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Special Issue Article

Interactive effects of levels of individualism–collectivism on cooperation: A meta-analysis

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Summary We examined the interactive effects of levels of individualism–collectivism (I–C) on cooperation at work by meta-analytically combining results obtained from 201 studies, representing 225 independent samples. I–C was operationalized at the individual, organizational, and societal levels of analyses. Cooperation was conceptualized at both individual and group levels of analysis. Both cooperative behavior and performance were included as outcomes. The correlation between individual-level I–C and cooperation/performance was stronger in collectivistic as opposed to individualistic societies. Similarly, the correlation between organizational-level I–C and cooperation was stronger in collectivistic societies. Results also indicated that individual-level and organizational-level I–C, but not societal-level I–C, were moderately related to study outcomes. Examination of other potential moderators indicated that neither study setting, I–C dimensionality, nor performance measurement type (objective vs subjective measures) altered these relations. However, a conceptual match between I–C and cooperation was a moderator such that effect sizes were generally larger when I–C and outcomes were both measured at the same level of analysis. Overall, our results indicate that I–C is both theoretically and empirically distinct across the various levels of analyses and that it may be a better predictor of outcomes in collectivistic as opposed to individualistic societies. Copyright © 2013 John Wiley & Sons, Ltd.

Keywords: individualism; collectivism; cooperation; levels of analyses; meta-analysis

Cooperation at work is an essential component for both overall organizational success (Barnard, 1938) and optimal organizational performance in a global economy (Gratton, 2005). As noted by Nardon and Steers (2009), individualism–collectivism (I–C) is one of four major cultural constructs that have guided theory and organizational and management research on culture and is a key determinant of criteria that are of organizational importance. Broadly defined as a cultural construct reflecting the extent to which people in a society value working together to achieve collective goals (Hofstede, 1980/2001), I–C has increasingly gained popularity in the literature as a meaningful way to distinguish societies and their people (Oyserman, Coon, & Kemmelmeier, 2002). However, there is wide variation in the way I–C is operationalized across studies and sparse research on potential relations between these levels.

Hofstede (1980/2001) originally conceptualized I–C as a societal-level construct. However, several decades on, conceptualization of the I–C construct has expanded and resultantly become less clear. Some researchers considered I–C to be a cultural characteristic of societies (e.g., Brett & Okumura, 1998; Oetzel, 1998; Parks & Vu, 1994; Pearson & Stephan, 1998); others considered it to be an individual characteristic (e.g., Chatman and Barsade, 1995; Earley, 1989; Probst, Carnevale, & Triandis, 1999; Wagner, 1995); some examined it as an organization-level construct (e.g., Erez & Somech, 1996; Kirkman & Shapiro, 2000; Tjosvold, 1983). From a construct validity perspective, this is problematic because a construct cannot be clearly defined if its level of analysis is not clearly determined (Shadish, Cook, & Campbell, 2002). Clarification regarding this matter, then, can inform theory building regarding I–C.

More importantly, because individuals interact within organizations that themselves are situated within societies, a lack of clarity regarding potential interactions between levels of I–C can also limit our understanding of the

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relations between I–C and cooperation. Although there is much research on the relations between I–C (at all three levels) and cooperation, the vast majority of such research has studied these relations separately and without consideration of interplay between these levels of analysis. That is, the two higher levels of I–C (organizational and societal) can be viewed as potentially moderating situational factors altering relations between I–C (at any particular level) and cooperation, because situational factors exert powerful effects within cultures that can radically change baseline cultural tendencies (Gelfand, Erez, & Aycan, 2007; Yamagishi, 2010). By the same token, studying the impact of I–C as a cultural dimension on cooperative behavior requires taking into account the potential effects of individual-level and group-level moderators; understanding these moderating influences allows us to determine *when* culture makes a difference (Gibson, Maznevski, & Kirkman, 2009).

The few primary studies explicitly examining this issue have produced mixed results. Gelfand and Realo (1999) found that high accountability (an organizational practice that can be seen as an embodiment of organizational-level I–C, whereby collectivistic organizations place accountability with groups [low accountability] and individualistic organizations place accountability with individuals [high accountability]) enhanced cooperation among collectivists. Conversely, Chatman and Barsade (1995) found that collectivists behaved uncooperatively when placed in organizations where an individualistic culture dominated. Nguyen, Le, and Boles (2010) found that cooperation in collectivistic organizations embedded in collectivistic societies was less likely relative to that in individualistic societies.

From the preceding, it can be seen that there is little primary research into this topic, and the research that does exist has yielded inconclusive and sometimes counterintuitive results, raising questions regarding the role of study-specific artifacts. Thus, there is a clear need in the literature for a synthesis explicitly targeted at understanding the interactive relations between individual, organizational, and societal levels of I–C and cooperation. With the accumulation of research findings over almost three decades since the formal conception of the I–C construct by Hofstede (1980/2001), the time is ripe for such a systematic investigation. The current study fills this void in the literature by means of meta-analyses.

Individualism and Collectivism

Individualism–collectivism refers to dual cultural worldviews, whereby Individualism is typified by loose ties between individuals, self-reliance, and the formation of tendencies to separate, isolate, and alienate the self, the urge to master one's environment and emphasize the self over the collective. Conversely, Collectivism refers to norms that emphasize the group over the individual, where people are congenitally integrated into strong, cohesive in-groups, and is manifested in the formation of tendencies toward contact, openness, and union, and emphasizes the collective over the self (Bakan, 1966; Hofstede, 1980/1991; Markus & Kitayama, 1991; Tonnies, 1887/2002; Triandis, 1995). Essentially, I–C delineates a distinction between the individual and the collective—independence versus interdependence, individual versus group goals, self-enhancement versus group enhancement, and competition versus cooperation. Summarizing the literature, Triandis (1995) identified four attributes that define I–C: (1) conceptions of the self; (2) goal relationships; (3) relative importance of attitudes and norms; and (4) emphasis on relationships. Hence, individualists define the self as autonomous, place personal goals ahead of group goals, exhibit attitude-driven behavior, and are task oriented. Conversely, collectivists view the self in terms of how connected they are to in-groups, subordinate personal goals to collective goals, exhibit norm-driven behavior, and are relationship oriented.

Levels of individualism–collectivism

Societal-level individualism–collectivism

As a societal/cultural-level construct, I–C reflects the shared meaning system that characterizes a culture (Erez & Gati, 2004; Gelfand, Bhawuk, Nishii, & Bechtold, 2004). Hofstede (1980/2001) originally defined I–C as a

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characteristic of a society: "Individualism pertains to *societies* in which the ties between individuals are loose: everyone is expected to look after himself or herself and his or her immediate family. Collectivism as its opposite pertains to *societies* in which people from birth onward are integrated into strong, cohesive ingroups, which throughout peoples' lifetime continue to protect them in exchange for unquestioning loyalty" (p. 51, italics added). By this conceptualization, I–C is explicitly tied to the values that are shared by individuals and groups within a society.

Individual-level individualism–collectivism

Although I–C was originally used to refer to characteristics of societies, I–C may also be used to distinguish between people with collectivistic and individualistic dispositions, respectively, independent of the societal culture in which they live. As Triandis (1995) noted, although individuals within a society are expected to display modal tendencies toward either individualism or collectivism, there are individualists and collectivists in every society, simply as a result of differing environmental influences and/or predispositions. Analogously, although some societies are rich and some are poor, there are poor and rich individuals within every society. For example, in his study of collectivists and individualists within an individualistic society (the United States), Wagner (1995) defined individualists as people who look after themselves and tend to ignore group interests if such interests conflict with their own personal desires, and collectivists as those who let the demands and interests of groups take precedence over their own personal desires and needs.

Triandis (1995) referred to this conceptualization of I–C at the individual level by coining the terms "idiocentrism" to denote personal predispositions toward individualism, and "allocentrism" to denote personal predispositions toward collectivism. Markus and Kitayama (1991) also alluded to this notion of I–C as an individual-level construct, with the notion that individuals are different in the way they view themselves as either being separate from or connected to their social environment (i.e., independent self-construal vs. interdependent self-construal). Thus, the concept of self-construal is a personal predisposition reflecting the self-related aspects of I–C (Oyserman et al., 2002).

Organizational-level individualism–collectivism

Organizational-level I–C is a dimension of organizational cultures (Gelfand et al., 2004; Robert & Wasti, 2002), which either emphasizes individualistic values of placing priority upon pursuing individuals' goals and rewarding members on the basis of their individual achievements, or highlights collectivistic values of prioritizing collective goals and rewarding members for joint contributions to organizational accomplishments (Chatman & Barsade, 1995; Earley & Gibson, 1993). As such, organizational-level I–C is embodied in the values and practices adopted by organizations (Calori & Sarnin, 1991; Gelfand & Christakopoulou, 1999). In collectivistic organizations, important decisions are made in groups, jobs are designed to maximize their social aspects, compensation and promotions are based on principles of equality, and accountability for organizational successes and failures rests within groups. Conversely, in individualistic organizations, important decisions are made individually, jobs are designed to maximize their individual aspects, compensation and promotions are based on principles of equity, and accountability rests with the individual (Gelfand et al., 2004). Robert and Wasti (2002) suggested that organizational practices provide "a common objective environment for the development of shared perceptions of individualism in organizational cultures" (pp. 549–550).

Providing support for the notion that organizational-level I–C is a midlevel construct distinct from societal-level and individual-level constructs, Leung and Ang (2009) highlighted the importance of studying both societal and institutional perspectives in global management research. The researchers further noted that although culture can be modeled as having both subjective (norms, values, and beliefs) and objective (structure, rules, and observable artifacts) components, research within the culture/societal-perspective tradition tends to focus on the former, and institutional/organizational-perspective research largely focuses on the latter. Accordingly, in the current study, we define and operationalize I–C at the organizational level as organizational practices, structures, norms, and/or values that endorse either collectivistic or individualistic principles.

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Cooperation

Chen, Chen, and Meindl (1998) identified three approaches for defining cooperation, including the following: (i) cooperation as psychological motives; (ii) cooperation as social relations and situations; and (iii) cooperation as behaviors. The first approach, psychological motives, focuses on motives or intentions of working toward a collective goal by two or more individuals. The second approach refers to the nature of relations that exist between the goals of individuals in social situations. Finally, the third approach broadly defines cooperation as any collective activity involving two or more persons. Chen et al. focused on the third approach in their discussion on how I–C could foster cooperative behaviors in organizations. Following these authors, we adopt the behavioral approach and define cooperation as actual behaviors carried out by a person that are directed toward helping members perform in-role duties or involve working with other workgroup members toward a shared goal. Some examples of these include sharing of information to workgroup members (Brett & Okumura, 1998), a demonstration of effort to help group members at a task (Earley, 1993), or team-oriented organizational citizenship behaviors (Cohen, 2005). As such, our definition of cooperation at work includes the voluntary form of cooperative behaviors in groups.

Additionally, to better understand the effect of I–C, we extend the conceptualization of cooperation by examining performance as the more distal outcome of I–C. Performance is the most widely studied and among the most relevant of organizational outcomes to decision makers (Motowidlo, 2003). Moreover, behavior immediately antecedes performance (Campbell, 1990). Thus, including performance allows us to better investigate the effect of I–C on outcomes of organizational importance. Performance here is operationalized to include both general performance and task performance. The latter is defined as performance on activities that contribute directly to creation and delivery of organizational goods and services (Motowidlo, 2003). Contextual performance is excluded because this construct includes behaviors that may be considered to be work-related cooperation (e.g., helping a teammate finish an assignment). Therefore, to avoid confounding cooperative behavior and performance, we focus only on performance regarding successful completion of job duties (e.g., supervisor-derived performance ratings, or number of points earned in a negotiation exercise).

Our conceptualization of cooperation therefore includes two "stages" of the construct ordered in accordance with their proximity from I–C in the causal chain, reflecting the potential relations between I–C and cooperation, ranging from behavior to performance. Because I–C has been found to predict both cooperation and performance (Jackson, Colquitt, Wesson, & Zapata-Phelan, 2006), it is intuitive to expect that the immediate behavioral consequent of work-related cooperation, performance, will also be affected by I–C. However, because cooperative behavior is the more proximal outcome of I–C, we expect higher correlations for IC-cooperative behavior than for IC-performance. Accordingly, we suggest the following hypothesis to examine such differential effects of I–C on these dependent variables.

Hypothesis 1: Individualism–collectivism will be more strongly correlated with cooperative behavior than with performance.

Finally, we conceptualize cooperation as both an individual-level phenomenon and as a group-level phenomenon. By "groups," we mean "two or more individuals who exist to perform organizationally relevant tasks, share one or more common goals, interact socially, exhibit task interdependencies, maintain and manage boundaries, and are embedded in an organizational context that sets boundaries and constraints, and influence exchanges with other units in the broader entity" (Kozlowski & Bell, 2003, p. 334). Although all different levels (societal, organizational, and individual) of I–C are likely to be related to both levels of the cooperation outcomes, it is intuitive to expect that the more closely matched the conceptual levels between I–C and the outcomes, the stronger their correlations will be. That is, conceptual matching of levels between I–C and outcomes may moderate the relations between these variables. For example, correlations between individual-level I–C and individual-level outcomes are likely to be stronger than those between organizational-level I–C and individual-level outcomes. By the same token, we expect

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stronger correlations between organizational-level I–C and group-level outcomes than between organizational-level I–C and individual-level outcomes.

Hypothesis 2: The conceptual match between levels of I–C and cooperation will moderate the relations between these variables.

Interactions Between Levels of Individualism–Collectivism and Outcomes

Chatman and Barsade (1995) found that collectivists behaved uncooperatively when placed in organizations where an individualistic culture dominated. Using follow-up qualitative responses gathered from collectivistic participants, they explained that collectivists were willing to adjust and make decisions on the basis of individualistic expectations regardless of their own preferences. These findings are consistent with the early work of Kelly and Stahelski (1970), who found that cooperators would shift to a competitive strategy when faced with a consistent competitor. That is, cooperators began by cooperating but changed their strategy.

The self-construal theory (Markus & Kitayama, 1991) provides a way to explain the interaction between individual-level I–C and societal culture. According to the theory, individuals with interdependent self-construals (collectivists) emphasize harmony within societal contexts and the fundamental connectedness of collectives. Individuals with independent self-construals, on the other hand, respond to the social context after first strategically determining how best to express or assert their individual attributes (Markus & Kitayama, 1991). As such, in a collectivistic societal or organizational culture, the difference in cooperative behavior between collectivistic individuals, who match their behaviors to fit the overarching normative systems, and individualistic individuals, who are unlikely to be affected by such systems, is likely to be larger than that in an individualistic culture where collectivistic individuals may adjust (down) their cooperative behaviors to match extraneous societal cues, whereas individualists' behaviors may remain less affected.

A phenomenon known as the cultural frog pond (introduced by Klein, Dansereau, & Hall, 1994, and discussed in Gelfand, Leslie, & Fehr, 2008) can similarly explain the interaction effect between societal and individual levels of I–C. Cultural frog pond refers to the difference/deviation in values, beliefs, and attitudes between individuals and the societies in which they live. This difference can determine certain patterns of behavior exhibited by these individuals. It can be seen that individualists living in collectivistic societies and collectivists living in an individualistic societies will similarly experience the differences between their own values and those of the societies they live in; this mismatch between the person and the environment has the potential to create dissonance (Gelfand et al., 2008).

However, collectivists value harmony with the social environment and would thus be more easily influenced by social norms (Triandis, 1995). Consequently, collectivists will feel stronger pressure to adjust their cooperative behaviors down to match the prevalent norms in individualistic societies. Conversely, individualists are less likely to respond to such pressure to conform to societal norms/values, and so their cooperative behaviors may be less easily influenced in collectivistic societies. Hence, the correlation between individual-level I–C and cooperation is likely to be stronger in collectivistic societies vis-à-vis individualistic societies.

Hypothesis 3: The correlation between individual-level I–C and cooperation in collectivistic societies will be stronger than that in individualistic societies.

In the one study where the interactive effects of societal-level and organizational-level I–C and cooperation were explicitly studied, Nguyen, Le, and Boles (2010) found that organizational-level I–C was more strongly related to cooperation in an individualistic society (the United States) than in a collectivistic society (Vietnam). Discussing this *post hoc* finding, the authors speculated that collectivistic societies, as compared with individualistic societies, place stronger demands upon conformity to societal norms, and such societal "pressure" may thereby attenuate the effects

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of organizational-level I–C on cooperation in collectivistic societies, resulting in weaker effects of organizational-level I–C on individuals' cooperation in collectivistic as opposed to individualistic societies.

Alternatively, it could also be argued that collectivistic societies, characterized by strong normative systems that value conformity and harmony (Hofstede, 1980/2001; Triandis, 1995) incline members to adhere to all norms, and not just societal norms. Therefore, it is possible that in a collectivistic organization, members of a collectivistic society would adhere to the organizational norm of collectivism (hence, the collectivistic organizational norm may be strengthened in a collectivistic society). Conversely, when placed in an individualistic organization, members of a collectivistic society would be inclined to conform to the individualistic norm instead and thereby behave less cooperatively. Members of an individualistic society, on the other hand, may be more inclined to behave in accordance with their respective values, and without regard to the organizational culture.

The preceding reasoning is supported by social niche construction theory (Yamagishi, 2010). The social niche approach to culture argues that individuals utilize culturally shared beliefs to derive expected responses from others, and encourage each other to behave according to what is deemed natural by these shared beliefs (Yamagishi, 2010). The unintended consequences of these behaviors serve to constrain and provide incentive for other individuals in the environment; the social niche is constructed by the aggregate of actions and consequences of all individuals in the environment (Yamagishi, 2010). Social niche construction theory predicates that individuals in collectivistic cultures, where strong societal and institutional arrangements direct individual behavior, are less likely to trust that others would behave in such a socially accepted way in the absence of those social constraints. Specifically, it is predicted that individuals in collectivistic societies would in fact behave individualistically if societal mechanisms guaranteeing group equilibrium and harmony were removed (Yamagishi, 2010). Consistent with this prediction, it was found that Japanese responders (a collectivistic society) perceived others to be less trustworthy than their more individualistic European or North American counterparts (Yamagishi, 2010). Accordingly, it is possible that in an individualistic organization within a collectivistic society, where (collectivistic) societal constraints are weakened or partially removed by contradicting organizational values and norms, individuals may behave less cooperatively than those in a similar individualistic organization within an individualistic society. Hence, the effect of organizational-level I–C is likely to be stronger in a collectivistic society than it is in an individualistic society.

Hypothesis 4: The correlation between organizational-level I–C and cooperation will be stronger in collectivistic societies than in individualistic societies.

The hypothesized interactive effects of levels of I–C on cooperation (Hypotheses 3 and 4) are illustrated in Figure 1. Because of a dearth of studies examining both organizational and individual levels of I–C, we were unable to study this two-way interaction. A lack of usable studies also precluded us from studying the potential three-way interaction between all three levels of I–C. Thus, we do not advance formal hypotheses in this regard.

Dimensionality of individualism–collectivism

Dimensionality of societal-level individualism–collectivism

As noted by Alderfer and Sims (2003, p. 598), Hofstede's original conceptualization of I–C has largely been defined unidimensionally, as "the notion of a *continuum* of cultures that places individualism at one end and collectivism on the other" (italics added). However, arguments for a multidimensional conceptualization of this construct have gained currency (Oyserman et al., 2002). One such multidimensional conceptualization was developed as part of the Global Leadership and Organizational Behavior Effectiveness project (House, Hanges, Javidan, Dorfman, & Gupta, 2004) by Gelfand et al. (2004), including institutional collectivism and in-group collectivism. Institutional collectivism reflects "the degree to which institutional practices at the societal level encourage and reward collective action"; in-group collectivism indicates "the degrees to which individuals express pride, loyalty, and interdependence in their families" (p. 463).

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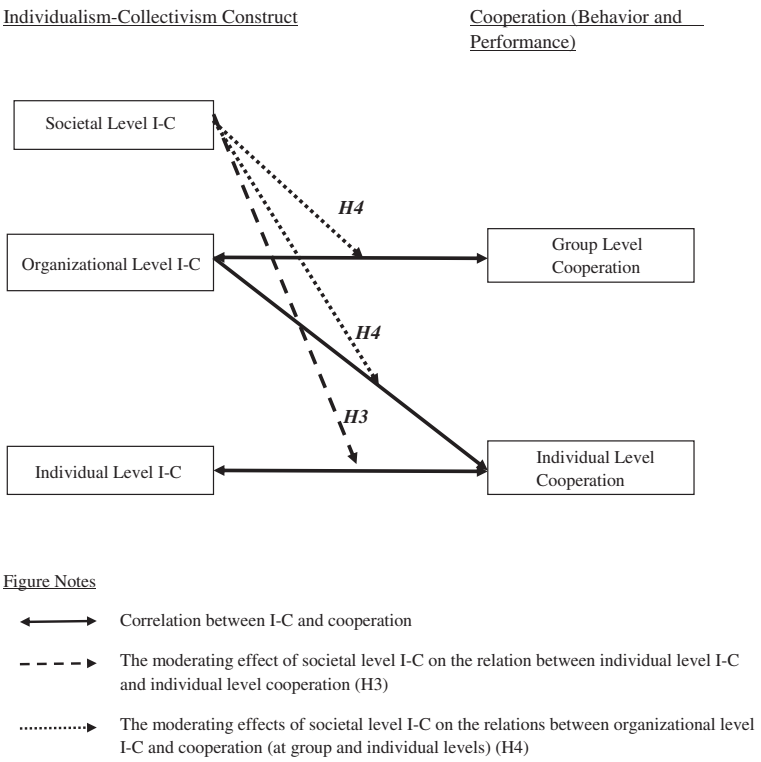

Figure 1. Hypothesized interactive effects of levels of individualism–collectivism (I–C) on cooperation

Hence, institutional collectivism reflects societal norms at an established and national level of abstraction, whereas in-group collectivism reflects the norms displayed by smaller collectives. It is therefore conceivable that the relation between societal-level I–C and cooperation may vary across different dimensions of the I–C construct. In the absence of strong theory, we do not propose a formal hypothesis for dimensionality of societal-level I–C. Instead, in the current study, we examine the two aforementioned dimensions of societal-level I–C as a potential moderator of the effect of I–C on cooperation.

Dimensionality of organizational-level individualism–collectivism

Organizational-level I–C has mainly been operationalized as a bipolar construct (e.g., Chatman & Barsade, 1995; Eby & Dobbins, 1997; Morris, Avila, & Allen, 1993) in which organizations are characterized as either individualistic or collectivistic. More recently, Robert and Wasti (2002) suggested that organizational-level I–C should be considered as a multidimensional construct with individualism being independent of collectivism. Nevertheless, these two factors were found to be highly correlated at the organizational level (Robert & Wasti, 2002). Unfortunately, there are too few studies operationalizing organizational-level I–C as a multidimensional construct to conduct any sort of meaningful meta-analysis.

Dimensionality of individual-level individualism–collectivism

Whereas some researchers considered individual-level I–C (or self-construal) to be a unidimensional bipolar construct (e.g., Chatman & Barsade, 1995), others have argued that individualism is actually independent of collectivism (e.g., Earley & Gibson, 1998; Nahum-Shani & Somech, 2011). In the current study, we examine both conceptualizations of the I–C construct to see if they are differentially related to the outcomes of interest. Given lack of theory, we do not provide a formal hypothesis here.

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Other moderators

Although not hypothesized, we also investigate the moderating effects of study setting and performance type. Specifically, we investigate the differences between both lab-based and field-based studies on the I–C/cooperation relation at all three levels of I–C. If no differences are found, it can then be concluded that lab-based results generalize to the field. This is an important issue to consider, because laboratory-based research has long been criticized on grounds of artificiality and ephemerality (cf., Dipboye & Flanagan, 1979). Additionally, we investigate differences between objective and subjective measures of performance to examine whether results generalize across different types of performance measures.

Method

Literature search

We conducted an electronic literature search (updated in March 2011), using "EBSCO" host, which includes 13 separate electronic databases: "Academic Search Premier," "Business Source Premier," "Communication & Mass Media Complete," "Dissertation Abstracts International," "ERIC," "Historical Development Collection," "Hospitality & Tourism Complete," "Human Resource Abstracts," "Mental Measurements Yearbook," "Military & Government Collection," "Professional Development Collection," "PSYCArticles," and "PSYCInfo." The following keyword search string was used: "(Collectivism OR Collectivistic OR Individualism OR Individualistic) AND (co-operation OR cooperation OR co-operative behavior OR cooperative behavior OR teamwork OR performance OR conflict OR collaborative behavior OR collaboration OR teams OR collaborative OR cooperative OR co-operative OR competitive)." We supplemented our electronic database search by doing the following: (i) scanning the "References" sections of 12 other literature reviews (both quantitative and qualitative) on topics related to our study; (ii) scanning the "References" sections of some 50 other relevant articles; (iii) searching the last 3 years of conference submissions to the Society for Industrial and Organizational Psychology (SIOP) and Academy of Management and contacting authors for relevant articles; (iv) emailing the organizational behavior and human resource Listservs to call for unpublished research on I–C and performance/cooperation at all three levels of analysis; (v) placing the same call for research on the "Announcements" section of the SIOP website (www.siop.org); and (vi) searching a database consisting of 1057 articles from the teams literature. In all, we identified over 4000 articles.

Criteria for inclusion

We excluded articles sampling nonadult human populations. Non-English articles were included, but only if English-language translations were available. We included only empirical studies that provided the zero-order correlation between the variables of interest, r, or other statistics that could be converted into a zero-order correlation (i.e., Cohen's d, means and standard deviations by group, t, F [for one-way analyses of variance], and sums of squares for factorial ANOVAs). Only studies examining relations between I–C and relevant outcomes at work (for field studies) or work-simulated contexts (for lab studies) were included.

For inclusion at the societal level, data regarding the cooperation outcomes were minimally required from one individualistic group and one collectivistic group, in order to obtain zero-order correlations. Such groups could contrast one or more individualistic societies to one or more collectivistic societies (e.g., Wade-Benzoni, Okumura, Brett, Moore, Tenbrunsel and Bazerman, 2002; Pua, 2008) or individualistic and collectivistic communities within a larger society (e.g., Nahum-Shani and Somech, 2011). Determination of countries fitting as either individualistic or

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collectivistic were based upon Hofstede (1980/2001) rankings and Gelfand et al. (2004) rankings of in-group and institutional collectivism practices, for the respective analyses.

For inclusion at the individual level, I–C had to be measured as an individual difference variable. Measures fitting the previously discussed definition of I–C were retained for analyses and included I–C (e.g., Wagner, 1995), independent/interdependent self-construals (e.g., Gudykunst, Yoon, & Nishida, 1987), self-direction/conformity subdimensions of the Schwartz Values Survey (Parks, 2008), horizontal/vertical I–C (e.g., Moorman & Blakely, 1995); idiocentrism/allocentrism (e.g., Nahum-Shani & Somech, 2011), dominating versus integrating styles of conflict resolution (e.g., Jordan & Troth, 2004), team versus self-orientation (Watson, Johnson, & Merritt, 1998), relationship versus task-centeredness in negotiation (Pinkley & Northcraft, 1994), and social value orientation (e.g., van Lange & Liebrand, 1991).

For inclusion at the organizational level, studies had to operationalize either organizational values or practices that reinforced collectivistic/individualistic norms. A number of studies involved experimental manipulation of these norms by reinforcing either competitive (or independent) or cooperative (or interdependent) task, goal, feedback, or reward structures (e.g., Deutsch, 1949; Nguyen, Le, & Boles, 2010). Conversely, a number of studies involved direct measurement of these norms. These included measures of perceived task, feedback, goal, and/or reward independence/interdependence (e.g., Glew, 1999; De Dreu & West, 2001); cooperative/competitive normative structures (e.g., Ng & Dyne, 2005); organizational collectivism/individualism (e.g., Cho and Faerman, 2010); social motives of the workgroup (Liebrand, 1984); group integration (Heuze, Reimbault, & Fontayne, 2006); workgroup motivational orientation (Weingart, Bennett, & Brett, 1993); group-level collectivistic/individualistic orientation (Eby & Dobbins, 1997); organizational reward structures (Lurey & Raisanghani, 2001); job versus relationship focus of the workgroup (Workman, 2005); and high versus low task accountability (e.g., Sosik, 1997).[1]

Using these criteria, we included a total of 201 studies (169 published articles, two conference submissions, one working paper, six papers under review or in press, and 23 unpublished dissertations) in the meta-analysis, yielding 225 independent samples. A full list of studies included in the meta-analyses is available upon request.

Coding procedure

Both authors coded a subset of 20 studies to evaluate the coding scheme and check for agreement. Any disagreements were settled through discussion. The authors then coded another subset of 20 studies to evaluate inter-rater reliabilities. Cohen's kappas were calculated; all kappas were above .70, evidencing acceptable inter-rater reliability. The first author then coded all remaining studies.

Meta-analytic method

We used the psychometric meta-analysis method (Hunter & Schmidt, 2004) to combine effect sizes (correlations between I–C and cooperation) across studies. This method enables corrections for measurement-based and statistical artifacts, providing more accurate estimates of construct-level relations between variables of interest. We corrected for the attenuating effect of measurement error using the artifact distribution correction approach (Hunter & Schmidt, 2004) because not every study provided information about measurement reliability. As demonstrated in past simulation studies (cf., Le & Schmidt, 2006), this approach provides accurate estimates

[1]As discussed in our conceptualization of organizational-level I-C, we consider any operationalizations that promote I–C structure, norms, practices, and/or values to be consistent with organizational-level I–C (Robert & Wasti, 2002). That is, in collectivistic organizations, important decisions are made in groups, jobs are designed to maximize their social aspects, compensation and promotions are based on principles of equality, and accountability for organizational successes and failures rests with groups. Hence, we included studies that manipulated/measured aspects of the workgroup to orient local organizational culture toward either collectivism or individualism as part of organizational-level I–C.

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of true correlations even when few primary studies (~25 percent) provide information about measurement artifacts. The "Correlation—Artifact Distribution Correction" routine in the Hunter–Schmidt meta-analysis program package (Schmidt & Le, 2004) was used for analyses. Reliability distributions were created separately for each construct conceptualization and level. Most reliability coefficients were alphas. Reliabilities were assumed to be 1.00 for manipulated and societal-level predictors and objective outcome measures. When a study included more than one effect size for different measures of a construct based upon the same sample, effect sizes were combined using formulas provided by Hunter and Schmidt (2004), if information needed for such estimation (i.e., intercorrelation matrix) was available. If information about intercorrelations between measures was not provided, we averaged the relevant correlations. If the I–C variable was dichotomized, point-biserial correlations were computed using available information.

Tabulation of results

For each meta-analysis, we report the mean observed correlation ($\overline{r}$) and its standard deviation (SD_r) and the mean true score correlation ($\overline{\rho}$) (corrected for measurement error in both variables) and its standard deviation (SD_ρ). Both confidence intervals (CIs) and credibility intervals are reported. Credibility intervals provide estimates regarding variability of the population of true score correlations, whereas CIs provide an estimate of the variability due to sampling error of the estimated mean true score correlation (Whitener, 1990). Credibility intervals can be used to determine the potential existence of a meaningful moderator (the larger the interval, the more likely that moderation occurred) or generalizability of findings (if a credibility interval does not cover the zero point, it would mean that most of the true correlations across studies have the same sign). Finally, we report the percentage of variance across studies attributable to study artifacts (*%V*), which can further provide information about moderation.

Results interpretation

Moderator analyses were only conducted when each of the subgroups included at least four studies ($k \geq 4$). This cutoff, although arbitrary, is necessary to alleviate the potential problem of second-order sampling error (Hunter & Schmidt, 2004). For moderator analyses, we followed Hunter and Schmidt's (2004) suggestion to directly compare the means of the true score correlations ($\overline{\rho}$) for the subgroups in a moderator. To facilitate interpretation, we follow Hunter and Schmidt's (2004) suggestion to examine if the 80 percent credibility intervals overlap. Thus, we do not consider subgroups as different when their credibility intervals substantially or completely overlap. We do this instead of submitting correlations to the Null Hypothesis Significance Test (NHST), to help prevent Type II errors that so often plague this method (Schmidt, 1992). Thus, we deliberately eschewed NHST methods commonly used to detect moderators in meta-analyses (e.g., *Q*-statistic), in order to not rely upon sample sizes and random sample variability in forming our conclusions, for the raison d'être of meta-analysis itself is to break free of dependence upon these factors, and to focus instead upon absolute effect sizes across meta-analytic subgroups (Hunter & Schmidt, 2004; Schmidt & Hunter, 2003).

Results

Reliability distributions are displayed in Table 1. Meta-analytic results for the main effects of all levels of I–C are presented in Tables 2 (for individual-level outcomes) and 3 (for group-level outcomes). For individual-level outcomes, 74 correlations were at the individual level of I–C, 84 were at the organizational level of I–C, and 41 were at the societal level of I–C. For group-level outcomes, 90 correlations were at the organizational level of I–C, and 15 were at the societal level of I–C. Sample sizes ranged from $N = 28$ to $N = 9594$ for individuals and from $N = 10$ to

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Table 1. Distributions of reliabilities.

Construct	Level	*k*	*M*	*SD*
Individualism–collectivism				
	Individual level	66	0.69	0.17
	Organizational level	63	0.72	0.17
Cooperative behavior				
	Individual level	43	0.76	0.17
	Group level	23	0.82	0.11
Performance				
	Individual level	39	0.77	0.19
	Group level	34	0.76	0.21

Note: *k* = number of studies; *M* = mean; *SD* = standard deviation.

N = 436 for teams. Positive correlations indicate that collectivists, collectivistic organizations, or collectivistic societies are more cooperative or perform better than individualists, individualistic organizations, or individualistic societies.

As shown in Table 2 for individual-level outcomes, individual-level I–C was positively correlated with both cooperative behavior ($\rho = 0.20$; $SD_\rho = 0.22$; 80%CI [−0.08, 0.48]) and performance ($\rho = 0.07$; $SD_\rho = 0.13$; 80%CI [−0.09, 0.13]); organizational-level I–C was also positively correlated with both cooperative behavior ($\rho = 0.21$; $SD_\rho = 0.32$; 80%CI [−0.20, 0.62]) and performance ($\rho = 0.14$; $SD_\rho = 0.30$; 80%CI [−0.24, 0.52]). Conversely, societal-level I–C was weakly but negatively correlated with both cooperative behavior ($\rho = -0.16$; $SD_\rho = 0.24$; 80%CI [−0.46, 0.15]) and performance ($\rho = -0.06$; $SD_\rho = 0.11$; 80%CI [−0.20, 0.07]). For group-level outcomes (as shown in Table 3), organizational-level I–C was positively correlated with both cooperative behavior ($\rho = 0.39$; $SD_\rho = 0.28$; 80%CI [0.03, 0.75]) and performance ($\rho = 0.20$; $SD_\rho = 0.27$; 80%CI [−0.15, 0.55]); as before, societal-level I–C was weakly correlated with both cooperative behavior ($\rho = 0.07$; $SD_\rho = 0.30$; 80%CI [−0.31, 0.45]) and performance ($\rho = -0.15$; $SD_\rho = 0.16$; 80%CI [−0.36, 0.05]).

Table 2. Relations between All Levels of I-C and Individual Level Outcomes.

Level of IC / Outcome	*k*	*N*	$\bar{r}$	SD_r	$\bar{\rho}$	SD_ρ	80% Credibility Interval *L*	80% Credibility Interval *U*	95% Credibility Interval *L*	95% Credibility Interval *U*	*V*%
Individual Level											
Behavior	39	9243	.14	.17	.20	.22	–.08	.48	.12	.28	17%
Performance	35	10,474	.05	.11	.07	.13	–.09	.23	.02	.12	27%
Organizational Level											
Behavior	38	6900	.15	.25	.21	.32	–.20	.62	.10	.32	10%
Performance	46	7593	.10	.23	.14	.30	–.24	.52	.05	.23	13%
Societal Level											
Behavior	25	17,294	–.14	.21	–.16	.24	–.46	.15	–.25	–.06	4%
Performance	16	15,466	–.05	.10	–.06	.11	–.20	.07	–.12	–.01	14%

Note. IC = Individualism/Collectivism; k = Number of studies; N = sample size; r = observed correlation coefficient; SDr = standard deviation of observed correlation coefficient; ρ = Mean true score correlation; SD_ρ = standard deviation of true score correlation; L = Lower Bound; U = Upper bound; %V = percentage of variance accounted for by all artifacts.

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Taken together, these results indicate that I–C was more strongly correlated with the two cooperation outcomes at the lower levels of the I–C construct (individual and organizational) than at the societal level. In fact, these latter correlations were very weak and (counterintuitively) negative. We discuss this unexpected finding in the discussion section. As evidenced by the pattern of true score correlation coefficients, I–C was more strongly correlated with the more proximal outcome, cooperative behavior, than with the more distal outcome, performance. These results support Hypothesis 1.

As shown in Tables 2 and 3, the pattern of results suggests that the more closely matched the levels of I–C and cooperation, the higher the correlations were. Thus, consistent with Hypothesis 2, there is evidence that the conceptual match between levels of I–C moderated relations between I–C and cooperation outcomes.

Interactive relations between levels of individualism–collectivism and cooperation

We hypothesized that societal-level I–C would moderate relations between lower levels of I–C and cooperation. Results of analyses examining these hypotheses are presented in Table 4.

Effects of societal level individualism–collectivism on the relations between individual-level individualism–collectivism and outcomes

As shown in Table 4, the mean true score correlation between individual-level I–C and cooperative behavior at the individual level is negative in collectivistic societies ($\rho = -0.11$; $SD_\rho = 0.34$; 80%CI [−0.54, 0.32]) but positive in individualistic societies ($\rho = 0.23$; $SD_\rho = 0.17$; 80%CI: −0.01, 0.47). The correlation between individual-level I–C and performance is positive and much larger in collectivistic societies ($\rho = 0.28$, $SD_\rho = 0.29$; 80%CI [−0.09, 0.65]) than in individualistic societies ($\rho = 0.05$, $SD_\rho = 0.11$; 80%CI [−0.09, 0.19]). Taken together, although the credibility intervals of these correlations substantially overlap, the pattern of these results indicates that correlations between individual-level I–C and cooperation/performance may depend upon societal-level I–C. However, only results for performance, which suggest that correlations are stronger in collectivistic societies, support Hypothesis 3. For behavior, results run opposite to Hypothesis 3. This may have been caused by sampling error associated with a relatively smaller sample size for analysis pertaining to cooperative behavior in collectivistic societies ($k = 5$, $N = 765$). In fact, a deeper examination of the studies constituting this subgroup revealed that one study may have skewed analyses ($r = -.69$, $N = 100$). Estimates based on the remaining four

Table 3. Relations between All Levels of I-C and Group Level Outcomes.

Level of IC / Outcome	*k*	*N*	$\bar{r}$	SD_r	$\bar{\rho}$	SD_ρ	80% Credibility Interval *L*	80% Credibility Interval *U*	95% Credibility Interval *L*	95% Credibility Interval *U*	*V*%
Organizational Level											
Behavior	29	1869	.30	.25	.39	.28	.03	.75	.27	.51	22%
Performance	61	3975	.15	.24	.20	.27	–.15	.55	.12	.28	29%
Societal Level											
Behavior	6	267	.06	.30	.07	.30	–.31	.45	–.21	.35	25%
Performance	9	700	–.14	.19	–.15	.16	–.36	.05	–.29	–.02	35%

Note. IC = Individualism/Collectivism; k = Number of studies; N = sample size; r = observed correlation coefficient; SDr = standard deviation of observed correlation coefficient; ρ = Mean true score correlation; SD_ρ = standard deviation of true score correlation; L = Lower Bound; U = Upper bound; %V = percentage of variance accounted for by all artifacts.

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Table 4. Interactions between Levels of I-C.

Level of IC / Type of Outcome / Societal IC	k	N	$\bar{r}$	SD_r	$\bar{\rho}$	SD_ρ	80% Credibility Interval L	80% Credibility Interval U	95% Confidence Interval L	95% Confidence Interval U	$V\%$
Individual level IC											
Behavior[a]											
Soc. Individualism	30	7536	.16	.15	.23	.17	–.01	.47	.15	.30	21%
Soc. Collectivism	5	765	–.08	.26	–.11	.34	–.54	.32	–.43	.21	10%
Performance[a]											
Soc. Individualism	28	8015	.04	.10	.05	.11	–.09	.19	–.00	.10	33%
Soc. Collectivism	6	1973	.21	.23	.28	.29	–.09	.65	–.02	.58	8%
Organizational level IC & Individual-level Outcomes											
Behavior[a]											
Soc. Individualism	31	5883	.14	.26	.18	.34	–.25	.62	.06	.31	9%
Soc. Collectivism	6	908	.24	.19	.33	.22	.04	.61	.13	.35	24%
Performance											
Soc. Individualism	40	6676	.10	.23	.13	.29	–.24	.49	.03	.22	11%
Soc. Collectivism	5	529	.11	.15	.15	.15	–.04	.35	.13	.22	41%
Organizational level IC & Group-level Outcomes											
Performance											
Soc. Individualism	55	3067	.16	.26	.22	.31	–.18	.61	.12	.31	27%
Soc. Collectivism	4	331	.20	.13	.27	.09	.16	.39	.09	.44	76%

Note. IC = Individualism/Collectivism; Soc. Individualism: Societal level Individualism; Soc. Collectivism: Societal level Collectivism. k = Number of studies; N = sample size; r = observed correlation coefficient; SDr = standard deviation of observed correlation coefficient; ρ = Mean true score correlation; SD_ρ = standard deviation of true score correlation; L = Lower Bound; U = Upper bound; %V = percentage of variance accounted for by all artifacts.

[a]= *Credibility intervals do not substantially overlap*.

studies with this potential outlier excluded indicated the resultant correlation to be essentially zero ($\rho = -0.01$, $\sigma = 0.12$, $N = 435$, 80%CI [−0.13, 0.14]).

Effect of societal level individualism–collectivism on the relations between organizational-level individualism–collectivism and outcomes

As shown in Table 4, the mean true score correlation between organizational-level I–C and individual-level cooperative behavior is higher in collectivistic societies ($\rho = 0.33$, $SD_\rho = 0.22$; 80%CI [0.04, 0.61]) than in individualistic societies ($\rho = 0.18$, $SD_\rho = 0.34$; 80%CI [−0.25, 0.62]). For performance, the correlations are not much different, as evidenced by a substantial overlap between credibility intervals ($\rho = 0.15$, $SD_\rho = 0.15$; 80%CI [−0.04, 0.35] for collectivistic societies; $\rho = 0.13$, $SD_\rho = 0.29$; 80%CI [−0.24, 0.49] for individualistic societies). The direction of the difference, however, is consistent with the hypothesized moderating effect of societal-level I–C. At the group level of the outcomes, results indicate that the correlation is slightly higher in collectivistic as opposed to individualistic societies ($\rho = 0.27$, $SD_\rho = 0.09$; 80%CI [0.16, 0.39] for collectivistic societies; $\rho = 0.22$, $SD_\rho = 0.31$; 80%CI [−0.18, 0.61] for individualistic societies) although the credibility intervals of these correlations substantially overlap. Taken together, these results provide mixed support for Hypothesis 4.

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Table 5. Multidimensional Conceptualizations of I-C.

Level of IC / Type of Outcome / Dimension	*k*	*N*	$\bar{r}$	SD_r	$\bar{\rho}$	SD_ρ	80% Credibility Interval *L*	80% Credibility Interval *U*	95% Confidence Interval *L*	95% Confidence Interval *U*	*V*%
Individual level IC											
Behavior											
Unidimensional	20	4807	.14	.20	.20	.27	–.14	.54	.08	.33	12%
Multidimensional	9	1715	.11	.15	.16	.17	–.06	.38	.02	.29	27%
Performance											
Unidimensional	15	4935	.03	.08	.04	.08	–.06	.15	–.02	.10	47%
Multidimensional	8	2398	.11	.11	.16	.12	.01	.31	.06	.26	35%
Institutional IC & Individual-level Outcomes											
Behavior	13	3495	–.03	.23	–.03	.30	–.42	.35	–.21	.14	7%
Performance	8	2418	–.02	.12	–.02	.11	–.17	.13	–.11	.07	23%
In-Group IC & Individual-level Outcomes											
Behavior	15	3721	.01	.29	.02	.36	–.44	.48	–.17	.21	5%
Performance	16	9690	–.15	.22	–.19	.27	–.54	.15	–.34	–.05	8%

Note. IC = Individualism/Collectivism; k = Number of studies; N = sample size; r = observed correlation coefficient; SDr = standard deviation of observed correlation coefficient; ρ = Mean true score correlation; SD_ρ = standard deviation of true score correlation; L = Lower Bound; U = Upper bound; %V = percentage of variance accounted for by all artifacts.

Dimensionality of individualism–collectivism

Results examining the potential moderating effects of I–C dimensionality are summarized in Table 5.

Societal level individualism–collectivism

As shown in Table 5, the mean true score correlation between institutional collectivism and cooperative behavior at the individual level ($\rho = -0.03$, $SD_\rho = 0.30$; 80%CI [−0.42, 0.35]) is not different from that of in-group collectivism ($\rho = 0.02$, $SD_\rho = 0.36$; 80%CI [−0.44, 0.48]). For the performance outcome at the individual level, the effect of institutional collectivism ($\rho = -0.02$, $SD_\rho = 0.11$; 80%CI [−0.17, 0.13]) is smaller and less negative than that of in-group collectivism ($\rho = -0.19$, $SD_\rho = 0.27$; 80%CI [−0.54, 0.15]). Taken together, these results provide inconclusive evidence regarding the moderating role of I–C dimensionality at the societal level on cooperative behavior, but provide some evidence regarding distinctiveness of Institutional and In-Group I-C in the prediction of task performance.

Individual-level individualism–collectivism

As shown in Table 5, the mean true score correlation between unidimensional measures of I–C and cooperative behavior at the individual level ($\rho = 0.20$, $SD_\rho = 0.27$; 80%CI [−0.14, 0.54]) is close to that for multidimensional measures ($\rho = 0.16$, $SD_\rho = 0.17$; 80%CI [−0.06, 0.38]). For performance, the mean true score correlation between unidimensional measures of I–C and performance at the individual level ($\rho = 0.04$, $SD_\rho = 0.08$; 80%CI [−0.06, 0.15]) is smaller than that for multidimensional measures ($\rho = 0.16$, $SD_\rho = 0.12$; 80%CI

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Table 6. Moderating Role of Setting.

Level of IC / Type of Outcome / Setting	*k*	*N*	$\bar{r}$	SD_r	$\bar{\rho}$	SD_ρ	80% Credibility Interval *L*	80% Credibility Interval *U*	95% Confidence Interval *L*	95% Confidence Interval *U*	*V*%
Individual level IC & Individual-level Outcomes											
Behavior											
Lab Studies	21	3575	.13	.23	.17	.30	–.21	.56	.04	.31	11%
Field Studies	17	5527	.16	.11	.22	.12	.06	.37	.15	.29	36%
Performance											
Lab Studies	11	2257	.09	.16	.13	.19	–.12	.37	–.00	.25	19%
Field Studies	24	8217	.04	.09	.05	.05	–.07	.17	.00	.10	36%
Organizational level IC & Individual-level Outcomes											
Behavior											
Lab Studies	23	3255	.09	.29	.13	.37	–.34	.60	–.03	.29	9%
Field Studies	14	3565	.20	.20	.28	.25	–.04	.60	.13	.42	14%
Performance											
Lab Studies	29	4393	.06	.22	.08	.29	–.29	.45	–.04	.19	14%
Field Studies	17	3200	.23	.29	.16	.22	–.15	.60	.08	.38	14%
Organizational level IC & Group-level Outcomes											
Behavior											
Lab Studies	14	796	.29	.21	.37	.22	.09	.65	.23	.51	36%
Field Studies	15	1073	.32	.28	.41	.10	–.00	.82	.23	.58	17%
Performance											
Lab Studies	26	1439	.16	.29	.22	.35	–.23	.67	.06	.37	22%
Field Studies	35	2536	.14	.20	.19	.21	–.08	.47	.10	.28	37%
Societal-level IC & Individual-level Outcomes											
Behavior[a]											
Lab Studies	16	3456	.08	.28	.10	.34	–.33	.53	–.07	.27	6%
Field Studies	8	13697	–.19	.15	–.24	.18	–.47	–.01	–.37	–.11	13%
Performance[a]											
Lab Studies	7	1298	.07	.14	.08	.14	–.10	.25	–.04	.20	30%
Field Studies	9	14168	–.06	.08	–.08	.09	–.19	.04	–.14	–.01	15%

Note. IC = Individualism/Collectivism; Soc. Individualism: Societal level Individualism; Soc. Collectivism: Societal level Collectivism. k = Number of studies; N = sample size; r = observed correlation coefficient; SDr = standard deviation of observed correlation coefficient; ρ = Mean true score correlation; SD_ρ = standard deviation of true score correlation; L = Lower Bound; U = Upper bound; %V = percentage of variance accounted for by all artifacts.

[a]= *Credibility intervals do not substantially overlap.*

[−0.01, 0.31]), but their credibility intervals substantially overlap. Overall, these results suggest that the effect of individual-level I–C on cooperation outcomes may generalize across both unidimensional and multidimensional measurements.

Other moderators

Study setting

Moderator results for setting are shown in Table 6. For individual-level I–C, there is no difference in correlations for cooperative behavior between lab studies ($\rho = 0.17$, $SD_\rho = 0.30$; 80%CI [−0.21, 0.56]) and

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field studies ($\rho = 0.22$, $SD_\rho = 0.12$; 80%CI [0.06, 0.37]). There is also not much difference in performance correlations between lab studies ($\rho = 0.13$, $SD_\rho = 0.19$; 80%CI [−0.12, 0.37]) and field studies ($\rho = 0.05$, $SD_\rho = 0.09$; 80%CI [−0.07, 0.17]) at the individual level of I–C. For organizational-level I–C and individual-level cooperation, the true score correlation based on lab studies ($\rho = 0.14$, $SD_\rho = 0.36$; 80%CI [−0.33, 0.60]) is lower than that based on field studies ($\rho = 0.28$, $SD_\rho = 0.25$; 80%CI [−0.04, 0.60]) studies. However, the credibility intervals of these correlations substantially overlap. Similarly, for organizational-level I–C and individual-level performance, the correlation for lab studies ($\rho = 0.07$, $SD_\rho = 0.27$; 80%CI [−0.27, 0.41]) is lower than that for field studies ($\rho = 0.21$, $SD_\rho = 0.27$; 80%CI [−0.14, 0.56]), but the credibility intervals also mostly overlap.

Where societal-level I–C is concerned, the correlation between lab studies and cooperative behavior is positive ($\rho = 0.10$, $SD_\rho = 0.34$; 80%CI [−0.33, 0.53]); this correlation is negative for field studies ($\rho = -0.24$, $SD_\rho = 0.18$; 80%CI [−0.47, −0.01]). Likewise, the correlation between societal-level I–C and performance is positive where lab studies are concerned ($\rho = 0.08$, $SD_\rho = 0.14$; 80%CI [−0.10, 0.25]) but negative for field studies ($\rho = -0.08$, $SD_\rho = 0.09$; 80%CI [−0.19, 0.04]). These results suggest that results may generalize across study setting for both individual and organizational levels of I–C but that the direction of the correlation may differ depending upon the study setting where societal-level I–C is concerned.

Objective versus subjective performance

As shown in Table 7, for individual-level I–C, the correlation for objective performance ($\rho = 0.04$; $SD_\rho = 0.20$; 80%CI [−0.22, 0.30]) is slightly lower than that for subjective performance ($\rho = 0.07$; $SD_\rho = 0.09$; 80%CI [−0.05, 0.19]). Their credibility intervals, however, substantially overlap. At the organizational level of I–C, the same pattern was found for both individual-level and group-level performances: Correlations for objective performance are slightly lower than those for subjective performance, but all the credibility

Table 7. Objective vs. Subjective Performance.

Level of IC / Type of Performance	*k*	*N*	$\bar{r}$	SD_r	$\bar{\rho}$	SD_ρ	80% Credibility Interval *L*	80% Credibility Interval *U*	95% Credibility Interval *L*	95% Credibility Interval *U*	*V*%
Individual-level & Individual-level Outcomes											
Objective Performance	11	2276	.03	.17	.04	.20	–.22	.30	–.09	.18	17%
Subjective Performance	25	8551	.05	.09	.07	.09	–.05	.19	–.09	.18	37%
Organizational-level & Individual-level Outcomes											
Objective Performance	24	3283	.01	.19	.02	.22	–.27	.30	–.08	.12	20%
Subjective Performance	21	4472	.16	.22	.21	.28	–.15	.56	.08	.35	31%
Organizational-level & Group-level Outcomes											
Objective Performance	20	1536	.11	.24	.15	.28	–.22	.51	.00	.29	24%
Subjective Performance	42	2513	.18	.24	.25	.27	–.10	.59	.15	.35	31%
Societal-level & Individual-level Outcomes											
Objective Performance	7	1417	.05	.14	.06	.14	–.12	.22	–.07	.18	28%
Subjective Performance	9	14,049	–.06	.08	–.07	.08	–.19	.04	–.14	.00	14%

Note. IC = Individualism/Collectivism; k = Number of studies; N = sample size; r = observed correlation coefficient; SDr = standard deviation of observed correlation coefficient; ρ = population correlation coefficient; SDρ = standard deviation of population correlation coefficient; L = Lower Bound; U = Upper bound; %V = percentage of variance accounted for by all artifacts.
[a]= *Credibility intervals do not substantially overlap.*

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intervals mostly overlap. Interestingly, results at the societal level of I–C show a different pattern of results: Correlation for objective performance is slightly positive ($\rho = 0.06$; $SD_\rho = 0.14$; 80%CI [−0.12, 0.22]), whereas that for subjective performance is slightly negative ($\rho = -0.07$; $SD_\rho = 0.09$; 80%CI [−0.17, 0.04]). Nevertheless, the difference between these correlations is minimal, and their credibility intervals largely overlap. Overall, results indicate no clear pattern of difference in I–C/performance correlations between objective and subjective measures.

Discussion

Although cross-cultural researchers generally agree about the importance of examining different levels of cultural constructs and their interplay to understand how they may influence behaviors and outcomes (e.g., Chao, 2000; Erez & Gati, 2004; Gelfand et al., 2007, 2008; Leung & Ang, 2009), empirical studies examining the cross-level issue in cross-cultural research remain few and far between. This is likely due to practical difficulties for including multiple levels in research. Conceivably, collecting appropriate data for cross-cultural research demands extensive resources that cannot be afforded by the majority of researchers. The current study utilized a meta-analytic method to address the issue. As noted by Hunter and Schmidt (2004), meta-analysis allows researchers to examine research questions about moderating effects that otherwise cannot be addressed in most primary studies. Specifically, in the current study, by meta-analytically combining results from research studies conducted in different countries (societies), we were able to examine the moderating role of societal culture at both the individual and organizational levels of I–C, even if such a question had not originally been asked by authors of these studies.

Although results generally supported the hypothesized direction of the interaction between organizational and societal levels of I–C on cooperation (Hypothesis 4), the directionality of the correlations is less clear for the individual-by-societal level interactive effect (Hypothesis 3). As hypothesized, performance more strongly related to individual-level collectivism in collectivistic societies, but cooperative behavior more strongly related to individual-level collectivism in individualistic societies. From a theoretical perspective, these mixed results are baffling, especially with individual-level I–C being found to be negatively related to behavior in collectivistic societies. As discussed earlier, this counterintuitive result was based on a relatively small sample ($k = 5$, $N = 765$), and exclusion of one potential outlier resulted in an estimated correlation coefficient not different from zero. Hence, the negative correlation may simply have been due to sampling error. It should also be noted that some earlier studies using samples from collectivistic societies also found similarly unexpected results (e.g., Earley, 1994; Nguyen et al., 2010), which were attributed to the potential unrepresentativeness of the samples involved. Thus, findings regarding the counterintuitive directionality of relations between individual-level I–C and cooperative behavior in collectivistic societies must be viewed with caution and bear further investigation.

In individualistic societies, both cooperation and performance were related only weakly to I–C at both organizational and individual levels (Table 4). These correlations were generally within the vicinity of the average correlation found between I–C and organizational outcomes ($\rho = 0.18$; Taras, Kirkman, & Steel, 2010). In collectivistic societies, however, the strength of the correlations between both organizational and individual levels of I–C and cooperative behavior was generally higher (except for the correlation between individual-level I–C and behavior, as noted earlier), and nearly double that of the correlation between organizational-level I–C and individual-level cooperative behavior ($\rho = 0.33$ vs $\rho = 0.18$). Thus, our findings indicate that I–C may in fact be an important predictor of organizationally relevant outcomes (e.g., cooperation) if placed in the appropriate context. That is, it may be likely that I–C is a better predictor of behavior in collectivistic societies. To the extent that most research on this construct has been conducted in individualistic societies, our understanding regarding the relative utility of this cultural dimension in the prediction of workplace-related behaviors may be impoverished.

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Our results further showed that collectivism was positively related to cooperation and performance at both the individual and organizational levels, but not at the societal level. Surprisingly, the direction of the correlation for I–C at the societal level was reversed. Although weaker correlations may be expected at the societal level of analysis given the fact that many potential factors may influence cooperation, the negative relations are counterintuitive. Similarly weak and negative correlations with cooperation were also found for in-group collectivism (Gelfand et al., 2004). Both Hofstede's collectivism and in-group collectivism define societal-level I–C as the way that individuals behave toward other in-group members as opposed to out-group members. More specifically, compared with those in individualistic societies, people in collectivistic societies are more likely to distinguish between in-groups and out-groups during situations of conflicts or cooperation (Imai & Gelfand, 2009). Because in-groups tend to be narrowly defined in collectivistic societies (e.g., family members, friends, classmates), it is conceivable that work-related group members may not be considered to be in-group members. Consequently, cooperation in work-related groups may actually be lower in these societies relative to individualistic societies where little distinction is made between in-groups and out-groups.

We also found support for the moderating role of conceptual match between levels of the I–C construct and the cooperation outcomes. That is, the more closely matched the levels of I–C and cooperation, the stronger are their correlations. This finding provides further evidence emphasizing the importance of paying attention to the levels of analysis of the I–C construct when examining its relations with organizational outcomes.

For most of the analyses, the construct-level correlations between I–C and cooperation were found to vary widely across studies (i.e., the credibility intervals were wide). Measurement and statistical artifacts generally accounted for only a small percentage of observed cross-study variation. These findings indicate that there exist potentially powerful moderators that influence the correlations. To investigate the issue, we conducted additional moderator analyses, examining dimensionality, performance type (objective vs subjective), and study setting. Results generally revealed no support for the notion that these potential factors meaningfully moderated the correlations between I–C and cooperation. However, results indicated that Institutional and I-Group I-C may be distinct constructs in regards to the prediction of task performance.

Taken together, all results converge on suggesting that the three levels of I–C are distinct, not only conceptually but also empirically. As such, it is critical that researchers studying the relations between I–C and organizational outcomes (e.g., cooperation and performance) unequivocally define the level of analysis they are interested in and properly operationalize the construct. The current findings also clearly demonstrate that a comprehensive understanding of a cultural construct and its nomological network necessitates examining all of its relevant levels. As noted by Gelfand et al. (2008): "careful attention to defining culture at the appropriate level of analysis will not only increase our ability to compare similar findings across studies, but will also help to advance a truly global organizational science by building a deeper understanding of where culture operates" (p. 507).

Limitations

A dearth of primary data at the organizational and societal levels of cooperative behavior severely restricted the potential number of main and moderator analyses that could have been conducted. Therefore, some of the findings in this meta-analyses must be viewed with caution, and particularly so for those conclusions that were based upon small numbers of studies. Unavailability of primary studies also prevented us from examining cross-level effects resulting from the organizational and individual levels and from all three levels of the I–C construct (cf. Nguyen et al., 2010).

Implications for research and practice

Although organizational theorists and methodologists have called for attention to the issue of levels of analysis in organizational and cross-cultural research (e.g., Gelfand et al., 2007; Rousseau, 1985), substantive researchers

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have apparently not heeded the call, as evinced by the limited number of studies that explicitly addressed the issue in the literature. The current study, which found that different levels of I–C indeed have differential effects on cooperative behavior and performance in work-related groups and there were cross-level interactions, strongly endorses the need for considering and clarifying different levels of analysis of organizational and cultural constructs in general and of the I–C construct in particular. Hopefully, these findings will serve to stimulate more studies examining the issue.

The finding that individual-level I–C was generally positively related to cooperation will certainly have important implications to organizational researchers and practitioners who wish to search for factors that maximize chances for organizational success. Encouragingly, these positive correlations were generalizable across cultures (i.e., levels of the societal level of I–C), although stronger effects were generally found in collectivistic societies, suggesting that research findings and practices mostly established in individualistic societies regarding the I–C construct may also be generalized to other cultures. On the other hand, the differential magnitudes of the relations between individual-level I–C and cooperation across cultures indicates that different mechanisms may be needed to best facilitate cooperation in different cultures; this finding thus empirically verifies earlier conceptual work by Chen et al. (1998).

Conclusion

Gelfand, Erez, and Aycan (2007) reviewed the status of cross-cultural research in organizational behavior and noted that "research in cross cultural organizational behavior still focuses largely on cultural main effects and ignores situational factors as main effects or moderation" (p. 497). Accordingly, the researchers called for more research adopting the multilevel perspective. The current study responded to that call and provided a first meta-analytic investigation into the relations between levels of I–C and cooperation at work. We found meaningful cross-level interaction effects between societal-level and individual-level I–C, such that more collectivistic individuals were less likely to cooperate but more likely to perform better; we also found theorized interaction effects between societal-level and organizational-level I–C, whereby organizational I–C was more strongly related to cooperation in collectivistic as opposed to individualistic societies. As discussed earlier, these findings are likely to have important implications for understanding the effects of I–C as a cultural construct on the cooperative behavior and performance of workers within organizations. Our results also contribute to further advance research and practice in organizational psychology and management as these fields move toward adopting a more global perspective (Gelfand et al., 2008; Leung & Ang, 2009).

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