. (2002)	30	—	(.24) ^a	—	.33 (.26) ^b	—	— ^c	— ^d
Present study	93	19,870	.19	.13	.22	.13	[.18, .26]	[.05, .38]
Agreeableness								
Judge et al. (2002)	23	—	(.03) ^a	—	.05 (.04) ^b	—	—	—
Present study	60	13,921	.09	.12	.11	.11	[.06, .15]	[−.04, .25]
Conscientiousness								
Judge et al. (2002)	17	—	(.23) ^a	—	.33 (.26) ^b	—	— ^c	— ^d
Present study	75	25,288	.13	.10	.15	.10	[.09, .20]	[.02, .27]
Emotional Stability								
Judge et al. (2002)	30	—	(.17) ^a	—	.24 (.20) ^b	—	— ^c	—
Present study	63	15,358	.14	.12	.16	.12	[.11, .20]	[.005, .31]
Openness								
Judge et al. (2002)	20	—	(.17) ^a	—	.24 (.19) ^b	—	— ^c	— ^d
Present study	54	13,679	.13	.10	.16	.10	[.11, .20]	[.03, .28]
HEXACO traits								
Honesty-Humility	11	2,186	.01	.11	.01	.09	[−.07, .09]	[−.11, .13]
Emotional stability	11	2,058	.05	.09	.05	.05	[−.01, .11]	[−.01, .12]
eXtraversion	8	1,760	.11	.06	.12	.00	[.07, .17]	[.12, .12]
Agreeableness	8	1,760	−.02	.06	−.02	.00	[−.08, .03]	[−.02, −.02]
Conscientiousness	10	1,978	.07	.10	.08	.08	[−.003, .15]	[−.03, .18]
Openness	8	1,760	.06	.09	.06	.06	[−.01, .13]	[−.02, .14]
Leader effectiveness								
Extraversion								
Judge et al. (2002)	23	—	(.17) ^a	—	.24 (.20) ^b	—	— ^c	— ^d
Present study	86	37,449	.10	.11	.11	.11	[.02, .21]	[−.03, .25]
Agreeableness								
Judge et al. (2002)	19	—	(.14) ^a	—	.21 (.17) ^b	—	— ^c	—
Present study	69	34,663	.10	.08	.13	.08	[.07, .19]	[.03, .23]
Conscientiousness								
Judge et al. (2002)	18	—	(.11) ^a	—	.16 (.13) ^b	—	— ^c	—
Present study	81	33,537	.10	.11	.12	.12	[.02, .21]	[−.03, .26]
Emotional Stability								
Judge et al. (2002)	18	—	(.16) ^a	—	.22 (.18) ^b	—	— ^c	— ^d
Present study	70	19,868	.10	.12	.11	.12	[.06, .16]	[−.04, .26]
Openness								
Judge et al. (2002)	17	—	(.17) ^a	—	.24 (.20) ^b	—	— ^c	— ^d
Present study	62	15,641	.13	.12	.16	.12	[.10, .21]	[−.004, .31]
Collectivism								
Low collectivism [individualist]								
Extraversion	52	15,785	.12	.10	.14	.09	[.09, .19]	[.02, .26]
Agreeableness	43	14,626	.10	.06	.12	.04	[.09, .14]	[.06, .17]
Conscientiousness	48	13,406	.10	.12	.12	.12	[.05, .18]	[−.03, .27]
Emotional Stability	45	15,115	.07	.09	.08	.09	[.03, .13]	[−.03, .19]
Openness	35	10,422	.10	.10	.12	.10	[.06, .19]	[−.01, .25]
High collectivism [collectivist]								
Extraversion	16	3,150	.22	.14	.24	.14	[.12, .37]	[.06, .43]
Agreeableness	10	2,408	.15	.11	.19	.11	[.06, .31]	[.04, .33]
Conscientiousness	17	3,542	.17	.09	.20	.08	[.13, .26]	[.10, .29]
Emotional Stability	12	2,771	.17	.09	.20	.06	[.13, .27]	[.12, .28]
Openness	11	2,310	.19	.07	.22	.04	[.15, .29]	[.16, .28]
HEXACO traits								
Honesty-Humility	8	1,045	.21	.12	.25	.10	[.15, .35]	[.13, .37]
Emotional stability	6	807	.14	.11	.16	.09	[.04, .27]	[.04, .28]
eXtraversion	6	807	.26	.19	.30	.21	[.11, .49]	[.04, .56]
Agreeableness	7	930	.08	.21	.09	.22	[−.10, .29]	[−.19, .38]
Conscientiousness	6	807	.32	.19	.38	.21	[.19, .58]	[.11, .65]
Openness	6	807	.12	.15	.14	.15	[−.02, .29]	[−.06, .33]

(table continues)

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Table 2 (continued)

FFM traits	<i>k</i>	<i>N</i>	\bar{r}	<i>SD_r</i>	$\hat{\rho}$	<i>SD_ρ</i>	95% CI	80% CV
Leader effectiveness (unit performance)								
Extraversion	18	3,220	.11	.16	.12	.17	[−.03, .27]	[−.09, .33]
Agreeableness	13	2,917	.09	.13	.10	.13	[−.03, .23]	[−.06, .27]
Conscientiousness	14	1,800	.13	.21	.15	.22	[−.01, .31]	[−.13, .43]
Emotional Stability	14	1,828	.14	.16	.17	.17	[.04, .29]	[−.05, .39]
Openness	16	2,043	.19	.20	.23	.22	[.08, .38]	[−.05, .51]

Note. For leader emergence: Present study Multiple $R_{FFM} = .26$ [$R^2 = .07$]; Judge et al. (2002) Multiple $R_{FFM} = .53$ [$R^2 = .28$]; Judge et al. (2002, using Cronbach's α re-disattenuated $\hat{\rho}$) Multiple $R_{FFM} = .42$ [$R^2 = .18$]; Present study Multiple $R_{HEXACO} = .15$ [$R^2 = .02$]. For leader effectiveness: present study Multiple $R_{FFM} = .20$ [$R^2 = .04$]; Judge et al. (2002) Multiple $R_{FFM} = .39$ [$R^2 = .15$]; Judge et al. (2002, using Cronbach's α re-disattenuated $\hat{\rho}$) Multiple $R_{FFM} = .32$ [$R^2 = .10$]; present study Multiple $R_{HEXACO} = .51$ [$R^2 = .26$]. For leader effectiveness (unit performance): present study Multiple $R_{FFM} = .27$ [$R^2 = .07$]. *k* = number of primary study samples; *N* = total sample size; \bar{r} = sample-size weighted mean observed correlation; *SD_r* = sample-size weighted standard deviation of observed correlations across studies; $\hat{\rho}$ = estimated mean correlation corrected for unreliability in predictor and criterion; *SD_ρ* = estimated standard deviation of true-score correlations; 95% CI = 95% confidence interval; 80% CV = 80% credibility interval; FFM = five factor model.

^aUncorrected correlation *r* values in parentheses are attenuated based on Judge et al. (2002), who reported only the corrected/disattenuated correlations and the average interrater reliability (.60, p. 770). ^bCorrected correlation ρ values in parentheses are *re-disattenuated* results based on Judge et al. (2002), with effect sizes corrected for Cronbach's α (from the current meta-analyses for each FFM trait-dependent variable pairing) instead of interrater reliability. ^cJudge et al. reported that 95% confidence interval excludes zero. ^dJudge et al. reported that 80% credibility interval excludes zero.

For the hypothesized paths from FFM traits to Initiating Structure (Figure 2), we found positive effects ($ps < .05$) for Extraversion ($\beta = .23$), Conscientiousness ($\beta = .16$), and Openness ($\beta = .16$), but a negative effect for Emotional Stability ($\beta = -.06$, $p < .05$). Next, the indirect effects of FFM traits on leader effectiveness via Initiating Structure were statistically significant supporting H3a (Extraversion; indirect effect = .072, 95% CI [.058, .088]), H3b (Conscientiousness; indirect effect = .050, 95% CI [.037, .064]), and H3d (Openness; indirect effect = .049, 95% CI [.036, .062]), but not H3c (Emotional Stability; indirect effect = $-.019$, 95% CI [−.032, −.006]).

We conducted supplemental analyses incorporating effect size heterogeneity (*SD_ρ*; Table 4) using full-information meta-analytic structural equation modeling (FIMASEM; Yu et al., 2016; see Oh, 2020). Across 5,000 bootstrapped samples, we found the hypothesized significant model paths shown in Figure 2 generalized at rates ranging from 75% (H3a: Extraversion to Initiating Structure) to 60% (H3d: Openness to Initiating Structure). In line with our wide 80% CVs, these findings show the magnitudes of personality effects on leadership are not universal, pointing to the presence of moderators.

Discussion

The current meta-analysis advances the conversation about personality and leadership in several ways. First, using cross-cultural data, interpersonal traits (Extraversion and Agreeableness) were both found to exhibit leadership advantages that are much stronger in collectivist cultures. Second, we specified explanatory mechanisms that link personality traits to leader effectiveness via leader behavior (Consideration and Initiating Structure). Third, we conducted the first known meta-analysis of HEXACO personality traits and leadership, showing Honesty-Humility predicts leader effectiveness substantially beyond the FFM.

Cross-Cultural Moderation by Collectivism

To elaborate, we were able to expand Judge et al.'s (2002) database (which reflected six reported countries) to the current database (reflecting 21 reported countries). Leveraging culturally

endorsed implicit leadership theory (House et al., 2002), we showed notably stronger Extraversion and Agreeableness leadership advantages ($\hat{\rho}$ increases from .14 to .24 for Extraversion, and from .12 to .19 for Agreeableness; FFM R^2 increases from .03 to .10) in collectivist cultures (where social coordination, interpersonal harmony, and group loyalty are encouraged above individual goals, and where the economic system is designed to foster collective interests; Gelfand et al., 2004). In addition to revealing the cultural-dependence of the leader trait approach (confirming an emic perspective), we further hope these findings revive interest in the Agreeableness leadership advantage, by identifying contexts where *nice leaders don't finish last* (cf. R. Hogan et al., 1994).

Leader Personality–Effectiveness Behavioral Mechanisms

Next, we used insights from socioanalytic theory (J. Hogan & Holland, 2003; Oh & Berry, 2009) to show that Consideration and Initiating Structure function as two core behavioral mechanisms through which leader personality affects followers' evaluations of leader effectiveness (Figure 2).¹⁹ We found that Consideration (*getting along*) linked Extraversion and Agreeableness to leader effectiveness in the expected positive direction, whereas Initiating Structure (*getting ahead*) linked Conscientiousness, Extraversion, and Openness to leader effectiveness in the expected positive direction. One surprising finding was the negative unique effect of Conscientiousness on Consideration, which may be due to Conscientious leaders' prioritizing efficiency and task completion over interpersonal dynamics, foregoing behaviors that are supportive and empathic (see O'Neil, 2007; Zaccaro et al., 2018).

¹⁹The hypothesized model in Figure 2 is a full mediation model. To consider alternative models of partial mediation, in a supplemental analysis, we inspected post hoc modifications for direct effects from each FFM trait to leader effectiveness. The direct effect with the largest post hoc modification index was a small direct path from Emotional Stability to leader effectiveness ($\beta = .055$; $\Delta CFI = .006$). Such post hoc modifications received only weak support in the current analysis.

Table 3
Regression of Leader Effectiveness Onto FFM Traits and Honesty-Humility

Personality trait	Judge et al. (2002)		Current meta-analysis			
	FFM β	Re-disattenuated β	FFM β	Low collectivism, FFM β	High collectivism, FFM β	FFM + HH β
Extraversion	.18 ^{***}	.14 [*]	.02 [*]	.09 [*]	.12 [*]	.09 [*]
Agreeableness	.10 ^a	.08 [*]	.06 [*]	.06 [*]	.07 [*]	-.11 [*]
Conscientiousness	.12 ^a	.10 [*]	.06 [*]	.07 [*]	.10 [*]	.03 [*]
Emotional Stability	.10 ^a	.08 [*]	.04 [*]	-.01	.07 [*]	.04 [*]
Openness	.19 ^{***}	.16 [*]	.12 [*]	.06 [*]	.12 [*]	.12 [*]
Honesty-Humility						.30 [*]
R ² [Multiple R]	.15 ^{***} [.39] ^a	.10 [*] [.32]	.04 [*] [.20]	.03 [*] [.18]	.10 [*] [.32]	.10 [*] [.31]
Number of studies range (<i>k</i>)	<i>k</i> _{FFM} = 17–23 ^a		<i>k</i> _{FFM} = 62–86		<i>k</i> _{FFM} = 46–68	
Sample size range (<i>N</i>)	Not Reported		<i>N</i> _{FFM} = 15,641–37,449		<i>N</i> _{FFM} = 12,732–18,935	
					<i>N</i> _{FFM} = 15,641–37,449 <i>k</i> _{HH} = 8 <i>N</i> _{HH} = 1,045	

Note. Standardized regression coefficients. FFM = five factor model; HH = Honesty-Humility.

^a Reported by Judge et al. (2002). Because Judge et al. (2002) did not report sample size for leader effectiveness but did report the sample sizes for overall leadership and the number of studies, we estimated leader effectiveness sample size using the leader effectiveness *k*/overall leadership *k* ratio, based on Judge et al. (2002).

* *p* < .05.

Beyond the FFM: Honesty-Humility (H-H) in the Leader Trait Approach

Y. Lee et al. (2019) advised that a “new individual difference construct must demonstrate its uniqueness and incremental validity over other, established predictors” (p. 1539). H-H exhibits unique prediction of leader effectiveness beyond the FFM traits, more than doubling Multiple R² from .04 (FFM) to .10 (FFM + H-H see Table 3). We suggest Honesty-Humility’s unique effects beyond FFM may be due to followers’ greater trust in their leaders (Bakker-Pieper & de Vries, 2013; Nguyen et al., 2020) and relationship quality with their leaders (Bharanitharan et al., 2021; Breevaart & de Vries, 2017), with followers developing more vibrant and warm relations with Honest-Humble leaders, enhancing their effectiveness (Gunnoe, 2017; von Wittich, 2013).

Limitations and Future Directions

Despite the above contributions, we note several possible limitations. At least three alternative explanations exist for culture’s moderating effects on leader traits: (a) confounded sample-level characteristics other than culture (e.g., occupation, gender), (b) second-order sampling error, and (c) measurement nonequivalence. To control sample-level characteristics, we used occupation (i.e., education, business, military, social service, and mixed) and leader gender (% male leaders) as control variables in the meta-analytic regression models testing moderation by collectivism—both interaction effects (for Agreeableness and Extraversion) on leader effectiveness remained significant. We also conducted second-order meta-analysis (Schmidt & Oh, 2013) and found second-order sampling error to be minimal

Table 4
Results of Random-Effects FIMASEM Analysis

Variable	β	Mean β	80% CV	% β hypothesized direction
Consideration				
Extraversion	.100 [*]	.112	[-.283, .507]	71%
Agreeableness	.169 [*]	.270	[-.411, .915]	71%
Conscientiousness	-.050 [*]	-.106	[-.543, .307]	35%
Emotional Stability	-.033	-.061	[-.722, .572]	44%
Initiating Structure				
Extraversion	.233 [*]	.285	[-.280, .856]	75%
Conscientiousness	.161 [*]	.203	[-.401, .851]	66%
Emotional Stability	-.061 [*]	-.129	[-.708, .328]	39%
Openness	.157 [*]	.162	[-.657, .920]	60%
Leader effectiveness				
Consideration	.467 [*]	.515	[.110, .903]	92%
Initiating Structure	.311 [*]	.309	[-.045, .660]	85%

Note. Standardized path coefficients. β refers to the estimates from Figure 2, Mean β refers to the average path coefficients across 5,000 replications, 80% CV refers to the credibility values/middle 80% range of path coefficients across replications, and % β hypothesized direction refers to the % of 5,000 bootstrapped samples that produced results for each path coefficient, in the hypothesized (positive) direction. FIMASEM = full-information meta-analytic structural equation modeling.

* *p* < .05.

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(see Supplemental Material). Last, measurement invariance cannot be rigorously examined in the present study, because raw data are not available (see T. D. Allen et al., 2020, for a similar treatment). A recent review of personality measurement invariance studies (Dong & Dumas, 2020) revealed only one primary study had appropriately assessed measurement equivalence cross-culturally (i.e., Thielmann et al., 2020), and it supported metric invariance.²⁰ Thus, knowledge about measurement equivalence across countries is sparse (more research is needed) but is somewhat supportive.

Conclusion

Using large-scale cross-cultural meta-analyses of personality and leadership (with 3 times as many studies as previously available), we offer three novel results to extend the rich legacy of the leader trait approach. First, in collectivist societies, leader Extraversion and Agreeableness are stronger predictors of leader effectiveness, supporting the theorized need for enhanced social coordination in such cultures (and FFM Multiple *R* estimates are much larger in collectivist cultures: $R_{Collectivist} = .32$, vs. $R_{Individualist} = .18$). Second, a theoretical model is advanced in which particular leader FFM trait effects on leader effectiveness are mediated by Consideration and Initiating Structure, consistent with the socioanalytic motives for getting along and getting ahead. Third, trait Honesty-Humility (from the HEXACO model) substantially predicts leader effectiveness beyond the FFM. These findings expand results to elaborate cultural conditions when FFM trait effects are stronger, to specify mechanisms for why FFM trait effects exist in terms of leader behavior, and to include Honesty-Humility.

²⁰ Only one primary study had assessed measurement nonequivalence cross-culturally for either FFM or HEXACO, using CFA without post hoc/exploratory model modifications (i.e., Thielmann et al., 2020). Thielmann et al. (2020), with $N > 30,000$ across 16 countries, supported measurement equivalence (metric invariance) across countries (configural invariance RMSEA = .082; metric invariance RMSEA = .079; scalar invariance RMSEA = .094). Further, even in cases when measurement nonequivalence has been claimed, its effect on observed correlations at the scale level is potentially negligible (Nye & Drasgow, 2011; Nye et al., 2016), because: (a) item-level nonequivalence can partly cancel out at the scale level (Meade, 2010), (b) scalar nonequivalence can affect scale means but have negligible effects on scale correlations (Nye et al., 2010), or (c) modest group differences in factor loadings barely alter correlations among positively weighted linear composites of indicators (see Wainer, 1976).

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(Appendix follows)

Appendix

Additional Moderator Results for Personality Trait–Leadership Effects

Moderator categories	<i>k</i>	<i>N</i>	\bar{r}	<i>SD_r</i>	$\hat{\rho}$	<i>SD_ρ</i>	95% CI	80% CV
Type of organization								
Education								
Extraversion	60	10,794	.19	.12	.22	.11	[.17, .26]	[.07, .36]
Agreeableness	42	7,576	.07	.10	.08	.08	[.04, .12]	[−.03, .18]
Conscientiousness	47	15,205	.12	.09	.14	.08	[.07, .20]	[.04, .24]
Emotional Stability	36	6,880	.11	.11	.13	.09	[.08, .17]	[.02, .24]
Openness	38	7,779	.13	.10	.15	.08	[.11, .19]	[.06, .25]
Business								
Extraversion	11	3,349	.20	.12	.22	.12	[.11, .33]	[.07, .37]
Agreeableness	8	2,644	.17	.16	.20	.17	[.02, .39]	[−.02, .42]
Conscientiousness	10	3,585	.08	.14	.10	.14	[−.03, .22]	[−.09, .28]
Emotional Stability	9	2,694	.14	.17	.16	.19	[−.03, .36]	[−.08, .41]
Openness	8	2,613	.10	.09	.12	.09	[.02, .22]	[.004, .23]
Military								
Extraversion	15	4,971	.19	.14	.22	.15	[.11, .32]	[.03, .40]
Agreeableness	7	3,273	.09	.08	.11	.08	[.03, .19]	[.01, .21]
Conscientiousness	14	6,061	.18	.09	.20	.09	[.14, .26]	[.09, .31]
Emotional Stability	15	5,450	.18	.11	.20	.11	[.12, .28]	[.06, .34]
Openness	6	3,000	.18	.12	.21	.13	[.07, .35]	[.04, .38]
Study setting								
Laboratory								
Extraversion	21	3,838	.29	.15	.33	.15	[.21, .46]	[.14, .53]
Agreeableness	14	2,612	.11	.11	.13	.11	[.01, .25]	[−.01, .27]
Conscientiousness	17	3,054	.20	.12	.23	.12	[.12, .33]	[.08, .38]
Emotional Stability	12	2,472	.21	.10	.23	.09	[.13, .34]	[.12, .35]
Openness	12	3,078	.19	.11	.22	.12	[.10, .34]	[.07, .37]
Organizational								
Extraversion	34	8,146	.16	.13	.18	.12	[.12, .24]	[.03, .33]
Agreeableness	19	5,415	.11	.13	.13	.14	[.04, .22]	[−.05, .30]
Conscientiousness	29	15,390	.11	.09	.12	.09	[.04, .20]	[.01, .24]
Emotional Stability	29	7,851	.14	.13	.16	.13	[.09, .23]	[−.01, .33]
Openness	17	4,970	.09	.08	.10	.08	[.05, .16]	[.01, .20]
Classroom								
Extraversion	38	7,886	.18	.11	.20	.09	[.16, .25]	[.08, .32]
Agreeableness	27	5,894	.07	.09	.08	.08	[.03, .12]	[−.02, .18]
Conscientiousness	29	6,844	.15	.09	.17	.08	[.13, .21]	[.07, .27]
Emotional Stability	22	5,035	.11	.11	.12	.09	[.06, .18]	[−.001, .24]
Openness	25	5,631	.14	.10	.17	.08	[.12, .22]	[.06, .28]
Social complexity								
Low social complexity								
Extraversion	23	6,077	.15	.11	.17	.10	[.12, .23]	[.04, .30]
Agreeableness	15	3,787	.08	.13	.10	.12	[.01, .18]	[−.06, .25]
Conscientiousness	23	13,297	.11	.10	.13	.10	[.03, .22]	[.001, .25]
Emotional Stability	19	5,377	.12	.11	.14	.10	[.08, .20]	[.01, .26]
Openness	17	4,137	.12	.10	.14	.09	[.08, .20]	[.03, .25]
High social complexity								
Extraversion	70	13,793	.21	.14	.24	.14	[.19, .29]	[.07, .42]
Agreeableness	45	10,134	.09	.11	.11	.11	[.06, .16]	[−.03, .25]
Conscientiousness	52	11,991	.15	.10	.17	.09	[.13, .22]	[.06, .29]
Emotional Stability	44	9,981	.15	.13	.17	.13	[.11, .24]	[.01, .34]
Openness	37	9,542	.14	.11	.17	.10	[.11, .22]	[.03, .30]
Acquaintance								
One interaction								
Extraversion	31	5,881	.23	.13	.26	.13	[.18, .34]	[.10, .42]
Agreeableness	22	4,391	.12	.12	.14	.12	[.06, .23]	[−.01, .29]
Conscientiousness	27	5,400	.10	.13	.12	.13	[.04, .20]	[−.04, .28]
Emotional Stability	19	4,051	.17	.09	.20	.07	[.14, .26]	[.10, .29]
Openness	19	4,716	.14	.07	.16	.05	[.12, .21]	[.10, .22]
More than one interaction								
Extraversion	39	7,819	.13	.11	.16	.09	[.11, .20]	[.04, .28]
Agreeableness	24	5,737	.06	.11	.08	.10	[.02, .13]	[−.05, .20]
Conscientiousness	28	7,372	.17	.12	.19	.12	[.13, .25]	[.04, .34]
Emotional Stability	28	6,287	.12	.14	.14	.15	[.07, .21]	[−.05, .33]
Openness	20	4,608	.09	.10	.11	.09	[.05, .17]	[−.01, .22]

(Appendix continues)

Appendix (continued)

Moderator categories	<i>k</i>	<i>N</i>	\bar{r}	<i>SD_r</i>	$\hat{\rho}$	<i>SD_ρ</i>	95% CI	80% CV
Emergence measure								
Election								
Extraversion	15	2,976	.20	.15	.23	.14	[.13, .34]	[.05, .42]
Agreeableness	5	828	.12	.10	.15	.08	[.04, .25]	[.05, .24]
Conscientiousness	8	1,158	.22	.15	.24	.14	[.12, .36]	[.07, .42]
Emotional Stability	7	1,073	.21	.16	.23	.16	[.09, .38]	[.03, .44]
Openness	4	1,252	.11	.04	.13	.00	[.07, .20]	[.13, .13]
Questionnaire								
Extraversion	66	15,142	.19	.13	.22	.13	[.17, .27]	[.05, .38]
Agreeableness	49	12,160	.09	.11	.10	.11	[.05, .15]	[−.04, .25]
Conscientiousness	59	22,455	.12	.10	.14	.10	[.08, .20]	[.02, .26]
Emotional Stability	46	12,709	.14	.12	.16	.11	[.11, .21]	[.01, .30]
Openness	44	11,624	.13	.10	.15	.10	[.11, .20]	[.02, .28]
Rank								
Extraversion	7	799	.15	.12	.16	.07	[.05, .26]	[.06, .25]
Agreeableness	2	465	.08	.12	.09	.11	[−.12, .29]	[−.05, .22]
Conscientiousness	3	602	.19	.01	.20	.00	[.11, .28]	[.20, .20]
Emotional Stability	7	799	.10	.20	.10	.19	[−.12, .33]	[−.14, .34]
Openness	4	511	.19	.15	.20	.13	[−.02, .42]	[.03, .37]
Mixed or unclear								
Extraversion	5	953	.24	.11	.27	.09	[.14, .39]	[.15, .38]
Agreeableness	4	468	.14	.15	.17	.13	[−.03, .36]	[−.001, .33]
Conscientiousness	5	1,073	.15	.06	.16	.00	[.10, .23]	[.16, .16]
Emotional Stability	3	777	.13	.03	.14	.00	[.07, .22]	[.14, .14]
Openness	2	292	.24	.05	.28	.00	[.16, .41]	[.28, .28]
Publication type								
Dissertation/theses								
Extraversion	14	3,659	.20	.09	.23	.07	[.16, .29]	[.14, .31]
Agreeableness	13	3,553	.09	.15	.10	.16	[−.04, .24]	[−.11, .31]
Conscientiousness	10	3,232	.09	.04	.10	.00	[.06, .14]	[.10, .10]
Emotional Stability	9	3,053	.18	.07	.20	.07	[.12, .28]	[.11, .30]
Openness	10	3,223	.14	.06	.16	.04	[.11, .22]	[.10, .22]
Articles								
Extraversion	79	16,211	.19	.14	.22	.14	[.17, .26]	[.04, .39]
Agreeableness	47	10,368	.09	.10	.11	.09	[.07, .15]	[−.003, .22]
Conscientiousness	65	22,056	.14	.11	.15	.10	[.09, .22]	[.02, .29]
Emotional Stability	54	12,305	.13	.13	.15	.13	[.10, .20]	[−.01, .31]
Openness	44	10,456	.13	.11	.16	.11	[.10, .20]	[.01, .30]
Validated versus nonvalidated personality measure								
Validated								
Extraversion	61	15,729	.18	.12	.20	.12	[.15, .24]	[.05, .35]
Agreeableness	47	12,520	.09	.10	.11	.10	[.06, .15]	[−.02, .23]
Conscientiousness	49	13,511	.14	.09	.16	.08	[.12, .19]	[.06, .26]
Emotional Stability	46	12,737	.13	.11	.15	.11	[.10, .19]	[.01, .28]
Openness	42	12,339	.13	.09	.16	.09	[.11, .20]	[.04, .27]
Nonvalidated								
Extraversion	32	4,141	.26	.15	.29	.13	[.23, .36]	[.13, .46]
Agreeableness	13	1,401	.08	.20	.10	.20	[−.04, .23]	[−.16, .35]
Conscientiousness	26	11,777	.12	.11	.13	.11	[.01, .26]	[−.01, .28]
Emotional Stability	17	2,621	.19	.17	.22	.17	[.11, .33]	[.01, .43]
Openness	12	1,340	.14	.17	.16	.16	[.03, .28]	[−.04, .35]
Rating source of personality								
Leader self-report								
Extraversion	75	18,076	.19	.12	.21	.12	[.17, .25]	[.05, .36]
Agreeableness	55	13,196	.08	.11	.10	.10	[.06, .14]	[−.03, .23]
Conscientiousness	67	24,086	.13	.09	.14	.09	[.09, .19]	[.03, .25]
Emotional Stability	53	14,238	.14	.12	.16	.11	[.11, .20]	[.01, .30]
Openness	48	12,782	.13	.10	.15	.10	[.11, .19]	[.03, .28]
Non self-report								
Extraversion	13	1,331	.32	.19	.37	.18	[.25, .50]	[.14, .61]
Agreeableness	2	239	.17	.08	.17	.00	[.04, .29]	[.17, .17]
Conscientiousness	4	764	.25	.15	.25	.14	[.09, .41]	[.08, .43]
Emotional Stability	5	657	.27	.18	.32	.20	[.12, .53]	[.07, .58]
Mixed								
Extraversion	5	463	.18	.06	.19	.00	[.10, .29]	[.19, .19]
Agreeableness	3	486	.23	.22	.25	.22	[−.04, .54]	[−.03, .53]
Conscientiousness	4	438	.22	.20	.23	.18	[.02, .44]	[−.003, .46]
Emotional Stability	5	463	.09	.16	.10	.13	[−.06, .26]	[−.07, .26]
Openness	5	826	.19	.10	.19	.07	[.09, .29]	[.10, .28]

(Appendix continues)

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Appendix (continued)

Moderator categories	<i>k</i>	<i>N</i>	\bar{r}	<i>SD_r</i>	$\hat{\rho}$	<i>SD_ρ</i>	95% CI	80% CV
Rating source of leader emergence								
Leader self-report								
Extraversion	14	4,201	.19	.09	.22	.06	[.17, .26]	[.13, .30]
Agreeableness	9	2,535	.05	.09	.06	.08	[-.02, .13]	[-.04, .15]
Conscientiousness	16	10,963	.11	.05	.12	.04	[.07, .17]	[.07, .17]
Emotional Stability	12	3,446	.15	.04	.16	.00	[.13, .20]	[.16, .16]
Openness	12	3,278	.12	.09	.14	.08	[.08, .21]	[.03, .25]
Skip-level supervisor								
Extraversion	3	427	.20	.07	.24	.00	[.13, .34]	[.24, .24]
Conscientiousness	2	686	-.01	.25	.00	.28	[-.41, .41]	[-.36, .36]
Observer								
Extraversion	13	2,899	.21	.10	.24	.08	[.15, .32]	[.13, .34]
Agreeableness	10	2,595	.17	.11	.20	.11	[.08, .32]	[.07, .34]
Conscientiousness	9	2,536	.10	.07	.12	.05	[.05, .20]	[.06, .19]
Emotional Stability	9	2,428	.17	.11	.20	.12	[.07, .33]	[.05, .35]
Openness	6	2,183	.13	.07	.16	.06	[.07, .25]	[.09, .24]
Objective								
Extraversion	7	1,524	.07	.09	.08	.07	[-.01, .16]	[-.02, .17]
Agreeableness	4	869	.11	.08	.13	.05	[.03, .22]	[.06, .19]
Conscientiousness	5	1,354	.09	.07	.10	.04	[.03, .17]	[.05, .15]
Emotional Stability	6	1,539	.04	.12	.05	.12	[-.07, .17]	[-.11, .20]
Openness	4	869	.08	.10	.09	.08	[-.02, .20]	[-.01, .19]
Peer								
Extraversion	40	6,486	.20	.14	.23	.14	[.17, .29]	[.06, .40]
Agreeableness	24	4,306	.05	.10	.06	.07	[.01, .10]	[-.03, .14]
Conscientiousness	30	5,906	.16	.12	.19	.11	[.13, .25]	[.05, .33]
Emotional Stability	25	4,364	.13	.15	.15	.15	[.06, .23]	[-.05, .35]
Openness	22	4,307	.11	.10	.13	.09	[.06, .19]	[.01, .24]
Mixed or unclear								
Extraversion	15	4,270	.22	.17	.26	.18	[.12, .40]	[.03, .49]
Agreeableness	11	3,304	.09	.10	.11	.11	[.002, .22]	[-.03, .26]
Conscientiousness	12	3,780	.20	.10	.24	.09	[.15, .32]	[.12, .35]
Emotional Stability	9	3,412	.18	.12	.22	.12	[.10, .33]	[.06, .37]
Openness	9	2,979	.20	.11	.25	.11	[.13, .37]	[.11, .40]
Common source								
Common source								
Extraversion	21	5,350	.19	.09	.21	.07	[.17, .26]	[.12, .30]
Agreeableness	10	2,909	.06	.09	.07	.08	[-.01, .14]	[-.04, .17]
Conscientiousness	15	10,812	.12	.08	.13	.07	[.04, .22]	[.04, .22]
Emotional Stability	16	4,106	.16	.09	.19	.08	[.13, .24]	[.08, .29]
Openness	12	3,484	.11	.10	.12	.09	[.05, .19]	[.01, .23]
Noncommon source								
Extraversion	72	14,520	.20	.15	.22	.14	[.17, .28]	[.04, .41]
Agreeableness	50	11,012	.10	.12	.12	.12	[.07, .17]	[-.03, .27]
Conscientiousness	60	14,476	.14	.12	.16	.11	[.12, .20]	[.02, .30]
Emotional Stability	47	11,252	.13	.13	.15	.13	[.09, .21]	[-.02, .32]
Openness	42	10,195	.14	.10	.17	.10	[.12, .22]	[.04, .30]
Cross-sectional versus time-lagged								
Cross-sectional								
Extraversion	59	11,289	.24	.14	.27	.13	[.22, .33]	[.10, .45]
Agreeableness	34	7,883	.12	.13	.14	.13	[.07, .21]	[-.03, .30]
Conscientiousness	44	16,694	.13	.11	.14	.10	[.06, .23]	[.01, .27]
Emotional stability	38	8,984	.18	.13	.20	.13	[.13, .27]	[.03, .37]
Openness	31	7,701	.16	.11	.19	.10	[.13, .25]	[.06, .32]
Lagged								
Extraversion	33	8,058	.14	.09	.16	.07	[.12, .19]	[.07, .24]
Agreeableness	25	5,515	.05	.09	.06	.07	[.02, .11]	[-.03, .15]
Conscientiousness	30	8,071	.13	.09	.15	.08	[.11, .20]	[.05, .26]
Emotional Stability	24	5,851	.09	.09	.10	.07	[.05, .15]	[.01, .20]
Openness	23	5,978	.09	.09	.11	.07	[.07, .16]	[.02, .20]
Leader effectiveness								
Type of organization								
Education								
Extraversion	14	2,454	.07	.09	.08	.06	[.02, .13]	[.003, .15]
Agreeableness	14	2,531	.12	.12	.13	.12	[.04, .23]	[-.02, .28]
Conscientiousness	14	2,224	.16	.15	.18	.15	[.06, .30]	[-.01, .37]
Emotional Stability	9	1,785	.02	.12	.02	.11	[-.08, .13]	[-.12, .16]
Openness	10	1,835	.05	.11	.06	.09	[-.03, .15]	[-.06, .18]

(Appendix continues)

Appendix (continued)

Moderator categories	<i>k</i>	<i>N</i>	\bar{r}	SD_r	$\hat{\rho}$	$SD_{\hat{\rho}}$	95% CI	80% CV
Business								
Extraversion	46	26,400	.07	.08	.08	.07	[-.01, .16]	[-.02, .17]
Agreeableness	35	24,636	.09	.05	.12	.04	[.07, .17]	[.06, .17]
Conscientiousness	44	24,433	.07	.07	.08	.07	[.005, .16]	[-.005, .16]
Emotional Stability	35	8,886	.09	.08	.10	.06	[.05, .16]	[.02, .19]
Openness	36	9,395	.13	.09	.16	.08	[.10, .21]	[.06, .25]
Military								
Extraversion	20	7,993	.21	.14	.23	.15	[.14, .33]	[.04, .42]
Agreeableness	15	6,925	.13	.11	.16	.12	[.07, .24]	[.01, .30]
Conscientiousness	18	6,309	.19	.14	.23	.15	[.13, .32]	[.03, .42]
Emotional Stability	21	8,542	.10	.13	.12	.14	[.03, .20]	[-.06, .30]
Openness	11	3,840	.14	.16	.17	.19	[.02, .33]	[-.07, .41]
Hierarchical level								
Lower level supervisors								
Extraversion	29	10,698	.17	.14	.19	.14	[.12, .26]	[.01, .37]
Agreeableness	22	9,327	.12	.10	.14	.11	[.08, .20]	[.00, .28]
Conscientiousness	27	8,745	.15	.13	.18	.14	[.10, .25]	[-.004, .35]
Emotional Stability	28	10,750	.10	.13	.11	.14	[.04, .19]	[-.07, .29]
Openness	14	5,623	.10	.15	.12	.17	[.01, .23]	[-.09, .34]
Middle managers								
Extraversion	5	686	.18	.10	.21	.05	[.10, .31]	[.14, .27]
Agreeableness	5	686	.06	.08	.07	.00	[-.02, .16]	[.07, .07]
Conscientiousness	5	686	.21	.11	.24	.10	[.11, .37]	[.11, .37]
Emotional Stability	7	923	.17	.10	.20	.06	[.10, .29]	[.12, .28]
Openness	7	1,022	.11	.12	.13	.11	[.02, .25]	[-.003, .27]
Upper level leaders								
Extraversion	17	4,386	.16	.08	.17	.06	[.10, .25]	[.10, .24]
Agreeableness	11	3,382	.09	.07	.12	.05	[.04, .19]	[.06, .17]
Conscientiousness	12	3,351	.05	.12	.06	.13	[-.13, .25]	[-.10, .22]
Emotional Stability	9	3,173	.06	.09	.07	.09	[-.08, .21]	[-.05, .18]
Openness	13	4,081	.18	.08	.21	.07	[.11, .30]	[.12, .30]
Study setting								
Organizational								
Extraversion	75	35,270	.10	.11	.11	.11	[.01, .22]	[-.03, .26]
Agreeableness	57	32,374	.10	.08	.13	.08	[.07, .20]	[.04, .23]
Conscientiousness	70	31,588	.09	.11	.11	.11	[.01, .21]	[-.03, .26]
Emotional Stability	63	18,308	.10	.12	.12	.12	[.07, .17]	[-.03, .27]
Openness	55	14,081	.14	.12	.17	.12	[.11, .23]	[.01, .33]
Classroom								
Extraversion	8	1,837	.05	.04	.05	.00	[.004, .10]	[.05, .05]
Agreeableness	9	1,947	.08	.11	.08	.10	[-.02, .18]	[-.05, .22]
Conscientiousness	8	1,607	.13	.11	.15	.10	[.04, .26]	[.02, .28]
Emotional Stability	5	1,303	-.02	.10	-.02	.09	[-.13, .09]	[-.13, .10]
Openness	5	1,303	-.00	.05	-.00	.00	[-.06, .06]	[-.001, -.001]
Social complexity								
Low social complexity								
Extraversion	63	28,718	.09	.11	.09	.11	[-.02, .21]	[-.04, .23]
Agreeableness	47	26,595	.10	.08	.13	.08	[.05, .22]	[.02, .24]
Conscientiousness	63	28,210	.09	.11	.11	.12	[-.01, .22]	[-.04, .26]
Emotional Stability	54	12,523	.12	.12	.14	.11	[.07, .20]	[-.01, .28]
Openness	47	10,574	.14	.13	.17	.13	[.09, .25]	[.01, .33]
High social complexity								
Extraversion	23	8,731	.15	.11	.17	.11	[.10, .23]	[.03, .31]
Agreeableness	22	8,068	.11	.07	.13	.06	[.08, .17]	[.05, .21]
Conscientiousness	18	5,327	.14	.09	.16	.09	[.10, .23]	[.05, .27]
Emotional Stability	16	7,345	.06	.12	.07	.12	[-.01, .15]	[-.09, .22]
Openness	15	5,067	.10	.11	.12	.11	[.04, .21]	[-.02, .26]
Publication type								
Dissertation/theses								
Extraversion	24	18,431	.06	.05	.06	.04	[.004, .12]	[.02, .11]
Agreeableness	19	17,873	.09	.05	.11	.04	[.04, .18]	[.06, .17]
Conscientiousness	21	18,077	.06	.06	.08	.06	[-.01, .16]	[.005, .15]
Emotional Stability	17	3,022	.10	.11	.12	.10	[.04, .19]	[-.01, .24]
Openness	15	2,620	.06	.14	.07	.13	[-.03, .18]	[-.09, .24]
Journal articles								
Extraversion	62	19,018	.15	.13	.17	.14	[.10, .23]	[-.01, .34]
Agreeableness	50	16,790	.12	.10	.15	.10	[.10, .20]	[.02, .27]
Conscientiousness	60	15,460	.14	.14	.16	.14	[.09, .23]	[-.02, .34]
Emotional Stability	53	16,846	.09	.12	.11	.12	[.05, .17]	[-.05, .26]
Openness	47	13,021	.14	.11	.17	.12	[.11, .24]	[.02, .32]

(Appendix continues)

Appendix (continued)

Moderator categories	<i>k</i>	<i>N</i>	\bar{r}	<i>SD_r</i>	$\hat{\rho}$	<i>SD_ρ</i>	95% CI	80% CV
Validated versus nonvalidated personality measure								
Validated								
Extraversion	66	31,274	.09	.09	.10	.08	[.02, .18]	[-.005, .21]
Agreeableness	55	29,672	.09	.06	.12	.06	[.06, .17]	[.04, .19]
Conscientiousness	62	29,813	.08	.09	.10	.09	[.01, .18]	[-.02, .22]
Emotional Stability	53	14,797	.09	.10	.10	.09	[.05, .15]	[-.01, .22]
Openness	53	13,925	.12	.11	.14	.11	[.08, .20]	[.002, .28]
Nonvalidated								
Extraversion	20	6,175	.15	.18	.17	.19	[.03, .30]	[-.08, .41]
Agreeableness	14	4,991	.18	.12	.20	.12	[.10, .30]	[.05, .35]
Conscientiousness	19	3,724	.22	.17	.24	.18	[.12, .36]	[.01, .47]
Emotional Stability	17	5,071	.11	.17	.13	.18	[.001, .25]	[-.10, .35]
Openness	9	1,716	.23	.16	.26	.17	[.13, .39]	[.04, .48]
Rating source of leader personality								
Leader self-report								
Extraversion	77	36,626	.10	.11	.11	.11	[.01, .20]	[-.03, .25]
Agreeableness	62	33,862	.10	.07	.13	.07	[.07, .18]	[.04, .21]
Conscientiousness	72	32,635	.09	.09	.11	.09	[.03, .18]	[-.01, .22]
Emotional Stability	62	19,001	.09	.11	.10	.11	[.05, .15]	[-.04, .24]
Openness	56	15,044	.13	.11	.15	.11	[.09, .21]	[.005, .30]
Non self-report								
Extraversion	5	412	.22	.10	.26	.00	[.15, .37]	[.26, .26]
Agreeableness	5	585	.38	.13	.43	.12	[.30, .56]	[.27, .58]
Conscientiousness	5	491	.46	.15	.51	.15	[.34, .67]	[.31, .70]
Emotional Stability	5	514	.27	.15	.31	.13	[.15, .46]	[.14, .48]
Openness	4	381	.34	.15	.37	.12	[.21, .53]	[.22, .53]
Rating source of leadership								
Subordinate								
Extraversion	19	2,315	.11	.13	.13	.11	[.05, .21]	[-.01, .27]
Agreeableness	15	2,063	.18	.15	.22	.15	[.12, .32]	[.03, .41]
Conscientiousness	20	1,754	.23	.17	.27	.15	[.17, .37]	[.07, .46]
Emotional Stability	17	1,911	.12	.09	.14	.00	[.09, .19]	[.14, .14]
Openness	15	1,581	.21	.14	.25	.13	[.16, .35]	[.09, .41]
Skip-level supervisor								
Extraversion	29	8,185	.14	.08	.16	.06	[.12, .20]	[.08, .24]
Agreeableness	21	6,603	.09	.08	.11	.06	[.06, .16]	[.03, .19]
Conscientiousness	26	5,997	.13	.10	.15	.09	[.10, .21]	[.03, .27]
Emotional Stability	25	7,877	.06	.10	.07	.09	[.02, .13]	[-.04, .19]
Openness	19	3,874	.05	.09	.07	.06	[.02, .12]	[-.01, .14]
Observer								
Extraversion	8	3,723	.16	.06	.18	.05	[.10, .25]	[.11, .24]
Agreeableness	5	2,939	.11	.06	.12	.05	[.03, .21]	[.05, .18]
Conscientiousness	6	2,989	.04	.12	.05	.13	[-.18, .27]	[-.13, .22]
Emotional Stability	5	2,952	.09	.10	.10	.10	[-.07, .28]	[-.03, .23]
Openness	7	3,692	.19	.04	.22	.00	[.18, .25]	[.21, .21]
Mixed or unclear								
Extraversion	24	21,856	.08	.12	.09	.12	[-.08, .25]	[-.07, .25]
Agreeableness	23	21,785	.10	.07	.14	.07	[.04, .23]	[.04, .23]
Conscientiousness	23	21,427	.08	.09	.10	.10	[-.03, .23]	[-.03, .23]
Emotional Stability	18	5,933	.16	.13	.18	.14	[.07, .29]	[.003, .36]
Openness	17	5,398	.15	.14	.17	.15	[.06, .29]	[-.01, .36]
Peer								
Extraversion	5	1,310	.06	.08	.07	.05	[-.01, .15]	[.01, .13]
Agreeableness	4	1,213	.06	.03	.06	.00	[.001, .13]	[.06, .06]
Conscientiousness	5	1,310	.11	.08	.13	.06	[.03, .22]	[.04, .21]
Emotional Stability	4	1,135	-.03	.11	-.03	.10	[-.17, .11]	[-.16, .10]
Openness	3	1,036	.01	.03	.01	.00	[-.06, .08]	[.01, .01]
Common source								
Common source								
Extraversion	6	1,275	.04	.09	.05	.07	[-.04, .13]	[-.04, .13]
Agreeableness	8	1,512	.18	.21	.20	.23	[.01, .39]	[-.09, .50]
Conscientiousness	7	1,385	.19	.21	.20	.21	[.01, .39]	[-.07, .48]
Emotional Stability	7	1,408	.11	.17	.13	.18	[-.03, .29]	[-.10, .35]
Openness	6	1,275	.15	.16	.17	.16	[.01, .32]	[-.04, .37]
Noncommon source								
Extraversion	80	36,174	.10	.11	.11	.11	[.02, .21]	[-.03, .26]
Agreeableness	61	33,151	.10	.07	.13	.06	[.08, .18]	[.05, .20]
Conscientiousness	74	32,152	.09	.10	.11	.11	[.02, .20]	[-.02, .25]
Emotional Stability	63	18,460	.09	.11	.11	.11	[.05, .16]	[-.04, .25]
Openness	56	14,366	.13	.12	.15	.12	[.09, .22]	[-.00, .31]

(Appendix continues)

Appendix (continued)

Moderator categories	<i>k</i>	<i>N</i>	\bar{r}	SD_r	$\hat{\rho}$	$SD_{\hat{\rho}}$	95% CI	80% CV
Cross-sectional versus time-lagged								
Cross-sectional								
Extraversion	63	28,886	.09	.11	.09	.11	[-.02, .21]	[-.04, .23]
Agreeableness	47	26,354	.10	.08	.13	.08	[.05, .22]	[.02, .24]
Conscientiousness	61	26,819	.09	.12	.11	.12	[-.02, .23]	[-.05, .27]
Emotional Stability	51	11,476	.11	.13	.13	.13	[.06, .21]	[-.03, .29]
Openness	45	10,653	.15	.12	.18	.12	[.11, .26]	[.03, .33]
Lagged								
Extraversion	22	8,443	.16	.10	.18	.10	[.11, .24]	[.04, .31]
Agreeableness	21	8,189	.11	.07	.12	.07	[.08, .17]	[.04, .21]
Conscientiousness	19	6,598	.13	.07	.15	.06	[.11, .20]	[.08, .22]
Emotional Stability	19	8,392	.07	.10	.08	.10	[.01, .14]	[-.05, .21]
Openness	16	4,868	.08	.11	.09	.11	[.01, .18]	[-.06, .24]

Note. *k* = number of primary study samples; *N* = total sample size; \bar{r} = sample-size weighted mean observed correlation; SD_r = sample-size weighted standard deviation of observed correlations across studies; $\hat{\rho}$ = estimated mean correlation corrected for unreliability in predictor and criterion; $SD_{\hat{\rho}}$ = estimated standard deviation of true-score correlations; 95% CI = 95% confidence interval; 80% CV = 80% credibility interval.

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