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Cultural Norm Fulfillment, Interpersonal Belonging, or Getting Ahead? A Large-Scale Cross-Cultural Test of Three Perspectives on the Function of Self-Esteem

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What is the function of self-esteem? We classified relevant theoretical work into 3 perspectives. The *cultural norm-fulfillment perspective* regards self-esteem a result of adherence to cultural norms. The *interpersonal-belonging perspective* regards self-esteem as a sociometer of interpersonal belonging. The *getting-ahead perspective* regards self-esteem as a sociometer of getting ahead in the social world, while regarding low anxiety/neuroticism as a sociometer of getting along with others. The 3 perspectives make contrasting predictions on the relation between the Big Five personality traits and self-esteem across cultures. We tested these predictions in a self-report study (2,718,838 participants from 106 countries) and an informant-report study (837,655 informants from 64 countries). We obtained some evidence for cultural norm fulfillment, but the effect size was small. Hence, this perspective does not satisfactorily account for self-esteem's function. We found a strong relation between Extraversion and higher self-esteem, but no such relation between Agreeableness and self-esteem. These 2 traits are pillars of interpersonal belonging. Hence, the results do not fit the interpersonal-belonging perspective either. However, the results closely fit the getting-ahead perspective. The relation between Extraversion and higher self-esteem is consistent with this perspective, because Extraversion is the Big Five driver for getting ahead in the social world. The relation between Agreeableness and lower neuroticism is also consistent with this perspective, because Agreeableness is the Big Five driver for getting along with others.

Keywords: self-esteem, norm fulfillment, interpersonal belonging, getting ahead

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What is the function of self-esteem? This question is an important and controversial issue in personality and social psychology. Relevant theoretical work falls into three broader perspectives. Self-esteem reflects the degree to which individuals (a) live up to cultural norms (*cultural norm-fulfillment perspective*); (b) are interpersonally included (*interpersonal-belonging perspective*); or (c) are getting ahead in the social world (*getting-ahead perspective*). A consequential next step is to engage in a competitive test of the three perspectives (Platt, 1964). The difficulty with such an undertaking is that all

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perspectives trace self-esteem to social bases and are thus bound to make similar predictions (Leary, 2004). As demonstrated below, however, the three perspectives make contrasting predictions regarding the cross-cultural relations between self-esteem and the Big Five personality traits of E(xtraversion), A(greeableness), N(euroticism), C(onscientiousness), and O(penness to Experience; John, Naumann, & Soto, 2008). The present research competitively tests these predictions by capitalizing on self-report data (Study 1: 2,718,838 participants from 106 countries) and on informant-report data (Study 2: 837,655 informants from 64 countries).

Three Competing Perspectives on the Function of Self-Esteem

Psychologists widely agree on the definition of self-esteem. Namely, self-esteem is defined as the overall sense of worthiness and value that people place on themselves (Baumeister, 1998; Rosenberg, 1965). In contrast, there is little agreement about the function of self-esteem. A wealth of relevant theories emerged over the last decades. They can be sorted into three broader perspectives. Next, we describe those perspectives and derive their unique predictions on the cross-cultural relations between the Big Five and self-esteem.

Cultural Norm-Fulfillment Perspective

The cultural norm-fulfillment perspective rests on two interlocked propositions. First, individuals typically introject culturally normative traits, considering them as personally important. Second, self-esteem is the outcome of "owning" those introjected traits. In effect, this perspective predicts that self-esteem ultimately functions as a motivator to adhere to cultural norms via the proximal process of endorsing culturally valued traits as personally important. The cultural norm-fulfillment perspective has deep intellectual roots and is still widely endorsed in psychology and in sociology. This perspective goes back, at least, to William James (1890), although it was Morris Rosenberg (1965) who formalized it and offered the first empirical evidence. Rosenberg argued that culturally normative traits become important to individuals and he demonstrated that ". . . a high self-rating on a trait was most closely related to global self-esteem when the trait was . . . considered very important" (Rosenberg & Pearlin, 1978, p. 67). Several contemporary self-esteem theories build on this classic principle. For example, the self-evaluation maintenance model (Tesser, 1988) posits that self-esteem is threatened when a person is outperformed by others, but only if the threat is targeted to personally important traits. Even more relevant is the self-concept enhancing tactician model (SCENT; Sedikides & Strube, 1997), which explicitly highlights the importance of cultural norms (Sedikides & Gregg, 2003). According to the SCENT model, "people value personally the dimensions that imply successful role fulfillment" and derive their self-esteem from fulfillment of those cultural roles (Sedikides, Gaertner, & Toguchi, 2003, p. 63). Cultural norm fulfillment also underlies terror management theory (TMT; Greenberg, Solomon, & Pyszczynski, 1997): ". . . for TMT, self-esteem is ultimately a culturally based construction that consists of viewing oneself as living up to specific contingencies of value . . . that are derived from the culture at large" (Pyszczynski, Greenberg, Solomon, Arndt, & Schimel, 2004, p. 437). Likewise, the contingencies of self-worth model (Crocker & Wolfe, 2001, pp. 594–595) proposes that "the impact of events and circumstances on self-esteem depends on the perceived relevance of those events to one's contingencies of self-worth" and "contingencies of self-worth develop over the course of time in response to many forms of socialization and social influence."

Unique predictions. According to the cultural norm-fulfillment perspective, a given Big Five trait should be related to self-esteem only if that trait is culturally normative. For example, E is culturally normative in the U.S. (McCrae, 2002), and hence E should be a strong predictor of self-esteem in this culture. E, however, is less normative in Japan (McCrae, 2002), and hence E should be a much weaker predictor of self-esteem in that culture. Parallel predictions apply to the other Big Five traits.

Existing evidence. We know of five relevant studies. First, Lönnqvist et al. (2009) examined the relation between Schwartz's (1992) values and self-esteem across five countries (N = 3,612). They found that higher congruence between personal values and social values predicted higher self-esteem. Second, Fulmer et al. (2010) examined the relation between E and self-esteem in a sample of 1,107 undergraduates across nine countries. They found high correlations in countries where E was normative and lower correlations in countries where E was not normative. Third, Goodwin et al. (2012) examined five mating-relevant traits ("caring," "socially attractive," "passionate romantic," "adventurer," "mature confident") and their cross-cultural relations with self-esteem. Their data came from 1,066 undergraduates from eight cultural groups. Their evidence largely supported the cultural norm-fulfillment perspective. For example, "caring" (a close relative of A) was most strongly related to self-esteem in traditional cultures, which value this trait most. Fourth, Gebauer, Wagner, Sedikides, and Neberich (2013) focused on the traits of agency and communion (Abele & Wojciszke, 2007; Bakan, 1966; Gebauer, Paulhus, & Neberich, 2013; Wiggins, 1991). Their sample contained data from 187,957 online-daters across 11 European countries. They found a stronger agency-esteem relation with increasing country-level agency and a stronger communion-esteem relation with increasing country-level communion. Finally, Becker et al. (2014) asked participants to what degree their self-esteem is based on four sources ("controlling one's life," "doing one's duty," "benefitting others," "achieving social status"). Their data came from 4,852 adolescents across 20 countries. Participants reported that their self-esteem was strongly based on sources that were culturally normative, and this finding also replicated longitudinally. Together, the evidence is consistent with the cultural norm-fulfillment perspective. Yet, it is too early to conclude that cultural norm fulfillment is the main basis for self-esteem: the pool of relevant studies was small, effect sizes were rarely reported, evidence was typically restricted to few Western cultures, and predictions of this perspective were not pitted against alternative explanations.

Interpersonal-Belonging Perspective

Human beings have a need for interpersonal belonging (Baumeister & Leary, 1995), which is satisfied by relatedness such as attachment bonds with parents (Bowlby, 1969) and romantic partners (Hazan & Shaver, 1987), friendships (Reis, 1990), and

integration into social groups (Tajfel & Turner, 1986). Cooley (1902) recognized the relevance of interpersonal belonging for self-esteem early on and the idea has remained in favor ever since. For example, attachment theorists describe secure attachment as the foundation of self-esteem (Feeney & Noller, 1990; Roberts, Gotlib, & Kassel, 1996), and social identity theorists argue that self-esteem stems from close ties to desirable ingroups (Rubin & Hewstone, 1998; Tajfel & Turner, 1986). Sociometer theory is another prominent example (Leary & Downs, 1995). It postulates that belongingness is so paramount to human survival and reproduction that self-esteem evolved as a meter or gauge of belonging prospects (Leary & Baumeister, 2000). This meter fulfils two interrelated functions (Leary, 2005): The pain of low self-esteem both alarms people of insufficient belonging and motivates them to strengthen their interpersonal ties.

Unique predictions. According to the interpersonal-belonging perspective, only traits that foster interpersonal belonging should be related to self-esteem. In the Big Five sphere, E and A are the interpersonal traits (Leary & Hoyle, 2009). Indeed, abundant research has shown that E and A are both independent predictors of higher interpersonal belongingness (Cuperman & Ickes, 2009; Graziano & Tobin, 2013; Jensen-Campbell et al., 2002; Newcomb, Bukowski, & Pattee, 1993; Ozer & Benet-Martínez, 2006; Schmutte & Ryff, 1997; Wagner, Lüdtke, Roberts, & Trautwein, 2014). It follows that only E and A should be related to self-esteem. This derivation was anticipated by Leary and Baumeister (2000). In regard to E, they argued that "[social] dominance is related to self-esteem because status is sometimes a criterion for inclusion" (p. 18). In regard to A, they argued that "people prefer to spend time with others who are friendly, pleasant, and nice," whereas "unfriendly, argumentative, uncongenial people make undesirable partners and group members" (p. 17).

What predictions does the interpersonal-belonging perspective make regarding cultural norms? This perspective views cultural norm fulfillment as an additional means for belongingness and, therefore, self-esteem (MacDonald, Saltzman, & Leary, 2003). In contrast to the cultural norm-fulfillment perspective, however, the interpersonal-belonging perspective gives particular weight to a universal influence of each interpersonal trait on belonging and, therefore, on self-esteem. Hence, the perspective predicts (a) a relatively strong relation between E and self-esteem, (b) a similarly strong relation between A and self-esteem, and (c) a weaker norm fulfillment effect on self-esteem compared with that predicted by the cultural norm-fulfillment perspective.

Existing evidence. As it stands, the interpersonal-belonging perspective has received only partial empirical backing from Big Five research. E is strongly related to self-esteem (Kwan, Bond, & Singelis, 1997; Robins, Hendin, & Trzesniewski, 2001; Schmitt & Allik, 2005), but A is not (Graziano, Jensen-Campbell, & Finch, 1997; Judge, Erez, Bono, & Thoresen, 2002; Kwan et al., 1997). In fact, once the relation between A and E is controlled for, a small negative relation between A and self-esteem emerges (Robins, Tracy, Trzesniewski, Potter, & Gosling, 2001). On the basis of that evidence, a recent literature review concluded, "self-esteem is weakly, if at all, linked to the trait of agreeableness" (MacDonald & Leary, 2012, p. 539). The lack of association between A and self-esteem poses a serious validity threat to the interpersonal-belonging perspective (cf. Wojciszke, Baryla, Parzuchowski, Szymkow, & Abele, 2011), because A is a particularly relevant interpersonal trait (Leary & Hoyle, 2009) and agreeable behavior is integral to interpersonal belonging (Graziano et al., 1997).

Getting-Ahead Perspective

Leary (1957, p. 266) claimed that, "all interpersonal behavior serves to reduce anxiety and to maintain self-esteem." From this vantage point, it is misleading to study self-esteem independent of anxiety. According to Leary (1957), the bases of self-esteem and low anxiety are rooted in the fulfillment of two interpersonal motives: social dominance and affiliation. Other authors have elaborated on these motives and others still have focused on the relations between the two motives, self-esteem, and anxiety. There is strong consensus that Leary's (1957) two interpersonal motives are the pillars of interpersonal belonging (Hogan, 1983; Paulhus & John, 1998; Sedikides & Skowronski, 1997). For example, Hogan and Roberts (2004, p. 209) contended that "getting ahead" (equivalent to achieving social dominance) and "getting along" (equivalent to achieving affiliation) are the "the two big problems" that humans face in order to secure interpersonal belonging. Baumeister (2005, p. 45) maintained that "the human self has to seek both common ground with others (to gain acceptance) and distinctive capabilities (to perform a unique role within the system)." Leary (2005, p. 104) pointed out that "the ideal combination of similarity and uniqueness [. . .] allows one to fit in while maximizing the value of one's unique contributions, thereby increasing one's relational value." In all, dominance/getting ahead and affiliation/getting along jointly form the basis for interpersonal belonging. But what is the relation among these interpersonal motives, self-esteem, and anxiety?

Barkow's (1980) dominance theory furnishes a partial answer. This theory posits that self-esteem is a sociometer for social dominance/getting ahead in the social world. In a very similar way, Gecas and Schwalbe (1983) and Tedeschi and Norman (1985) have also proposed that self-esteem is uniquely tied to getting ahead in the social world. However, all those theoretical formulations are mute about Leary's (1957) two other concepts: affiliation/getting along and anxiety. Inasmuch as self-esteem was a sociometer for getting ahead (Barkow, 1980; Gecas & Schwalbe, 1983; Tedeschi & Norman, 1985), it would be tempting to speculate that anxiety is a sociometer for getting along. The resultant dual-sociometer system is intuitively sound: Getting ahead is vertical in nature. It means that one has more social influence than others, fostering a sense of self-importance and superiority, which heightens self-esteem. In contrast, getting along is horizontal in nature. It means that one has mutually caring relations with others, fostering a sense of trust and security, which lowers anxiety. Relatedly, Gebauer, Sedikides, Lüdtke, and Neberich (2014) suggested that N may function as a sociometer for getting along. This suggestion is relevant to Leary's (1957) reasoning because of close ties between anxiety and N. Specifically, N reflects the habitual experience of negative affect, including anxiety, anger, guilt, and depression (Widiger, 2009). Of those, anxiety is by far the most prevalent (Noller, Law, & Comrey, 1987; Soto & John, 2009). To illustrate, John (1990) examined adjective-based Big Five markers. Five adjectives loaded higher than .70 on the N factor (tense, anxious, nervous, moody, worrying), and they all reflected anxiety. In fact, measures of N and measures of anxiety are often so highly correlated that there is little empirical justification to treat them as

separate (Scheier, Carver, & Bridges, 1994; Watson & Clark, 1984). This empirical pattern led Jorm (1989) to propose the term "anxiety/neuroticism." From a genetic perspective, the term appears justified. Jardine, Martin, Henderson, and Rao (1984) found that N and anxiety share all their genetic variance. Similarly, in a cross-temporal meta-analysis of N and anxiety, Twenge (2000) found practically identical changes over time, which prompted her to treat N and anxiety interchangeably.

Unique predictions. As described earlier, E and A are both key predictors of interpersonal belonging (Ozer & Benet-Martínez, 2006). Yet, E and A predict interpersonal belonging via fundamentally different pathways. Extraverts seek social attention (Ashton, Lee, & Paunonen, 2002), social status (Anderson, John, Keltner, & Kring, 2001), and social dominance (Trapnell & Wiggins, 1990). As a result, extraverts achieve interpersonal belonging via *getting ahead in the social world* (Barrick, Stewart, & Piotrowski, 2002; Hogan, 1983; Roberts & Robins, 2000). In contrast, agreeable people seek social harmony (Graziano & Tobin, 2009), cooperation on an equal level (Graziano, Hair, & Finch, 1997), and interpersonal warmth (Trapnell & Wiggins, 1990). As a result, agreeable people achieve interpersonal belonging via *getting along with others* (Barrick et al., 2002; Hogan, 1983; Roberts & Robins, 2000).

Together, the predictions of the getting-ahead perspective are straightforward. Higher E should be linked to higher self-esteem, but not to lower N. Furthermore, if N functioned as a sociometer for getting along, higher A should be linked to lower N, but not to higher self-esteem. We test the ensuing *double-dissociation hypothesis*. On first sight, the relations involving N may appear peripheral to our overall research objective to understand better the function of self-esteem. Yet, testing the double dissociation hypothesis helps to distinguish the predictions of the getting-ahead perspective from those of the interpersonal-belonging perspective (Leary, Cottrell, & Phillips, 2001).

E probably is the only *direct* Big Five predictor of getting ahead in the social world. Additionally, C may be an indirect predictor via getting ahead in the nonsocial world (Hogan & Roberts, 2004). More precisely, conscientious people's goal directedness and their impulse control make them relatively successful in the working world (Roberts, Jackson, Fayard, Edmonds, & Meints, 2009) and this success may help them to get ahead in the social world too. Yet, conscientious people are not particularly motivated to get ahead socially (Paulhus & John, 1998). As a result, it is unclear whether and when conscientious people make use of their nonsocial success in order to make social advances. In fact, a set of studies by Anderson, John, Keltner, and Kring (2001) suggests that conscientious people rarely get ahead socially. Anderson et al. (2001) examined the relations between the Big Five and social status, noting the conceptual similarity between social status and getting ahead in the social world. E was a strong and consistent predictor of social status across their three studies. C, however, was consistently unrelated to social status. These results support the view that E is a much stronger predictor of getting ahead in the *social* world than C (Trapnell & Wiggins, 1990). From the standpoint of the getting-ahead perspective, then, it appears reasonable to expect a relation between C and self-esteem, but that relation should be smaller than the relation between E and self-esteem.

What predictions does the getting-ahead perspective make regarding cultural norms? Individuals who live up to their cultural norms will get ahead more easily than those who fail to do so. Therefore, the perspective predicts at the cross-cultural level: (a) a comparatively strong relation between E and self-esteem but a much weaker relation between E and N (at best); (b) a comparatively strong relation between A and N but a much weaker relation between A and self-esteem (at best); and (c) a weaker norm-fulfillment effect on self-esteem compared to what is predicted by the cultural norm-fulfillment perspective.

Existing evidence. No research to date has directly tested the double-dissociation hypothesis, but some indirect evidence is available. The literature we reviewed for the interpersonal-belonging perspective suggests that most empirical findings pertinent to the relation between the Big Five's interpersonal traits and self-esteem are congruent with the getting-ahead perspective. In particular, E, but not A, is associated with self-esteem (MacDonald & Leary, 2012). Furthermore, Wojciszke, Baryla, Parzuchowski, Szymkow, and Abele (2011) found that agency (a close relative of E; Gebauer, Sedikides, Verplanken, & Maio, 2012; Paulhus & John, 1998) is more strongly linked to self-esteem than is communion (a close relative of A; Gebauer, Sedikides et al., 2012; Paulhus & John, 1998; see also Gebauer, Wagner et al., 2013; Gecas & Seff, 1989). Another set of findings pertain to the relation between the Big Five's social traits and N. Factor analyses of the Big Five have revealed two higher-order factors (DeYoung, 2006; Digman, 1997). One subsumes E and O, the other subsumes A, C, and N. This pattern offers preliminary evidence that low N is more strongly linked to A than it is to E.

Study 1: Self-Reports

Study 1 examines the cross-cultural relations between the Big Five and self-esteem to test competitively the cultural norm-fulfillment, interpersonal-belonging, and getting-ahead perspectives. Over and above providing this first competitive test, Study 1 presents the most systematic description of the Big Five's cross-cultural relations with self-esteem to date. Our prior investigation has addressed cultural norm-fulfillment effects regarding E (Fulmer et al., 2010), but the current study is the first to examine cultural norm-fulfillment effects for all Big Five traits.

A strength of this self-report study is its reliance on a very large sample (N = 2,718,838) across 106 countries. As such, the study is well-positioned to uncover the relation of each Big Five trait with self-esteem, while additionally attending to the role of each Big Five trait at the country level. The study's large sample size also allowed us to control for the other Big Five traits in the analysis of each Big Five trait with self-esteem. Such controls are important at the individual level and at the country level, because the Big Five are intercorrelated at both levels. For example, a positive correlation between A and self-esteem may appear as support for the interpersonal-belonging perspective, but this correlation might be explained by a third-variable correlation with N (Neiss et al., 2005). Examining the unique relation of each Big Five trait with self-esteem safeguards against such alternative third-variable explanations (Gebauer, Haddock, Broemer, & von Hecker, 2013).

Method

Participants. We used data from 2,718,838 participants across 106 countries (59.8% female, 40.2% male; M_{age} = 25.25 years, SD_{age} = 10.49). The data were collected from December 1998 to December 2009, as part of the Gosling-Potter Internet Personality Project (Gosling, Vazire, Srivastava, & John, 2004). The project features a website for taking part in various online studies. We arrived at the above sample by applying five selection criteria to the full, multistudy data set (cf. Gebauer et al., 2014). First, we excluded participants who responded with "no" to the question "Did you answer truthfully on all of these questions?" Second, we excluded participants who responded with "yes" to the question "Have you ever previously filled out this particular questionnaire on this site?" Third, we excluded participants who simultaneously named a U.S. state as well as a country other than the U.S. as their current place of residence. Fourth, we only included participants who completed at least one item from the relevant measures, resulting in no missing data at the construct level. Finally, we excluded participants who came from countries represented by less than 300 participants, ensuring that the relations within each country were estimated with high precision (Schönbrodt & Perugini, 2013). Table 1 lists this study's 106 countries and provides demographic information for each country.

Procedure. The study was available in four languages; 77.5% of participants completed the study in English, 15.6% in Spanish, 4.0% in German, and 3.0% in Dutch. Participants first consented to take part and then responded to measures of the Big Five, self-esteem, and the demographics (in that order). At the end, participants received feedback on their personality and background information about personality psychology.

Measures. Participants responded to all measures on rating scales (1 = *disagree*, 5 = *agree*).

Individual-level Big Five. The Big Five were assessed with the Big Five Inventory (BFI; English version, John, Donahue, & Kentle, 1991; Spanish version, Benet-Martínez & John, 1998; German version, Rammstedt, 1997; Dutch version, Denissen, Geenen, van Aken, Gosling, & Potter, 2008). Table 2 includes detailed information on the BFI's five scales (i.e., number of items, example items, internal consistencies, and measurement invariance tests across the 106 countries). The table shows that all BFI scales had adequate psychometric properties.[1]

Self-esteem. Self-esteem was assessed with Robins, Hendin, and Trzesniewski's (2001) single-item scale ("I have high self-esteem"). Robins et al. (2001) estimated its reliability to surpass .75. Furthermore, in Robins et al.'s research, this single-item scale manifested virtually perfect correlations with the Rosenberg Self-Esteem Scale (Rosenberg, 1965) once attenuation due to unreliability was accounted for. Given that the Rosenberg Self-Esteem Scale is the gold standard for self-esteem assessment (Blaskovich & Tomaka, 1991), the single item scale constitutes a valid measure of self-esteem.

Country-level Big Five. Following past research (Fulmer et al., 2010; McCrae, 2002; Schmitt, Allik, McCrae, & Benet-Martínez, 2007), we averaged participants' responses on each Big Five trait within each of the 106 countries. Table 2's measurement invariance tests illustrate the suitability of that approach for the present data set.[2]

Statistical analyses. Participants were nested in countries. Hence, we conducted multilevel analyses, using the computer program HLM 7.01 (Raudenbush, Bryk, Cheong, Congdon, & du Toit, 2011). Specifically, we conducted random slope models (Raudenbush & Bryk, 2002), country-mean centered all Level 1 predictors, and grand-mean centered all Level 2 predictors. Those centering decisions allowed us to interpret unambiguously the results of our cross-level interactions (Enders & Tofighi, 2007). We followed Snijders and Bosker's (1999, p. 50) recommendations to *z*-standardize all variables, resulting in standardized coefficients that can be interpreted akin to betas in single-level regression. Finally, as noted above, the present study has sufficient power to test our hypotheses in a single multilevel model, which simultaneously includes all Big Five traits at the individual level and at the country level. The model is shown below:

Level 1 Model

$$z(\text{self-esteem}) = \beta_0 + \beta_1 * z(E) + \beta_2 * z(A) + \beta_3 * z(N) + \beta_4 * z(C) + \beta_5 * z(O) + r \quad (1)$$

where z-standardized self-esteem is modeled as a combination of one country-specific intercept, β_0, five country-specific linear slopes, β_1–β_5, and a residual, r. Country-specific intercepts and slopes were modeled as level 2 criteria:

Level 2 Model

$$\beta_0 = \gamma_{00} + \gamma_{01} * z(E_c) + \gamma_{02} * z(A_c) + \gamma_{03} * z(C_c) + \gamma_{04} * z(O_c) + \gamma_{05} * z(N_c) + u_0 \quad (2)$$

$$\beta_1 = \gamma_{10} + \gamma_{11} * z(E_c) + \gamma_{12} * z(A_c) + \gamma_{13} * z(C_c) + \gamma_{14} * z(O_c) + \gamma_{15} * z(N_c) + u_1 \quad (3)$$

$$\beta_2 = \gamma_{20} + \gamma_{21} * z(E_c) + \gamma_{22} * z(A_c) + \gamma_{23} * z(C_c) + \gamma_{24} * z(O_c) + \gamma_{25} * z(N_c) + u_2 \quad (4)$$

$$\beta_3 = \gamma_{30} + \gamma_{31} * z(E_c) + \gamma_{32} * z(A_c) + \gamma_{33} * z(C_c) + \gamma_{34} * z(O_c) + \gamma_{35} * z(N_c) + u_3 \quad (5)$$

[1] The Spanish version of the Agreeableness Scale comprised eight instead of nine items, because the online questionnaire accidentally omitted the item ". . . starts quarrels with others."

[2] We examined the interrelation between our country-level Big Five indices and external indices from two sources (McCrae, 2002; Schmitt et al., 2007). Our country-level E, A, and O indices were substantially related to the relevant external indices ($.19 \leq rs \leq .58$, mean: $r = .39$). In fact, for those three Big Five traits, our indices were more strongly related to each external index than the external indices were related to each other ($.22 \leq rs \leq .39$, mean: $r = .27$). This is remarkable, because the sampling of the two external sources was similar to each other (i.e., often university students), whereas the current study's sampling was quite different (i.e., online volunteers from all walks of life). Those sampling differences, however, may be the reason why our country-level N and C indices were only weakly related to the external indices ($-.24 \leq rs \leq .53$, mean: $r = .15$), whereas the external indices were more strongly interrelated ($rs = .40$). Together, those analyses suggest that the country-level indices (our own indices as well as the external ones) are not representative of the countries at large, but may be representative of more specific subcultures within each country. Hence, following past research (Fulmer et al., 2010; McCrae, 2002; Schmitt et al., 2007), it was most appropriate to focus on our own country-level Big Five indices.

Table 1
Demographics, Country-Level Indices, and Simultaneous Regressions on Self-Esteem and N for Each of the 106 Countries in Study 1

		Age		Sex	Country-level indices						Simultaneous regression on Se					Simultaneous regression on N				
Country	*N*	*M*	*SD*	%♀	E	A	C	O	N	Se	E	A	C	O	N	E	A	C	O	Se
ABC-Islands	1,188	28.0	12.0	70.5	3.38	3.48	3.44	3.70	3.13	3.43	.25**	−.04	.18**	.06*	−.23**	−.04	−.24**	−.10**	.06*	−.24**
Afghanistan	461	31.2	17.3	45.4	3.22	3.40	3.29	3.64	3.00	3.38	.25**	.07	.05	.18**	−.23**	−.20**	−.24**	−.17**	.13**	−.23**
Albania	679	26.7	15.6	56.7	3.23	3.49	3.31	3.69	3.01	3.29	.21**	−.03	.19**	.21**	−.17**	−.08	−.17**	−.18**	.18**	−.19**
Algeria	342	28.1	14.9	50.0	3.23	3.39	3.31	3.69	3.03	3.21	.27**	−.08	.11*	.29**	−.20**	−.06	−.12*	−.18**	.07	−.25**
Andorra	374	26.4	12.0	63.2	3.27	3.48	3.31	3.68	3.05	3.11	.33**	−.02	.05	.16**	−.29**	−.07	−.25**	−.11*	.09	−.31**
Argentina	71,588	23.4	8.7	72.8	3.28	3.41	3.24	3.73	3.36	3.06	.29**	−.09**	.11**	.10**	−.30**	.05**	−.22**	−.04**	.03**	−.33**
Armenia	734	24.9	10.7	71.8	3.31	3.45	3.31	3.74	3.26	3.16	.29**	−.12**	.11**	.02	−.31**	−.05	−.16**	−.02	.03	−.34**
Australia	72,927	24.9	10.6	56.0	3.26	3.59	3.36	3.75	2.97	3.23	.28**	−.07**	.11**	.07**	−.38**	−.12**	−.22**	−.11**	.03**	−.38**
Austria	9,755	26.7	10.6	58.7	3.39	3.43	3.41	3.79	3.02	3.38	.39**	−.11**	.08**	.08**	−.31**	−.08**	−.21**	−.12**	.07**	−.36**
Bahamas	590	24.8	11.8	67.7	3.24	3.65	3.53	3.74	2.93	3.66	.27**	−.01	.19**	.05	−.27**	−.08*	−.27**	−.13**	.05	−.27**
Bahrain	465	24.4	10.7	65.4	3.22	3.57	3.32	3.74	3.21	3.51	.22**	.05	.13**	.13**	−.18**	−.15**	−.19**	−.16**	.09*	−.18**
Bangladesh	650	24.3	10.5	44.4	3.13	3.54	3.26	3.65	3.08	3.63	.19**	.04	.18**	.13**	−.15**	−.26**	−.18**	−.17**	.06	−.14**
Barbados	378	28.6	12.7	66.5	3.17	3.50	3.48	3.70	3.06	3.36	.15**	.01	.22**	.07	−.36**	−.09*	−.30**	−.11*	.06	−.34**
Belgium	15,827	26.4	10.7	56.4	3.34	3.48	3.34	3.66	3.04	3.00	.22**	−.12**	.09**	.14**	−.31**	−.12**	−.23**	−.08**	.02**	−.31**
Belize	353	25.5	13.1	59.4	3.19	3.48	3.39	3.61	3.08	3.35	.17**	.07	.18**	.31**	−.08	−.37**	−.25**	−.16**	.17**	−.08
Bermuda	322	29.0	14.2	57.8	3.31	3.53	3.38	3.66	2.95	3.41	.24**	−.11*	.20**	.18**	−.30**	−.20**	−.31**	−.06	.04	−.29**
Bolivia	3,871	23.1	7.4	65.4	3.20	3.37	3.28	3.80	3.28	3.35	.30**	−.02	.17**	.12**	−.27**	.00	−.16**	−.07**	.02	−.32**
Bosnia-Herzegovina	419	25.2	8.5	62.4	3.40	3.53	3.42	3.83	3.03	3.55	.29**	−.17**	.11*	.09*	−.18**	−.21**	−.23**	−.23**	.13**	−.17**
Brazil	4,918	27.6	10.4	37.9	3.14	3.53	3.40	3.84	2.99	3.37	.23**	−.07**	.20**	.07**	−.30**	−.04**	−.34**	−.04**	.07**	−.30**
Brunei Darussalam	352	23.0	10.5	67.6	3.14	3.62	3.08	3.60	3.18	3.34	.13*	.01	.11*	.23**	−.22**	−.14**	−.22**	−.30**	.09	−.20**
Bulgaria	1,127	23.0	7.7	60.9	3.26	3.47	3.27	3.89	3.10	3.35	.31**	−.17**	.12**	.14**	−.18**	−.20**	−.18**	−.18**	.08**	−.19**
Canada	142,293	24.4	10.5	58.7	3.25	3.62	3.41	3.76	2.99	3.29	.24**	−.06**	.12**	.08**	−.37**	−.10**	−.22**	−.11**	.01**	−.37**
Chile	33,572	23.4	9.4	72.7	3.25	3.43	3.40	3.88	3.16	3.30	.31**	−.06**	.15**	.08**	−.31**	−.01*	−.19**	−.09**	.02**	−.35**
China	6,847	27.5	8.0	61.5	3.08	3.65	3.44	3.50	2.91	3.62	.10**	−.02	.11**	.13**	−.07**	−.20**	−.27**	−.24**	.00	−.05**
Colombia	22,123	22.6	8.1	70.8	3.28	3.46	3.40	3.87	3.16	3.60	.27**	−.04**	.15**	.11**	−.30**	−.01	−.21**	−.06**	.03**	−.33**
Costa Rica	3,898	23.9	8.6	67.4	3.31	3.45	3.43	3.86	3.14	3.50	.27**	−.03	.14**	.09**	−.34**	.07**	−.19**	−.01	.00	−.38**
Croatia	2,108	23.2	7.2	59.9	3.31	3.48	3.31	3.83	3.01	3.34	.28**	−.18**	.14**	.10**	−.29**	−.12**	−.28**	−.16**	.06**	−.28**
Cuba	659	27.3	10.3	70.8	3.42	3.59	3.46	3.96	3.16	3.67	.22**	−.10**	.17**	.24**	−.34**	.03	−.22**	−.07	.17**	−.40**
Cyprus	906	25.9	10.1	66.0	3.28	3.61	3.44	3.78	3.13	3.29	.37**	−.11**	.11**	.07*	−.28**	−.06	−.25**	−.11**	.06*	−.31**
Czech Republic	887	24.9	9.1	45.5	3.15	3.40	3.29	3.85	2.95	3.34	.24**	−.14**	.12**	.15**	−.29**	−.10**	−.23**	−.16**	.11**	−.29**
Denmark	6,624	26.9	9.6	42.2	3.29	3.58	3.41	3.80	2.73	3.41	.28**	−.14**	.08**	.13**	−.34**	−.13**	−.21**	−.13**	.06**	−.34**
Dominican Republic	4,177	23.0	7.8	75.6	3.23	3.61	3.47	3.89	3.13	3.55	.25**	.00	.15**	.11**	−.33**	.02	−.18**	−.12**	.07**	−.36**
Ecuador	4,254	24.1	8.5	67.4	3.25	3.50	3.41	3.83	3.20	3.52	.29**	−.01	.15**	.11**	−.28**	−.05**	−.16**	−.06**	.03	−.32**
Egypt	2,585	23.1	7.1	67.8	3.20	3.72	3.38	3.73	3.35	3.50	.23**	−.06**	.19**	.11**	−.22**	−.09**	−.18**	−.08**	.00	−.23**
El Salvador	2,311	23.6	7.9	68.0	3.25	3.43	3.40	3.85	3.20	3.53	.27**	.00	.12**	.12**	−.31**	.00	−.21**	−.05**	.04*	−.34**
Estonia	849	22.2	7.8	63.3	3.05	3.35	3.16	3.84	3.12	3.33	.33**	−.20**	.15**	.12**	−.27**	−.11**	−.24**	−.08*	.07*	−.30**
Finland	10,660	24.1	8.2	55.1	3.08	3.47	3.25	3.77	3.01	3.25	.25**	−.08**	.09**	.14**	−.37**	−.11**	−.21**	−.10**	.08**	−.38**
France	6,409	27.1	10.0	51.1	3.21	3.52	3.35	3.87	2.97	3.11	.22**	−.18**	.08**	.15**	−.27**	−.11**	−.27**	−.14**	.06**	−.26**
Germany	84,387	28.1	10.9	57.0	3.35	3.41	3.40	3.75	3.07	3.29	.42**	−.12**	.06**	.08**	−.33**	−.02**	−.21**	−.11**	.08**	−.40**
Ghana	305	26.8	8.4	53.3	3.28	3.76	3.72	3.73	2.80	3.72	.26**	.11*	.10	.17**	−.24**	−.16**	−.23**	−.25**	.02	−.23**
Greece	3,755	25.7	8.2	61.5	3.24	3.61	3.31	3.89	3.22	3.23	.27**	−.14**	.14**	.11**	−.29**	−.06**	−.27**	−.06**	.02	−.31**
Guatemala	3,455	23.9	7.8	67.1	3.22	3.45	3.37	3.82	3.19	3.49	.25**	−.01	.14**	.10**	−.33**	−.06**	−.18**	−.05**	.03	−.36**
Honduras	1,518	24.4	7.7	72.8	3.24	3.50	3.48	3.85	3.16	3.56	.28**	−.06*	.15**	.09**	−.35**	.07**	−.19**	−.03	.01	−.40**
Hong Kong	5,216	25.4	9.0	67.6	3.12	3.53	3.26	3.43	3.10	3.42	.17**	−.07**	.18**	.10**	−.16**	−.21**	−.27**	−.18**	.01	−.14**
Hungary	1,421	25.6	8.7	54.6	3.22	3.46	3.38	3.83	2.99	3.26	.25**	−.16**	.07*	.10**	−.29**	−.16**	−.26**	−.14**	.12**	−.27**
Iceland	928	25.2	9.3	50.2	3.16	3.57	3.31	3.81	2.86	3.23	.32**	−.09**	.16**	.10**	−.30**	−.07*	−.24**	−.14**	.01	−.33**
India	22,752	24.8	7.2	48.5	3.26	3.70	3.36	3.73	3.03	3.86	.13**	−.03**	.19**	.16**	−.12**	−.19**	−.22**	−.22**	−.01*	−.11**
Indonesia	3,174	24.2	7.8	58.0	3.25	3.54	3.25	3.66	3.06	3.57	.20**	−.05**	.15**	.18**	−.15**	−.15**	−.28**	−.23**	.04*	−.13**
Iran	1,070	25.6	7.8	57.5	3.08	3.65	3.42	3.71	3.12	3.53	.19**	−.07*	.17**	.21**	−.22**	−.11**	−.32**	−.10**	.04	−.21**
Ireland	13,649	24.2	8.7	56.5	3.29	3.63	3.36	3.71	3.00	3.08	.26**	−.10**	.10**	.10**	−.36**	−.16**	−.23**	−.10**	.03**	−.35**
Israel	2,895	26.8	10.5	54.7	3.16	3.58	3.45	3.85	3.02	3.27	.24**	−.10**	.15**	.13**	−.31**	−.10**	−.30**	−.15**	.04**	−.30**
Italy	4,825	29.4	10.2	54.3	3.22	3.55	3.46	3.86	2.95	3.32	.26**	−.14**	.09**	.13**	−.32**	−.08**	−.29**	−.18**	.08**	−.31**
Jamaica	884	26.2	9.8	75.3	3.16	3.71	3.62	3.75	2.98	3.59	.18**	−.05	.26**	.05	−.37**	−.14**	−.27**	−.05	.00	−.37**
Japan	4,397	26.8	9.6	54.8	3.17	3.54	3.34	3.73	2.98	3.33	.25**	−.07**	.09**	.12**	−.28**	−.12**	−.24**	−.16**	.02	−.27**
Jordan	654	24.2	7.6	62.9	3.25	3.67	3.51	3.75	3.18	3.70	.16**	−.01	.21**	.23**	−.21**	−.13**	−.20**	−.13**	.10*	−.22**
Kenya	687	26.7	8.3	62.2	3.28	3.71	3.70	3.79	2.81	3.68	.34**	.04	.22**	.10**	−.19**	−.12**	−.27**	−.16**	−.06	−.21**
Kuwait	666	24.9	9.2	60.5	3.15	3.78	3.44	3.74	3.12	3.65	.23**	−.09*	.26**	.12**	−.18**	−.15**	−.24**	−.21**	.05	−.18**
Latvia	530	23.9	7.2	62.5	3.19	3.47	3.26	3.76	2.99	3.43	.36**	−.12*	.21**	.02	−.18**	−.19**	−.21**	−.11*	.10*	−.19**
Lebanon	1,356	23.4	7.0	57.1	3.32	3.64	3.53	3.80	3.20	3.69	.21**	−.09*	.14**	.10**	−.18**	−.03	−.20**	−.21**	.04	−.18**
Lithuania	514	23.2	7.2	65.2	3.11	3.40	3.26	3.74	3.14	3.46	.26**	−.08	.13**	.13**	−.20**	−.17**	−.15**	−.11*	.04	−.21**
Luxembourg	437	27.8	11.7	57.6	3.24	3.45	3.29	3.82	3.12	3.14	.33**	−.10*	.16**	.07	−.30**	−.04	−.26**	−.11*	.06	−.33**

(*table continues*)

Table 1 (*continued*)

Country	*N*	Age		Sex	Country-level indices						Simultaneous regression on Se					Simultaneous regression on N				
		M	*SD*	%♀	E	A	C	O	N	Se	E	A	C	O	N	E	A	C	O	Se
Malaysia	10,409	23.1	7.5	66.1	3.16	3.58	3.16	3.57	3.10	3.44	.23**	−.02*	.20**	.13**	−.20**	−.16**	−.26**	−.18**	.03**	−.20**
Malta	514	25.4	10.5	60.1	3.23	3.66	3.32	3.76	3.17	3.11	.31**	−.05	.10*	.10*	−.31**	−.16**	−.23**	−.09*	.09*	−.32**
Mauritius	477	24.0	8.1	57.3	3.31	3.59	3.42	3.75	3.09	3.54	.20**	.09*	.13*	.16**	−.21**	−.17**	−.17**	−.20**	.01	−.21**
Mexico	85,916	22.8	7.6	65.2	3.19	3.39	3.34	3.81	3.19	3.43	.27**	−.02**	.14**	.12**	−.33**	.00	−.17**	−.08**	.02**	−.38**
Morocco	317	23.6	8.7	64.4	3.14	3.59	3.36	3.76	3.14	3.44	.23**	−.07	.16**	.09	−.18**	−.04	−.20**	−.17**	.12*	−.18**
Netherlands	77,121	29.6	11.8	60.9	3.42	3.56	3.45	3.62	2.90	3.14	.25**	−.12**	.06**	.13**	−.34**	−.16**	−.22**	−.10**	.04**	−.34**
Netherlands Antilles	363	30.1	12.3	59.3	3.35	3.51	3.46	3.74	2.98	3.31	.25**	.04	.08	.12*	−.24**	−.12*	−.23**	−.06	.02	−.24**
New Zealand	17,376	26.2	11.6	60.6	3.27	3.61	3.41	3.74	2.93	3.25	.26**	−.07**	.09**	.09**	−.39**	−.13**	−.24**	−.10**	.02**	−.38**
Nicaragua	1,327	24.5	8.1	74.4	3.26	3.48	3.45	3.81	3.17	3.66	.26**	.01	.16**	.10**	−.29**	−.01	−.12**	−.02	−.06*	−.34**
Nigeria	656	27.8	7.3	51.2	3.14	3.79	3.61	3.76	2.78	3.86	.22**	.01	.22**	.14**	−.22**	−.21**	−.25**	−.19**	.06	−.21**
Norway	13,741	27.2	10.3	55.5	3.27	3.65	3.44	3.71	2.81	3.23	.28**	−.11**	.09**	.15**	−.36**	−.12**	−.21**	−.16**	.09**	−.36**
Pakistan	4,353	23.1	6.6	53.3	3.19	3.71	3.36	3.65	3.19	3.79	.11**	.00	.19**	.15**	−.06**	−.23**	−.18**	−.20**	.03*	−.06**
Panama	1,671	24.6	9.5	69.6	3.31	3.53	3.45	3.93	3.08	3.71	.30**	−.04	.13**	.13**	−.29**	−.01	−.22**	−.14**	.01	−.32**
Paraguay	1,925	23.7	8.4	69.5	3.28	3.43	3.40	3.79	3.26	3.43	.26**	.00	.12**	.15**	−.28**	.08**	−.20**	−.03	.03	−.32**
Peru	13,948	23.5	8.4	68.1	3.25	3.45	3.36	3.84	3.17	3.47	.27**	−.03**	.16**	.13**	−.30**	−.03**	−.15**	−.11**	.04**	−.34**
Philippines	20,700	21.4	6.5	74.4	3.17	3.62	3.27	3.73	3.12	3.42	.28**	−.03**	.20**	.15**	−.22**	−.12**	−.23**	−.22**	.05**	−.22**
Poland	2,879	23.8	7.5	52.5	3.06	3.37	3.17	3.81	3.11	3.26	.24**	−.18**	.10**	.17**	−.30**	−.19**	−.22**	−.11**	.11**	−.30**
Portugal	2,392	25.1	8.8	48.8	3.08	3.58	3.22	3.91	3.14	3.03	.29**	−.15**	.11**	.07**	−.39**	−.10**	−.21**	−.09**	.10**	−.41**
Puerto Rico	3,235	26.4	10.4	64.9	3.37	3.71	3.55	3.91	3.03	3.69	.30**	.00	.16**	.09**	−.28**	−.02	−.24**	−.08**	.02	−.31**
Qatar	390	26.8	10.1	61.8	3.23	3.73	3.38	3.70	3.11	3.52	.25**	−.02	.12*	.12*	−.20**	−.06	−.19**	−.19**	.00	−.21**
Romania	3,375	23.5	7.4	63.6	3.19	3.49	3.28	3.93	3.07	3.35	.28**	−.16**	.13**	.11**	−.25**	−.15**	−.24**	−.18**	.05**	−.24**
Russia	1,456	25.1	8.6	64.5	3.22	3.41	3.35	3.77	3.07	3.51	.22**	−.13**	.17**	.12**	−.19**	−.15**	−.21**	−.22**	.10**	−.18**
Saudi Arabia	1,277	25.8	9.7	52.7	3.17	3.76	3.41	3.72	3.11	3.64	.16**	−.05	.22**	.14**	−.28**	−.14**	−.19**	−.16**	.09**	−.29**
Serbia-Montenegro	1,519	24.6	7.4	57.6	3.26	3.49	3.30	3.90	3.12	3.40	.27**	−.21**	.17**	.14**	−.25**	−.17**	−.24**	−.13**	.14**	−.26**
Singapore	14,290	22.0	7.4	63.7	3.14	3.50	3.10	3.59	3.13	3.29	.21**	−.05**	.17**	.10**	−.22**	−.21**	−.25**	−.15**	.00	−.20**
Slovak Republic	420	24.5	10.2	58.2	3.23	3.54	3.30	3.84	2.94	3.14	.36**	−.13**	.06	.09*	−.26**	−.15**	−.25**	−.13**	.02	−.27**
Slovenia	1,017	23.7	8.3	48.4	3.25	3.44	3.26	3.89	2.97	3.29	.30**	−.16**	.15**	.14**	−.31**	−.17**	−.20**	−.15**	.04	−.33**
South Africa	6,994	27.6	10.2	58.9	3.26	3.59	3.51	3.81	2.98	3.32	.27**	−.05**	.11**	.09**	−.34**	−.11**	−.25**	−.13**	−.01	−.34**
South Korea	2,581	27.1	8.2	43.8	3.16	3.57	3.41	3.65	2.94	3.53	.21**	−.05*	.17**	.08**	−.24**	−.15**	−.32**	−.10**	.02	−.22**
Spain	107,792	23.6	8.7	69.9	3.31	3.56	3.25	3.72	3.16	3.06	.31**	−.10**	.09**	.09**	−.38**	.07**	−.22**	−.07**	.03**	−.42**
Sri Lanka	544	25.8	9.5	52.9	3.25	3.70	3.41	3.78	3.03	3.64	.19**	−.06	.15**	.20**	−.14**	−.21**	−.18**	−.19**	.05	−.13**
Sweden	15,411	26.8	10.1	51.2	3.26	3.58	3.38	3.79	2.82	3.35	.30**	−.13**	.08**	.11**	−.38**	−.08**	−.22**	−.12**	.09**	−.39**
Switzerland	13,965	29.0	12.5	55.5	3.45	3.56	3.54	3.75	2.86	3.44	.36**	−.13**	.06**	.08**	−.31**	−.06**	−.22**	−.15**	.07**	−.34**
Taiwan	1,432	26.1	8.9	62.3	3.12	3.55	3.32	3.58	3.02	3.55	.18**	−.09**	.21**	.13**	−.12**	−.27**	−.25**	−.19**	.04	−.10**
Thailand	2,301	25.5	9.3	60.3	3.20	3.60	3.38	3.64	2.98	3.49	.25**	−.05*	.19**	.12**	−.16**	−.20**	−.29**	−.18**	.08**	−.14**
Trinidad and Tobago	871	25.0	8.9	68.5	3.14	3.63	3.47	3.78	3.02	3.38	.20**	−.06	.19**	.07*	−.36**	−.08**	−.24**	−.18**	.02	−.34**
Turkey	1,873	25.5	8.1	52.9	3.29	3.58	3.45	3.85	3.05	3.63	.28**	−.03	.15**	.12**	−.21**	−.13**	−.23**	−.12**	.02	−.22**
Ukraine	328	23.5	7.6	66.6	3.30	3.44	3.29	3.89	3.08	3.42	.19**	−.09	.17**	.21**	−.26**	−.13*	−.21**	−.15**	.13*	−.26**
United Arab Emirates	4,484	26.9	11.6	55.8	3.28	3.66	3.42	3.71	3.02	3.57	.20**	.04**	.13**	.14**	−.18**	−.18**	−.19**	−.21**	.07**	−.18**
United Kingdom	188,388	25.0	9.8	48.4	3.29	3.55	3.32	3.77	3.00	3.05	.24**	−.09**	.09**	.08**	−.34**	−.18**	−.22**	−.12**	.03**	−.33**
United States	1,471,532	25.5	11.0	59.7	3.29	3.67	3.50	3.77	2.96	3.38	.25**	−.05**	.13**	.06**	−.38**	−.07**	−.23**	−.11**	−.01**	−.38**
Uruguay	4,603	24.1	10.1	73.0	3.28	3.42	3.28	3.76	3.28	3.18	.31**	−.10**	.10**	.09**	−.32**	.08**	−.20**	−.05**	.01	−.36**
Venezuela	13,761	22.7	8.7	73.5	3.29	3.48	3.40	3.90	3.17	3.66	.30**	−.01	.14**	.10**	−.27**	−.02	−.19**	−.07**	.02*	−.31**
Vietnam	571	25.8	9.4	57.1	3.22	3.62	3.43	3.64	2.93	3.72	.23**	−.14**	.14**	.11**	−.20**	−.20**	−.24**	−.17**	.01	−.18**
Zimbabwe	386	27.3	15.0	50.1	3.24	3.47	3.42	3.80	2.99	3.46	.29**	.03	.19**	.01	−.17**	−.17**	−.18**	−.28**	.13**	−.17**

Note. % ♀ = percent women in the subsample. E = extraversion; A = agreeableness; C = conscientiousness; O = openness to experience; N = neuroticism; Se = self-esteem.
* $p < .05$. ** $p < .01$.

$$\beta_4 = \gamma_{40} + \gamma_{41} * z(E_c) + \gamma_{42} * z(A_c) + \gamma_{43} * z(C_c) + \gamma_{44} * z(O_c) + \gamma_{45} * z(N_c) + u_4 \quad (6)$$

$$\beta_5 = \gamma_{50} + \gamma_{51} * z(E_c) + \gamma_{52} * z(A_c) + \gamma_{53} * z(C_c) + \gamma_{54} * z(O_c) + \gamma_{55} * z(N_c) + u_5 \quad (7)$$

where γ_{00}–γ_{50} are sample means, γ_{01}–γ_{55} are sample-specific slopes of country-level Big Five, and u_0–u_5 are Level 2 residuals indicating country-level deviations from sample means.

The main text describes the results of this model. Table S1 in the online supplement reports parallel tests from models that examine each predictor separately, not controlling for any other trait (at the individual level and at the country level). Those supplementary results are informative, because they provide a closer link to past research (which typically lacked the power to include all relevant variables in a single model). Those results are also informative, because they are as close as one can get to zero-order correlation results within a multilevel framework. As such, they provide the most comprehensive description of Big Five relations with self-esteem to date, given that they are based on data from 2,718,838 participants across 106 countries.

All three self-esteem perspectives predict that cultural norms fulfillment is related to self-esteem. Crucially, however, only the

Table 2
Example Items and Psychometric Properties of the Big Five Inventory Scales (Studies 1–2)

	E				A				C				O				N			
Scale length:	8 items				9 items				9 items				10 items				8 items			
Example items:	I see myself as someone who . . .																			
	. . . is outgoing, sociable				. . . has a forgiving nature				. . . is a reliable worker				. . . has an active imagination				. . . worries a lot			
	. . . is sometimes shy, inhibited				. . . starts quarrels with others				. . . tends to be disorganized				. . . has few artistic interests				. . . is calm in tense situations			
Cronbach's α:	Eng	Es	Ger	NL	Eng	Es	Ger	NL	Eng	Es	Ger	NL	Eng	Es	Ger	NL	Eng	Es	Ger	NL
Study 1	.85	.77	.80	.77	.79	.58	.62	.66	.83	.75	.79	.76	.78	.74	.75	.74	.83	.76	.79	.79
Study 2	.82	.72	.79	.74	.83	.63	.71	.70	.83	.74	.80	.75	.80	.76	.79	.75	.80	.70	.76	.75
MI Study 1:	CFI	RMSEA		SRMR	CFI	RMSEA		SRMR	CFI	RMSEA		SRMR	CFI	RMSEA		SRMR	CFI	RMSEA		SRMR
config model	.939	.094		.040	.949	.062		.031	.977	.046		.022	.859	.098		.052	.945	.081		.037
metric model	.932	.085		.052	.944	.057		.037	.970	.045		.036	.849	.090		.062	.929	.079		.060
scalar model	.918	.085		.057	.923	.061		.041	.929	.064		.047	.809	.093		.068	.892	.087		.067
fit difference	ΔCFI	ΔRMSEA		ΔSRMR	ΔCFI	ΔRMSEA		ΔSRMR	ΔCFI	ΔRMSEA		ΔSRMR	ΔCFI	ΔRMSEA		ΔSRMR	ΔCFI	ΔRMSEA		ΔSRMR
metric	.007	.000		.012	.005	.000		.008	.007	.000		.014	.010	.008		.010	.016	.000		.023
scalar	.014	.000		.005	.021	.004		.004	.041	.019		.011	.040	.003		.006	.037	.008		.007
MI Study 2:	CFI	RMSEA		SRMR	CFI	RMSEA		SRMR	CFI	RMSEA		SRMR	CFI	RMSEA		SRMR	CFI	RMSEA		SRMR
config model	.929	.088		.043	.958	.061		.031	.975	.047		.024	.885	.089		.048	.948	.068		.033
metric model	.917	.082		.057	.952	.057		.040	.965	.049		.044	.878	.082		.055	.925	.070		.059
scalar model	.895	.083		.063	.936	.060		.044	.925	.065		.054	.844	.085		.062	.844	.085		.062
fit difference	ΔCFI	ΔRMSEA		ΔSRMR	ΔCFI	ΔRMSEA		ΔSRMR	ΔCFI	ΔRMSEA		ΔSRMR	ΔCFI	ΔRMSEA		ΔSRMR	ΔCFI	ΔRMSEA		ΔSRMR
metric	.012	.000		.014	.006	.000		.009	.010	.002		.020	.007	.000		.007	.023	.002		.026
scalar	.022	.001		.006	.016	.030		.004	.040	.016		.010	.034	.003		.007	.081	.015		.003

Note. Language: Eng = English; Es = Spanish; Ger = German; NL = Dutch. Fit indices: CFI = comparative fit index; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual. To probe for measurement invariance, we ran multigroup confirmatory factor analyses (Raju, Laffitte, & Byrne, 2002). Countries served as groups. For each measure we compared three models: (a) The *configural model* ("config model") consists of a latent variable (e.g., extraversion), as defined by that variable's items (e.g., 8 items for extraversion) and also includes a latent method variable, defined by all negatively worded items (Geiser & Lockhart, 2012). The configural model has no constraints across groups, allowing free variation of all scale properties across countries. (b) The *metric model* deviates from the configural model in only one aspect. Specifically, each item's loading on the latent variable is constrained to be equal across countries (Meredith & Horn, 2001). (c) The scalar model deviates from the metric model in one aspect. Specifically, each item's intercept is constrained to be equal across countries (Meredith & Horn, 2001). One speaks of *metric invariance*, if the configural and metric models possess acceptable fit and if the fit indices of both models are similar (Cheung & Rensvold, 2002). Metric invariance is *necessary und sufficient* to meaningfully interpret differences in correlations across countries (Horn & McArdle, 1992). One speaks of *scalar invariance*, if the metric and scalar models possess acceptable fit and if the fit indices of both models are similar (Cheung & Rensvold, 2002). Scalar invariance is *necessary und sufficient* to meaningfully interpret differences in scale means across countries (Horn & McArdle, 1992). What qualifies as similar fit between two models? Frequently used recommendations are $\Delta \leq .050$ (Little, 1997; Tucker & Lewis, 1973), $\Delta \leq .022$ (McGaw & Jöreskog, 1971), and $\Delta \leq .010$ (Cheung & Rensvold, 2002). As can be seen, the present measures generally yielded evidence satisfying even the more conservative recommendations. The CFIs of the Openness Scale were low. This may be due to an undesirable feature of the CFI, rather than a problem with the Openness Scale. Specifically, the CFI increasingly underestimates model fit with an increasing number of indicators (Kenny & McCoach, 2003). In line with this interpretation, the CFIs of all Openness models were acceptable, after we parceled the ten items into four parcels, all CFIs $> .93$, all ΔCFIs $< .04$ (Little, Cunningham, Shahar, & Widaman, 2002).

cultural norm-fulfillment perspective anticipates the potency of these effects. Thus, we sought to quantify the size of the cultural norm-fulfillment effect: We employed the pseudo ΔR^2 test, gauging the proportion of criterion-variance explained by a given multilevel predictor (Snijders & Bosker, 2012).[3]

Results

Main effects. To begin, we examined the main effects of each Big Five trait on self-esteem. The upper-left part of Table 3 presents the results. Much in line with the above-described evaluative, genetic, and evolutionary overlap between N and self-esteem, there was a sizable relation between these two emotional traits. Over and above N, however, E emerged as the strongest predictor of self-esteem, followed by C, then O, and A which was weakly but negatively related to self-esteem. These results fit the getting-ahead perspective best. The results pose difficulties for the interpersonal-belonging perspective, given that A is a unique predictor of interpersonal belonging.[4]

Cross-level interactions. Next, we examined the role of culture in the relations between the Big Five and self-esteem. The lower-left part of Table 3 presents the results. In support of cultural norm fulfillment, the relation between E and self-esteem (hereafter, E-esteem relation) strengthened with increasing country-level E and, likewise, the C-esteem relation strengthened with increasing country-level C. A parallel effect emerged for N, although this cross-level interaction did not reach significance. Finally, the A-esteem and O-esteem relations were not moderated by country-level A and O, respectively. Thus, not all cross-level interactions supported cultural norm fulfillment as a source of self-esteem.[5]

As described earlier, all three self-esteem perspectives can account for cultural norm-fulfillment effects. Yet, the perspectives differ in their predictions regarding the strength of these effects. Table 1 includes the results of simultaneous regressions of all Big Five traits on self-esteem for each of the 106 countries separately. Inspection of those independent relations indicates that there are clear differences across cultures, but these differences are modest in size (see Table S2 for corresponding zero-order correlations within each country). The ΔR^2 estimates of the cross-level interactions (Tables 3 and S1) further support the conclusion that cultural norm-fulfillment effects are generally modest. Their size is more consistent with the predictions of the getting-ahead perspective (and also of the interpersonal-belonging perspective, which, however, received little support from the main effect analyses).[6] So far, then, the results favor the getting-ahead perspective over the other two perspectives. We turned next to a test of the getting-ahead perspective's supplementary hypothesis that A is uniquely linked to anxiety/N.

N as criterion. This second model was identical to the first one (Equations 1–7) with a crucial exception: Self-esteem and N were interchanged at the individual level and at the country level. (Again, Table S1 reports equivalent tests from models that examine each predictor separately, not controlling for any other trait.) The upper-right part of Table 3 presents the results for the main effects. As before, we found a sizable (negative) relation between self-esteem and N. More important, however, A now emerged as the strongest (negative) predictor of N, followed by C, E, and O which was weakly but positively related to N. Once more, these results fit the getting-ahead perspective well.

It is generally assumed that norm-fulfillment effects on self-esteem are direct and strong, whereas relevant effects on other emotional dispositions, such as anxiety/N, are indirect and weak (Fulmer et al., 2010; Gebauer, Wagner et al., 2013; Greenberg et al., 1997; Higgins, 2000; Sedikides, Gaertner, & Vevea, 2005). Hence, we did not expect unequivocal evidence for cultural norm fulfillment in the cross-level interactions on N. The lower-right part of Table 3 shows virtually no support for cultural norm-fulfillment effects on N. More precisely, the results supported this perspective for A, but they opposed it for E, C, O, and self-esteem.

Extreme-group comparisons. The above analyses suggest that cultural norm fulfillment may partly underlie Big Five

[3] Several variance components can be examined in multilevel contexts. Yet, our research question calls for the examination of one specific variance component. Namely, the amount of *criterion variance* (i.e., self-esteem variance) explained by each individual-level Big Five trait, each country-level Big Five trait, and their cross-level interactions. Snijders and Bosker (2012, pp. 107–114) describe the appropriate equation for that variance component, which is: $\Delta R^2 = 1\text{-}(\hat{\sigma}^2_{full\ model} + \tau^2_{0full\ model})/(\hat{\sigma}^2_{baseline\ model} + \tau^2_{0baseline\ model})$. To illustrate, our ΔR^2 for the cross-level interaction between individual-level E × country-level E on self-esteem responds to the following question: How much self-esteem variance is explained by the interaction between individual-level E × country-level E (over and above any main effects of individual-level E and country-level E on self-esteem)? Note that this question is conceptually distinct from another question frequently asked in the literature: How much *cross-cultural variance* in the relation between individual-level E and self-esteem is explained by country-level E? In the context of personality-culture fit, the answer to the latter question typically yields high proportions of variance (in our E-example: $\Delta R^2 = 19.57\%$ in Study 1 and $\Delta R^2 = 17.84\%$ in Study 2). Albeit these high percentages are often reported in the literature (and replicated in our data), they provide no information about the interactive power of an individual-level Big Five trait and its culture-level equivalent on a criterion of interest.

[4] Twelve thousand four hundred nine U.S. participants responded to the item "How much do you feel that you fit in with your peers?" (Wood, Gosling, & Potter, 2007), which is relevant to social belonging. This allowed us to test the replicability of the finding that A and E are independently related to social belonging. This was the case. A multiple regression analysis yielded two independent main effects on social belonging, one of E, $\beta = .32$, $SE = .01$, $t(12{,}408) = 38.98$, the other of A, $\beta = .23$, $SE = .01$, $t(12{,}408) = 27.87$.

[5] Using random slope models may be overly conservative in complex multilevel designs like ours. To test this rationale, we repeated the analysis described in Equations 1–7, but switched to a random intercept model. A random intercept model may also be appropriate from a substantive-theoretical viewpoint: According to the cultural norm-fulfillment perspective, cultural Big Five norms may well be the *only* theoretically relevant moderator of the relationship between individual-level Big Five traits and self-esteem. Irrespective, the results of the random intercept model revealed significant cultural norm-fulfillment effects for E ($b = .34$, $SE = .13$, $t = 2.64$, $p = .008$), A ($b = .15$, $SE = .07$, $t = 2.18$, $p = .03$), and C ($b = .16$, $SE = .03$, $t = 4.93$, $p < .001$).

[6] As described in Footnote 2, our own country-level Big Five indices are more suitable for our analyses than external ones. This is because our own indices are particularly relevant for the sampled subpopulations within our countries. To test this rational, we repeated the analysis described in Equations 1–7 using indices from two external sources. Specifically, for each trait, we averaged the two external indices. This yielded external country-level information from 44 of our 106 countries. As expected, the evidence for cultural norm fulfillment was somewhat reduced in those additional analyses. That is, we found a significant, but somewhat weaker, cultural norm-fulfillment effect for E (external indices: $b = .04$, $SE = .01$, $t = 3.37$, $p = .002$, $\Delta R^2 = 0.05\%$; own indices: $b = .34$, $SE = .09$, $t = 3.97$, $p < .001$, $\Delta R^2 = 0.06\%$) and no significant norm-fulfillment effects for the other four Big Five traits (all $ps > .18$).

Table 3
Study 1's Results (Based on the Model Described by Equations 1–7)

	Criterion: Se						Criterion: N					
	b	*SE*	*t*	*df*	*p*	ΔR^2	*b*	*SE*	*t*	*df*	*p*	ΔR^2
Individual-level effects												
E	.27	.004	60.48	100	.001	7.70	−.11	.007	−16.29	100	.001	0.68
A	−.07	.005	−14.24	100	.001	0.37	−.23	.004	−60.29	100	.001	5.80
C	.14	.003	43.13	100	.001	1.54	−.13	.005	−27.81	100	.001	1.23
O	.13	.004	31.29	100	.001	0.88	.05	.004	11.92	100	.001	0.09
N	−.27	.007	−40.60	100	.001	12.66						
Se							−.27	.006	−48.23	100	.001	13.00
Country-level effects												
E_C	−.39	.179	−2.19	100	.03	0.09	.20	.184	1.11	100	.27	0.01
A_C	.28	.158	1.77	100	.08	0.05	−.14	.162	−0.88	100	.38	0.00
C_C	.84	.168	4.97	100	.001	0.56	−.74	.174	−4.23	100	.001	0.39
O_C	−.09	.148	−0.58	100	.57	−0.01	.27	.147	1.85	100	.07	0.06
N_C	.31	.117	2.63	100	.01	0.14						
Se_C							.21	.080	2.67	100	.009	0.15
Cross-level interactions												
$E \times E_C$	.25	.062	4.11	100	.001	0.04	.16	.097	1.67	100	.10	0.01
$A \times A_C$	.01	.062	0.12	100	.91	0.00	−.10	.049	−2.09	100	.04	0.00
$C \times C_C$	.14	.045	3.04	100	.003	0.04	.15	.065	2.31	100	.02	0.02
$O \times O_C$	.01	.046	0.32	100	.75	0.00	.08	.045	1.80	100	.08	0.00
$N \times N_C$	.07	.062	1.17	100	.24	0.00						
$Se \times Se_C$							.27	.034	7.79	100	.001	0.00

Note. Se = self-esteem; ΔR^2 in %.

relations with self-esteem. These analyses also suggest, though, that such norm-fulfillment effects are modest in size (see Table 3). Following Diener, Tay, and Myers (2011), this section supplements the above analyses with extreme-group comparisons. Such comparisons provide an alternative way to judge the strength of norm-fulfillment effects compared with the strength of the Big Five's main effects. We proceeded to examine the unique relation between a given Big Five trait and self-esteem in the highest 25% countries on this Big Five trait, and we compared those results with equivalent results from the lowest 25% countries on that Big Five trait. For the sake of completeness, we also examined the same relations within the second-highest and second-lowest 25% of countries. We used standard meta-analytic techniques to estimate the relations within each quartile. Our estimates reflect the average unique correlation in Table 1. Before averaging the correlations, we Fisher-Z transformed the standardized coefficients and weighted them by $n_{country}$ - 3 (Shadish & Haddock, 1994).

Figure 1's left-hand panel displays the extreme-group comparisons for self-esteem as the criterion. The panel clearly shows that culture matters, but it also shows that culture matters only to a modest degree. Specifically, the Big Five relations with self-esteem replicated across the extreme-group samples, which speaks against the cultural norm-fulfillment perspective

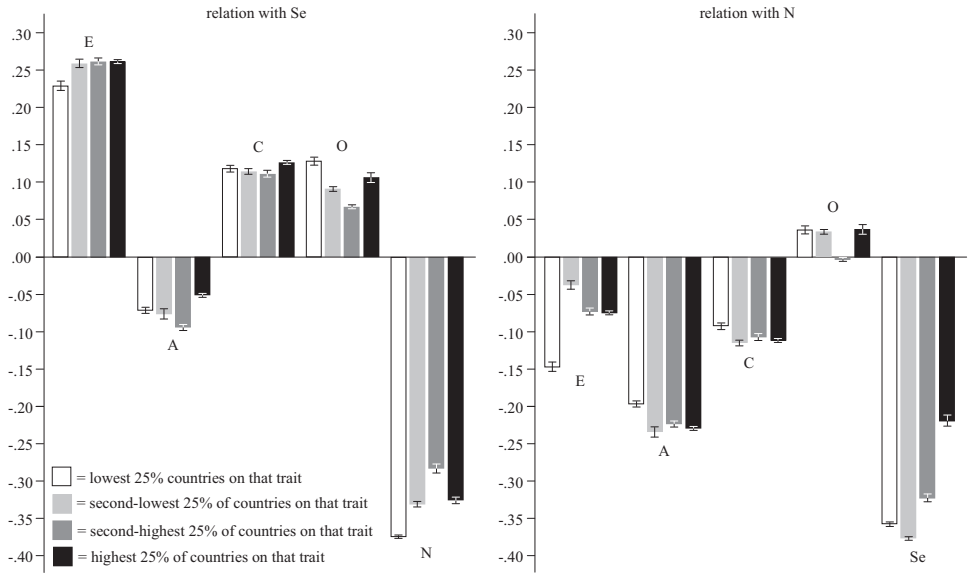

Figure 1. Extreme group comparisons (Study 1).

as the key explanation for self-esteem. Additionally, Figure 1's left-hand panel also speaks against the interpersonal-belongingness perspective as the key self-esteem explanation. This is because the figure illustrates a strong relation between E and higher self-esteem within each subsample, but no such relation between A and higher self-esteem. In contrast, the results fit well with the getting-ahead perspective. Complementing that evidence, Figure 1's right-hand panel displays equivalent extreme-group comparisons for N as the criterion. In support of the getting-ahead perspective, there was a comparatively strong relation between A and lower N within each quartile of countries, whereas the relation between E and lower N was considerably smaller.

Discussion

Study 1 provided the first competitive test of three major perspectives on the function of self-esteem. The test capitalized on the Big Five's cross-cultural relations with self-esteem. The most important finding was a unique and universal relation between E and higher self-esteem, coupled with a unique and universal relation between A and lower N. No such relations emerged between A and self-esteem or between E and lower N. Stated differently, we obtained clear, cross-cultural evidence for the double-dissociation hypothesis. The evidence is fully consistent with the getting-ahead perspective, but at odds with the cultural norm-fulfillment and interpersonal-belongingness perspectives. The support for the double-dissociation hypothesis notwithstanding, we also found some evidence for cultural norm fulfillment on self-esteem (but not on N). This evidence, however, was weak and can be parsimoniously explained by the getting-ahead perspective, according to which cultural norm fulfillment is one means for getting ahead in the social world.[7,8]

Study 1 contributed to the literature in two additional ways. First, it offered the most complete test of the Big Five's cross-cultural relations with self-esteem to date. We used data from 2,718,838 participants, resulting in highly precise estimates of those relations. We also sampled our participants from an unusually large number of countries ($n = 106$). Second, although a prior investigation looked at cultural norm-fulfillment effects regarding E (Fulmer et al., 2010), our study was the first to look at cultural norm-fulfillment effects across all Big Five traits.

Study 2: Informant Reports

The prior study relied on self-reports. Self-reports certainly have their place. For example, emotional traits are inherently subjective and may be most appropriately assessed by self-reports (Baumeister, Campbell, Krueger, & Vohs, 2003; Sedikides et al., 2015). Nonetheless, self-reports can be influenced by socially desirable responding. Socially desirable responding is typically motivated either by self-presentation/impression management (Leary & Kowalski, 1990; Paulhus, 1998) or self-deceptive enhancement (Paulhus, 1998, 2002). Self-presentation is an unlikely confound in Study 1, because the motivation to self-present is absent when participants feel anonymous (Paulhus, 1984, 1991), as they do in anonymous online studies such as the present one where they do not provide identifying information (Gosling et al., 2004).

In contrast, we cannot a priori rule out self-deceptive enhancement as a confound. Granted, our statistical approach ameliorates this concern, given that it controlled for the shared variance between the Big Five traits (Equations 1–7). Typically, it is this variance that is at risk of being confounded by self-deceptive enhancement (Anusic, Schimmack, Pinkus, & Lockwood, 2009). Nonetheless, a replication of Study 1 with informant reports would offer stronger evidence that our results are not liable to any sort of self-report bias (Paulhus, 2002). Therefore, in Study 2, we set out to replicate the findings with informant reports from 837,655 informants acquaintances across 64 countries. To the best of our knowledge, this is the first informant-report investigation on the Big Five's cross-cultural relations with self-esteem.

Study 2's informants served as participants in Study 1. Hence, we were in the fortunate position to use the informants' self-reports (Big Five and self-esteem) as statistical controls. These controls help to keep several potential informant-report confounds in check, including self-projection (i.e., informants projecting their own attributes onto their acquaintance; Wood, Harms, & Vazire, 2010) and differences in informants' general scale use (e.g., acquiescence tendency, extreme scoring; Paulhus & Vazire, 2007). It is essential to note that adding the self-reports as controls also partials out valid variance in informant reports; this is because there typically is covariation between informants' and acquaintances' "true" traits due to assortative pairing (Luo & Klohnen, 2005), genetic overlap (Bleidorn et al., 2010), or shared social

[7] Would the evidence for the cultural norm-fulfillment perspective be stronger, if we excluded Asian countries from our analysis? Testing this possibility is justified for two reasons. First, our data from Asia may not reflect typical Asian characteristics, because our Asian participants had to complete our studies in English (or in Spanish, German, or Dutch). Second, norm fulfillment may not affect self-esteem in Asia (Heine, Lehman, Markus, & Kitayama, 1999; but see Kobayashi & Brown, 2003; Kurman, 2001; Sedikides et al., 2005). Thus, we repeated the analyses described in the main text, but excluded Study 1's 26 Asian countries. The results remained essentially unchanged (i.e., no changes in the significance of the cross-level interactions) and the results did not yield any stronger support for the cultural norm-fulfillment perspective. We also conducted parallel analyses in Study 2, excluding 13 Asian countries. Again, those results did not yield any stronger support for the norm-fulfillment perspective. If anything, norm-fulfillment effects emerged somewhat less consistently. Specifically, the norm-fulfillment effect involving A was not significant ($b = .09$, $SE = .11$, $t = 0.76$, $p = .45$) and this may well be due to the reduced number of countries in the study. Overall, then, even when Asian countries were excluded, the results fitted the getting-ahead perspective best.

[8] Most theories in the norm-fulfillment tradition emphasize the role of cultural norms (Pyszczynski et al., 2004; Rosenberg, 1965; Sedikides et al., 2003). However, norm-fulfillment effects on self-esteem may also apply to more refined social norms, such as age, sex, and religiosity norms (Crocker & Major, 1989; Gebauer, Wagner et al., 2013). Gebauer, Wagner et al. (2013) examined the role of age, sex, and religiosity in the relation between agency–communion and self-esteem. They found consistent evidence for norm fulfillment, but those norm-fulfillment effects were much smaller than was cultural norm fulfillment on self-esteem. Likewise, Robins et al. (2001) examined the role of age and sex in the relation between the Big Five and self-esteem. Age and sex did not substantially qualify their Big Five relations with self-esteem. Thus, theoretical and empirical reasons led us to focus exclusively on cultural norm fulfillment in the main text. In a further test of this decision, we repeated our analyses, including age, sex, and religiosity as additional moderators of the Big Five's relations with self-esteem. In line with past research (Gebauer, Wagner et al., 2013), we generally found evidence for very small norm-fulfillment effects. Such small effects are in line with the getting-ahead perspective and did not conceptually challenge any of our conclusions. That is, we still obtained universal support for the double-dissociation hypothesis.

contexts (Caspi, Herbener, & Ozer, 1992). Thus, inclusion of these control variables provides a very conservative test of the three perspectives.

Method

Participants. We used data from 837,655 informants across 64 countries (58.1% female, 41.9% male; M_{age} = 25.46 years, SD_{age} = 10.47); 62.1% completed the study in English, 27.4% in Spanish, 5.1% in German, and 5.4% in Dutch. As in Study 1, the data were collected as part of the Gosling-Potter Internet Personality Project (December 1998 to December 2009). We arrived at the above sample by applying selection criteria parallel to those of Study 1. In brief, we again excluded participants who indicated that their responses were not truthful as well as participants who indicated that they have completed the same study before. We also excluded participants who named a U.S. state as well as a country other than the U.S. as their current place of residence. Again, we only included participants who completed at least one item of each measure. Finally, we once more excluded participants who came from countries with less than 300 respondents. Table 4 lists this study's 64 countries.

Procedure. The procedure was identical to Study 1's, with one exception. In addition to self-reports, all participants provided informant reports on a close acquaintance. They were instructed to "rate someone whom you know well, such as a close friend, coworker, or family member." Past research has validated informant reports from close friends (Funder & Colvin, 1988), coworkers (Hogan, Hogan, & Roberts, 1996), and family members (Vazire & Mehl, 2008).

Measures. The measures were described in Study 1, with one exception. For each item, participants had two rating scales. The first scale (labeled "Myself") assessed participants' own traits. The second scale (labeled "Other") assessed the traits of a close acquaintance via informant report. All multiitem measures had adequate psychometric properties (see Table 2).

Results

Informant-reports only. The statistical analyses were parallel to Study 1's. In a first step, we examined the direct replicability of Study 1, and thus we did not include informants' self-reports as statistical controls. That is, we examined the same model as described in Study 1's Equations 1–7, but replaced individuals' self-reports with informant reports. In effect, this study's key model reexamined all traits simultaneously. (The online supplement reports the results of models that only include one trait at a time; Table S3.)

We first inspected the independent main effects of each informant-reported Big Five trait on informant-reported self-esteem. The upper-left part of Table 5 presents those results. As in the self-report data, we obtained the expected sizable relation between N and self-esteem. Apart from N, however, E again emerged as the strongest predictor of self-esteem, followed by C, then O, and A, which was weakly but negatively related to self-esteem. These informant-report results fully replicate Study 1's self-report results and thus fit the getting-ahead perspective best. The results are difficult to explain from an interpersonal-belonging perspective, given that A chiefly matters for interpersonal belonging.

Next, we examined the role of culture in the Big Five relations with self-esteem. The lower-left part of Table 5 presents those results. We found strong support for cultural norm fulfillment in the cases of E, A, C, and N. The relation between O and self-esteem did not strengthen with increasing country-level O. As described earlier, all three self-esteem perspectives are in line with those cultural norm-fulfillment effects. The perspectives differ, however, in their predictions about the size of the effects. Table 4 includes the simultaneous regression results of all informant-reported Big Five traits on informant-reported self-esteem for each of the 64 countries. Inspection of those unique relations indicates differences across cultures that are only modest in size (see Table S2 for corresponding zero-order correlations within each country). The ΔR^2 estimates of the cross-level interactions (Tables 5 and S3) once more buttress the conclusion that cultural norm-fulfillment effects are generally modest. Their size is consistent with the getting-ahead perspective; it is also consistent with the interpersonal-belonging perspective, which, however, received little support from the main effect analyses.[9]

Next, we tested the getting-ahead perspective's supplementary hypothesis that A, but not E, is uniquely related to N. We computed a second model, which was identical to the first model (see Equations 1–7), with the exception that we interchanged the roles of informant-reported self-esteem and informant-reported N (at the individual level, but also at the country level). This second model examined all Big Five traits simultaneously. (The online supplement reports the results of models that include only one Big Five trait at a time; Table S3.) We first attended to the independent main effects. The upper-right part of Table 5 presents those results. We obtained, once again, the sizable (negative) relation between informant-reported self-esteem and informant-reported N. More important, however, A emerged as the strongest (negative) Big Five predictor, followed by C, than E, and O, which was weakly but positively related to N. The results fit the getting-ahead perspective very well.

We proceeded to test for cultural norm fulfillment on N and again expected little evidence for it. The lower-right part of Table 5 shows no support for cultural norm-fulfillment effects on N. The cross-level interactions were far from being significant for E, A, C, and O. The cross-level interaction involving self-esteem was significant, but not in the direction predicted by this perspective.

Finally, we conducted extreme group analyses to better detect the influence of culture on the Big Five's relations with self-esteem. We followed the same procedure as in Study 1's extreme-group comparisons. The results were remarkably similar to those of Study 1 (see Figure 2) and thus strongly favor the getting-ahead

[9] As in Study 1, we sought to examine whether our own country-level Big Five indices are more suitable for our analyses than external ones (see Footnote 6). To this end, we repeated Study 2's main analysis (see Equations 1–7) using external country-level indices, instead of our own indices. External country-level information was available for 41 of our 64 countries (Footnote 2 provides more information on the external indices). The evidence for cultural norm fulfillment weakened somewhat. Specifically, the norm-fulfillment effect for A was rendered nonsignificant (external indices: b = .02, SE = .01, t = 1.50, p = .14, ΔR^2 = 0.01%; own indices: b = .29, SE = .13, t = 2.33, p = .03, ΔR^2 = 0.05%), whereas the norm-fulfillment effects for the other four Big Five traits remained essentially unchanged (i.e., no change in the significance levels when switching from our own indices to the external indices).

Table 4
Simultaneous Regressions on Self-Esteem and N for Each of the 64 Countries in Study 2 (All Informant-Report)

		Simultaneous regression on Se					Simultaneous regression on N				
Country	*N*	E	A	C	O	N	E	A	C	O	Se
ABC-Islands	667	.30**	−.11**	.13**	.10*	−.17**	.00	−.24**	−.04	.07	−.19**
Argentina	44,301	.29**	−.11**	.11**	.07**	−.21**	.07**	−.27**	.02**	.07**	−.22**
Armenia	397	.35**	−.12*	.23**	.08	−.24**	.05	−.27**	−.01	.12*	−.28**
Australia	20,621	.31**	−.09**	.11**	.08**	−.37**	−.05**	−.32**	−.04**	.04**	−.38**
Austria	4,091	.41**	−.14**	.07**	.08**	−.29**	−.01	−.27**	−.04**	.06**	−.34**
Belgium	7,653	.26**	−.20**	.10**	.06**	−.24**	−.09**	−.28**	−.03**	.03**	−.24**
Bolivia	2,524	.30**	−.03	.13**	.11**	−.17**	−.04	−.21**	−.02	.09**	−.19**
Brazil	1,729	.35**	−.12**	.15**	.14**	−.23**	.08**	−.39**	.04	.05*	−.24**
Canada	32,946	.30**	−.09**	.12**	.08**	−.37**	−.02**	−.31**	−.03**	.03**	−.38**
Chile	19,847	.30**	−.08**	.12**	.06**	−.24**	.03**	−.25**	−.03**	.03**	−.26**
China	1,548	.17**	−.07**	.11**	.14**	−.10**	−.12**	−.34**	−.17**	.06*	−.09**
Colombia	14,173	.26**	−.03**	.12**	.14**	−.22**	.01	−.24**	.00	.07**	−.24**
Costa Rica	2,356	.28**	−.02	.13**	.10**	−.24**	.04	−.26**	.00	.03	−.27**
Croatia	540	.24**	−.17**	.16**	.10*	−.25**	−.07	−.40**	−.05	.06	−.23**
Cuba	401	.27**	−.09	.18**	.15**	−.25**	.05	−.34**	.01	.05	−.27**
Denmark	2,501	.31**	−.19**	.11**	.17**	−.29**	−.06**	−.28**	−.07**	.03	−.31**
Dominican Republic	2,531	.24**	−.01	.15**	.14**	−.23**	.03	−.18**	−.06**	.11**	−.26**
Ecuador	2,546	.26**	−.01	.17**	.12**	−.20**	.00	−.21**	.02	.04	−.22**
Egypt	431	.20**	−.05	.19**	.08	−.09	−.04	−.26**	−.06	.08	−.09
El Salvador	1,482	.25**	.02	.11**	.19**	−.19**	.05	−.25**	.03	.03	−.21**
Finland	3,053	.31**	−.11**	.13**	.13**	−.32**	.01	−.34**	−.03*	.07**	−.34**
France	1,753	.30**	−.21**	.01	.10**	−.24**	−.03	−.31**	−.07**	−.02	−.25**
Germany	35,853	.42**	−.15**	.07**	.06**	−.30**	.01	−.29**	−.05**	.09**	−.36**
Greece	725	.32**	−.15**	.16**	.14**	−.23**	−.06	−.33**	−.01	.09*	−.25**
Guatemala	2,120	.23**	.00	.15**	.16**	−.22**	−.01	−.26**	.02	.04	−.24**
Honduras	859	.26**	.02	.15**	.11**	−.22**	.10**	−.17**	.05	.05	−.25**
Hong Kong	1,024	.23**	−.07*	.21**	.16**	−.14**	−.09**	−.38**	.01	.03	−.14**
Hungary	351	.28**	−.17**	.03	.17**	−.26**	−.11*	−.29**	−.10*	.01	−.26**
India	4,995	.15**	−.07**	.19**	.22**	−.08**	−.18**	−.25**	−.16**	.02	−.08**
Indonesia	638	.28**	−.07	.10*	.13**	−.11**	−.14**	−.29**	−.15**	.07	−.11**
Ireland	2,989	.29**	−.15**	.12**	.07**	−.35**	−.06**	−.33**	−.02	.03	−.35**
Israel	842	.31**	−.15**	.10**	.13**	−.26**	.01	−.26**	−.08*	.04	−.28**
Italy	1,508	.27**	−.20**	.13**	.11**	−.29**	−.02	−.39**	−.08**	.06*	−.28**
Japan	1,076	.25**	−.08**	.13**	.15**	−.26**	−.08**	−.30**	−.11**	.06*	−.26**
Malaysia	2,337	.30**	−.05*	.21**	.20**	−.18**	−.09**	−.32**	−.09**	.04*	−.20**
Mexico	54,945	.27**	−.02**	.13**	.14**	−.24**	.01**	−.21**	−.01*	.04**	−.27**
Netherlands	43,134	.24**	−.18**	.06**	.10**	−.30**	−.12**	−.29**	−.06**	.04**	−.29**
New Zealand	5,900	.29**	−.11**	.12**	.09**	−.41**	−.04**	−.34**	−.03*	.03**	−.40**
Nicaragua	810	.20**	.00	.11**	.22**	−.24**	.05	−.21**	−.02	.09*	−.28**
Norway	1,964	.35**	−.15**	.09**	.08**	−.34**	−.02	−.34**	−.08**	.07**	−.34**
Pakistan	986	.10**	−.03	.14**	.25**	−.02	−.18**	−.17**	−.13**	.09*	−.02
Panama	928	.28**	.02	.08*	.10**	−.19**	.03	−.27**	.01	.06	−.21**
Paraguay	1,200	.28**	−.07*	.15**	.11**	−.17**	.13**	−.22**	.02	.03	−.18**
Peru	8,407	.28**	−.06**	.16**	.16**	−.21**	−.02	−.20**	−.04**	.07**	−.24**
Philippines	4,727	.31**	−.04**	.17**	.18**	−.16**	−.11**	−.27**	−.14**	.09**	−.17**
Poland	585	.35**	−.27**	.07	.11**	−.29**	.01	−.35**	−.08*	.12**	−.32**
Portugal	796	.30**	−.18**	.07*	.11**	−.39**	.04	−.31**	−.05	.13**	−.40**
Puerto Rico	1,552	.32**	.05*	.13**	.09**	−.24**	.05	−.27**	.00	−.03	−.27**
Romania	694	.25**	−.25**	.12**	.22**	−.20**	−.03	−.39**	−.06	.00	−.20**
Russia	360	.25**	−.26**	.16**	.21**	−.13*	−.06	−.30**	−.16**	.08	−.13*
Singapore	3,579	.28**	−.12**	.14**	.14**	−.24**	−.16**	−.29**	−.04*	.07**	−.25**
Slovenia	317	.37**	−.18**	.08	.12*	−.12*	−.07	−.22**	−.11*	−.07	−.13*
South Africa	1,567	.31**	−.06*	.08**	.07**	−.34**	−.06**	−.29**	−.08**	.02	−.35**
South Korea	553	.24**	−.10*	.21**	.09*	−.23**	−.10*	−.36**	.00	.03	−.23**
Spain	56,540	.32**	−.12**	.08**	.06**	−.30**	.11**	−.30**	−.02**	.05**	−.31**
Sweden	3,723	.31**	−.11**	.07**	.11**	−.37**	.05**	−.32**	−.10**	.09**	−.38**
Switzerland	5,592	.36**	−.16**	.09**	.09**	−.28**	−.01	−.29**	−.09**	.06**	−.30**
Thailand	531	.26**	−.03	.22**	.08	−.14	−.20**	−.26**	−.16**	.05	−.14**
Turkey	462	.22**	−.12*	.16**	.26**	−.25**	.02	−.41**	.04	.07	−.26**
United Arab Emirates	1,089	.26**	−.06*	.17**	.15**	−.19**	−.13**	−.28**	−.10**	.12**	−.20**
United Kingdom	55,555	.31**	−.15**	.08**	.06**	−.37**	−.08**	−.31**	−.04**	.04**	−.37**

Table 4 (*continued*)

Country	*N*	Simultaneous regression on Se					Simultaneous regression on N				
		E	A	C	O	N	E	A	C	O	Se
United States	346,980	.29**	−.06**	.14**	.07**	−.37**	−.01**	−.33**	−.05**	.02**	−.37**
Uruguay	2,787	.24**	−.11**	.13**	.13**	−.22**	.06**	−.24**	.02	.09**	−.23**
Venezuela	7,984	.28**	−.01	.12**	.12**	−.20**	.00	−.19**	−.03**	.06**	−.23**

Note. Se = self-esteem.
* $p < .05$. ** $p < .01$.

perspective over the interpersonal-belonging and cultural norm-fulfillment perspectives.

Informant reports, controlling for informants' self-reports. In a second step, we repeated all the analyses just described, but this time our models additionally included informants' self-reported Big Five traits, their self-reported self-esteem, and the cross-level interactions between those individual-level predictors and the models' country-level predictors. Tables 6 and S4 show that inclusion of these conservative controls did not alter conceptually any of our earlier conclusions.

Discussion

Study 2's informant-report results replicated Study 1's self-report results. In addition, the informant-report results remained essentially unchanged, even after controlling for informants' self-reported Big Five traits and their self-reported self-esteem. Thus, the universality of the double-dissociation hypothesis stands on firm empirical grounds, a pattern that supports the getting-ahead perspective over the cultural norm-fulfillment and the interpersonal-belonging perspectives. The universality of the double-dissociation hypothesis notwithstanding, the present study also revealed informant-report evidence for cultural norm-fulfillment effects on self-esteem (but not on N). This in itself is a key extension of prior research on cultural norm-fulfillment, given that all prior research has relied exclusively on self-reports (Becker et al., 2014; Fulmer et al., 2010; Gebauer, Wagner et al., 2013; Goodwin et al., 2012).

General Discussion

What is the function of self-esteem? The literature on this question can be sorted into three broad perspectives. The *cultural norm-fulfillment perspective* dates back to James (1890) and was famously elaborated upon by Rosenberg (1965). Both assumed that self-esteem results from living up to introjected cultural norms. Contemporary formulations that build on this idea include the self-evaluation maintenance model (Tesser, 1988), the SCENT model (Sedikides & Strube, 1997), TMT (Greenberg et al., 1997), and the contingencies of self-worth model (Crocker & Wolfe, 2001). The *interpersonal-belonging perspective* dates back to Cooley (1902). He reasoned that self-esteem reflects the degree to which individuals are held in esteem by others. More broadly, that perspective maintains that interpersonal belonging is the basis for self-esteem. Contemporary formulations in line with this proposal include attachment theory (Mikulincer, 1995), social identity theory (Tajfel & Turner, 1986), sociometer theory (Leary & Baumeister, 2000), and sociometer theory's extensions (Kavanagh, Robins, & Ellis, 2010). Finally, the *getting-ahead perspective* has its roots in Leary's (1957) writings. He considered self-esteem alongside anxiety, and claimed that high self-esteem and low anxiety result

Table 5
Study 2's "Informant-Reports Only" Results (Based on the Model Described by Equations 1–7)

	Criterion: Se						Criterion: N					
	b	*SE*	*t*	*df*	*p*	ΔR^2	*b*	*SE*	*t*	*df*	*p*	ΔR^2
Individual-level effects							Individual-level effects					
E	.29	.006	50.66	58	.001	9.51	E	−.02	.008	−3.18	58	.002	0.18
A	−.10	.007	−14.79	58	.001	0.72	A	−.29	.007	−42.41	58	.001	9.32
C	.13	.004	32.70	58	.001	1.66	C	−.05	.005	−8.80	58	.001	0.09
O	.12	.006	22.08	58	.001	0.80	O	.05	.004	13.65	58	.001	0.18
N	−.24	.008	−30.43	58	.001	10.57	Se	−.25	.008	−29.97	58	.001	10.68
Country-level effects							Country-level effects					
E_C	−.27	.178	−1.54	58	.13	0.04	E_C	.13	.185	0.72	58	.47	−0.01
A_C	.11	.197	0.57	58	.57	−0.02	A_C	−.23	.194	−1.19	58	.24	0.02
C_C	.72	.208	3.48	58	.001	0.31	C_C	−.13	.226	−0.56	58	.58	−0.02
O_C	.06	.151	0.41	58	.69	−0.03	O_C	.22	.152	1.48	58	.14	0.04
N_C	.43	.114	3.75	58	.001	0.38	Se_C	.03	.079	0.38	58	.71	−0.02
Cross-level interactions							Cross-level interactions					
$E \times E_C$	.22	.075	2.94	58	.005	0.02	$E \times E_C$	.04	.103	0.35	58	.73	0.00
$A \times A_C$	.21	.094	2.21	58	.03	0.03	$A \times A_C$	−.10	.093	−1.11	58	.27	0.00
$C \times C_C$	.13	.060	2.13	58	.04	0.01	$C \times C_C$	.16	.087	1.79	58	.08	0.02
$O \times O_C$	−.06	.064	−1.01	58	.32	0.00	$O \times O_C$	−.03	.044	−0.77	58	.45	0.00
$N \times N_C$	.27	.067	4.07	58	.001	0.15	$Se \times Se_C$	.29	.047	6.18	58	.001	−0.02

Note. Se = self-esteem; ΔR^2 in %.

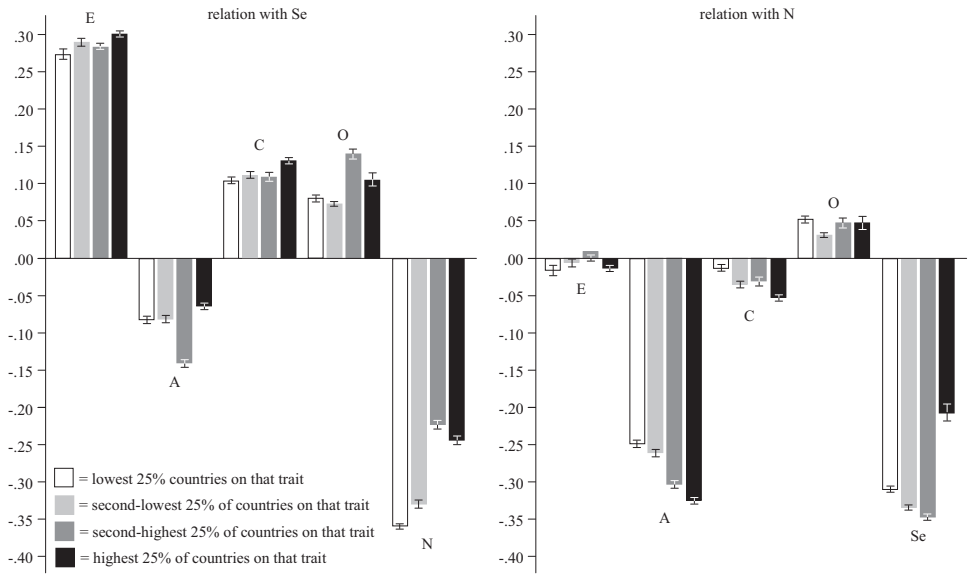

Figure 2. Extreme group comparisons (Study 2).

from satisfying two distinct interpersonal motives: social dominance and affiliation. Barkow (1980) argued that high self-esteem constitutes a sociometer for social dominance (or getting ahead; Hogan, 1983). Barkow did not suggest a sociometer for affiliation, but, based on Leary's (1957) writings, low anxiety/N is a strong candidate for the sociometer of affiliation (or getting along; Gebauer, Sedikides, et al., 2014; Hogan, 1983).

Summary of Our Findings

We engaged in a competitive test of the three self-esteem perspectives. We first sought to identify a domain in which these perspectives make contrasting predictions. This was not a simple task, because all perspectives trace self-esteem to social bases and consequently are bound to be somewhat similar in their predictions (Leary, 2004). However, the different models make different predictions in terms of the cross-cultural relations between the Big Five and self-esteem. So we examined those relations in two studies based on self-reports (Study 1; N = 2,718,838 from 106 countries) and informant reports (Study 2; N = 837,655 from 64 countries). The results converged across the complementing reporting methods.

All three self-esteem perspectives endorse the view that cultural norm fulfillment is relevant to self-esteem. However, only the cultural norm-fulfillment perspective predicts that norm fulfill-

Table 6
Study 2's "Informant Reports, Controlling for Informants' Self-Reports" Results

	Criterion: Se						Criterion: N					
	b	*SE*	*t*	*df*	*p*	ΔR^2	*b*	*SE*	*t*	*df*	*p*	ΔR^2
Individual-level effects							Individual-level effects					
E	.28	.006	51.21	58	.001	9.94	E	−.003	.007	−0.46	58	.65	0.18
A	−.11	.007	−16.91	58	.001	1.06	A	−.29	.007	−39.32	58	.001	8.93
C	.12	.004	33.37	58	.001	1.60	C	−.02	.005	−3.75	58	.001	−0.03
O	.11	.005	21.53	58	.001	0.65	O	.03	.004	8.59	58	.001	0.09
N	−.26	.008	−34.43	58	.001	11.79	Se	−.28	.009	−32.46	58	.001	11.93
Country-level effects							Country-level effects					
E_C	−.27	.178	−1.53	58	.13	0.05	E_C	.12	.186	0.64	58	.52	−0.02
A_C	.11	.197	0.54	58	.59	−0.02	A_C	−.23	.195	−1.19	58	.24	0.02
C_C	.73	.208	3.49	58	.001	0.36	C_C	−.11	.227	−0.50	58	.62	−0.02
O_C	.06	.151	0.40	58	.69	−0.03	O_C	.22	.152	1.46	58	.15	0.04
N_C	.42	.114	3.72	58	.001	0.41	Se_C	.03	.079	0.40	58	.69	−0.02
Cross-level interactions							Cross-level interactions					
E × E_C	.20	.072	2.83	58	.006	0.02	E × E_C	.05	.097	0.53	58	.60	0.00
A × A_C	.22	.095	2.34	58	.02	0.03	A × A_C	−.09	.100	−0.92	58	.36	0.00
C × C_C	.12	.056	2.13	58	.04	0.01	C × C_C	.13	.083	1.56	58	.12	0.01
O × O_C	−.02	.06	−0.34	58	.74	−0.01	O × O_C	−.04	.049	−0.87	58	.39	0.00
N × N_C	.26	.063	4.17	58	.001	0.17	Se × Se_C	.27	.049	5.40	58	.001	0.28

Note. Se = self-esteem; ΔR^2 in %.

ment is a major determinant of self-esteem. Yet, this strong position was unsupported: Norm fulfillment played only a modest role in the relation between the Big Five and self-esteem. Our research paradigm also revealed no support for the interpersonal-belonging perspective. According to that perspective, E and A should both predict higher self-esteem, because both traits are important contributors to interpersonal belonging. Yet, only E consistently emerged as a key predictor of self-esteem. In contrast, A consistently failed to predict self-esteem, although A is just as important for interpersonal belonging as is E. In Leary's (2010, p. 479) words, "We do not value our relations with people whom we view as disagreeable . . . as much as our relations with people with whom it is more pleasant to interact."

We obtained compelling support for the getting-ahead perspective. E was related to higher self-esteem, and this link replicated across countries with different average E-levels. Specifically, E emerged as the strongest predictor of self-esteem even in cultures with the lowest mean levels in E (Figures 1–2). We found no evidence for A as a basis of self-esteem, but A was consistently related to lower N. The results offer the first empirical backing that self-esteem functions as a sociometer for getting ahead, whereas anxiety/N functions as a sociometer for getting along. These findings can be meaningfully integrated in a dual sociometer system.

Toward a Dual Sociometer System for Getting Ahead and Getting Along

A dual sociometer system has theoretical advantages over a global one. A global sociometer would have the capacity to alarm people that their interpersonal-belonging prospects are insufficient, but people would remain in the dark about the reasons for it. In other words, they would have no information about whether their belonging is at risk due to failure to get ahead or failure to get along. Such information is crucial, however, because it can prevent them from directing all their efforts on the wrong domain in order to reestablish their belongingness. The lack of specificity of a global sociometer would not be problematic, if getting ahead compensated easily for failure to get along (and vice versa). Such compensation, though, is not easy. Narcissism is a case in point. Narcissists are preoccupied with getting ahead at the expense of getting along (Paulhus, 2001), and, as a consequence, they are rejected and excluded in the long run (Paulhus, 1998; Sedikides, Hoorens, & Dufner, in press).

Evidence from physiological psychology also supports a dual sociometer system. Bodily pains (acute and chronic) evolved as meters of bodily impairment (Melzack & Casey, 1968), and different pain experiences signal different impairment types (Price, Harkins, & Baker, 1987). Further, emotion researchers have assumed that *all* emotions serve as affective-motivational signals or meters (Frijda, 1986; McClelland, 1985). As such, anxiety/N may well serve as a meter signaling insufficient getting-along prospects (Leary, 1957). Finally, self-esteem and anxiety/N have optimally distinct affective signatures allowing people to readily tell them apart. High self-esteem is marked by high arousal positive affect, whereas low self-esteem is marked by low arousal negative affect (Moretti & Higgins, 1990). The reverse is true for anxiety/N. Low anxiety/N is marked by low arousal positive affect, whereas high anxiety/N is marked by high arousal negative affect (Higgins, Klein, & Strauman, 1985).

Denissen and Penke (2008) referred to sociometer theory (Leary & Baumeister, 2000) in their effort to understand the motivational underpinnings of N. These authors argued that, "neuroticism can be plausibly conceptualized as individual differences in people's sensitivity to signals of social exclusion" (p. 1289). We are not the first, then, to evoke the idea that N may function as a sociometer. In contrast to our proposal for a dual sociometer system, however, Denissen and Penke linked N to interpersonal belonging in general rather than to getting along in particular.

Leary (2010) proposed that social anxiety serves as a sociometer. He argued that "individual differences in social anxiety should be related to the degree to which people . . . perceive that others do, in fact, value and accept them" (p. 480). Thus, Leary (2010) linked social anxiety to global interpersonal belonging. The key difference to the self-esteem sociometer is that the social anxiety sociometer is more directly attuned to prospects of making "a desired impression on other people" (p. 472). This view is consistent with our proposal that anxiety/N is the sociometer for getting along rather than getting ahead, because a socially desirable impression hinges much more on qualities that foster getting along than on qualities that foster getting ahead (Abele & Wojciszke, 2014; Paulhus & Trapnell, 2008).

Limitations and Future Research

The primary objective of our research was to help clarifying the function of self-esteem. A secondary objective was to test for the emotional signature of getting along. We generated initial evidence that the personality driver of getting along is uniquely linked to some form of low arousal-positive affect, but future research should seek greater specificity. For example, is it low N (Gebauer, Sedikides et al., 2014), low anxiety (Leary, 1957), or low social anxiety (Leary, 2010)? That research will have to confront a perennial difficulty. Specifically, the conceptual and empirical overlap among N, anxiety, and social anxiety is immensely high (Watson & Clark, 1984). For example, it is difficult to tease apart anxiety and social anxiety, because both have been exclusively traced back to *social* threats (Baumeister & Tice, 1990; see also Matthews, 2004). Similarly, anxiety and N both possess virtually identical change trajectories in response to changes in people's social relationships (Lehnart, Neyer, & Eccles, 2010).

The present research also raises questions about the nature of N. At the conceptual level, our dual sociometer account describes N (or anxiety, N's most dominant component) as an affective-motivational meter, which is functionally more akin to self-esteem than to the other Big Five traits. On first sight this conceptualization may appear problematic, because factor analyses in the lexical tradition revealed an N factor alongside the E, A, C, and O factors. At the same time, however, no self-esteem factor emerged from those factor analyses. Yet, the factor analytic method is mute about whether or not its factors are functionally parallel (cf. Wood, Gardner, & Harms, 2015). Thus, it is well possible that N functionally differs from the other Big Five traits. At the same time, self-evaluative traits were removed from the original item-base that eventually lead to the Big Five (Allport & Odbert, 1936; Cattell, 1943; Norman, 1967). Thus, it was impossible for such self-evaluative traits (e.g., self-esteem) to emerge as a "Big" trait (Benet & Waller, 1995; Benet-Martínez & Waller, 1997, 2002). Over and above that, diverse research lines converge in the con-

clusion that N and self-esteem are functionally related. Specifically, both traits belong to the same category of evaluative traits (Furr & Funder, 1998; Judge et al., 2002; Leary & Hoyle, 2009; Leising et al., 2013) and are less content laden than the other four Big Five traits (Paulhus & John, 1998). *N* and self-esteem also possess similar genetic underpinnings (Neiss, Stevenson, Legrand, Iacono, & Sedikides, 2009) and they share evolutionary histories (Sedikides & Skowronski, 1997, 2000). Not surprisingly, then, N and self-esteem are moderately correlated (Judge et al., 2002; Sedikides, Rudich, Gregg, Kumashiro, & Rusbult, 2004).

When engaging in competitive testing, it is crucial to operationalize the constructs at the same level of specificity or generality in order to achieve a fair outcome (Platt, 1964; Sedikides, Gaertner, Luke, O'Mara, & Gebauer, 2013). We did so in focusing on the relation between Big Five traits and self-esteem, but follow-up research will do well to consider additional, and perhaps more direct tests. For example, a more direct test of the getting-ahead perspective would involve the assessment of social dominance (getting ahead) and affiliation (getting along). Future research might benefit from examining the causal relations underlying the findings we obtained, thus bypassing the weaknesses of purely correlational designs.

We assessed each Big Five trait with a multi-item scale from the BFI (John et al., 1991), but we assessed self-esteem with the single-item SISES (Robins et al., 2001). The psychometric properties of single-item measures typically fall behind those of multi-item measures; however, a large body of evidence suggests that the SISES may be an exception (Gebauer, Broemer, Haddock, & von Hecker, 2008; Robins, Trzesniewski, Tracy, Gosling, & Potter, 2002; Ross & Wilson, 2002). For example, the SISES is so highly correlated with Rosenberg's (1965) Self-Esteem Scale that the two scales can be regarded as parallel measures of the same construct (Robins et al., 2001). Nonetheless, compared with Rosenberg's (1965) Self-Esteem Scale, the SISES may be somewhat less strongly correlated with A/communion (Robins et al., 2001; Zeigler-Hill, 2010; but see Gecas, 1982; Gecas & Seff, 1989; and Wojciszke et al., 2011 for contrary evidence). To be sure, the differences are not large enough to threaten the validity of the double-dissociation hypothesis. Nevertheless, we sought to clarify whether the unique relations between A and self-esteem are somewhat less negative, when using other self-esteem measures. To do so we examined two additional samples, not drawn from the Gosling-Potter Internet Personality Project. The first additional sample contained data from 435 German first-year psychology students (M_{age} = 24.41, SD_{age} = 6.72; 69% women). They completed the BFI as well as von Collani and Herzberg's (2003) German version of Rosenberg's (1965) Self-Esteem Scale (RSES; α = .89). The second additional sample contained data from 610 American MTurk workers (M_{age} = 34.18, SD_{age} = 11.76; 47% women). They also completed the BFI, but self-esteem was assessed with three measures: the RSES (α = .94), the State Self-Esteem Scale (SSES; α = .94; Heatherton & Polivy, 1991), and the SISES (r_{RSES} = .75, r_{SSES} = .74). In both additional samples, we simultaneously regressed self-esteem on the Big Five. We found comparatively strong E-esteem relations, $\beta(431) = .32$, $p < .001$ (German sample; RSES), $\beta(609) = .17$, $p < .001$ (U.S. sample; RSES), $\beta(609) = .21$, $p < .001$ (U.S. sample; SSES), $\beta(609) = .29$, $p < .001$ (U.S. sample; SISES). At the same time, we found small and negative A-esteem relations, $\beta(431) = -.05$, $p = .17$ (German sample; RSES), $\beta(609) = -.03$, $p = .41$ (U.S. sample; RSES), $\beta(609) = -.08$, $p = .008$ (U.S. sample; SSES), $\beta(609) = -.16$, $p < .001$ (U.S. sample; SISES). Comparison of the A-esteem relations across the different self-esteem measures revealed that type of measure indeed mattered. This relation was closest to zero when using the RSES, and it was significantly more negative when using the SSES, $z = 3.41$, $p < .001$. The relation was even more negative, when using the SISES, $z = 4.57$, $p < .001$. Importantly, these differences were small and do not challenge our conclusions from Studies 1–2. In fact, they provide additional and independent support for the getting-ahead perspective.

The cultural norm-fulfillment perspective typically defines culture at the country level (Bernard, Gebauer, & Maio, 2006; Pyszczynski et al., 2004; Rosenberg, 1965). Following this definition, we examined cross-cultural differences in the Big Five relations with self-esteem across countries. Cultural norm fulfillment, however, may have a somewhat stronger relation with self-esteem, if the focus lies on subcultures within countries. For example, there may be stronger evidence for cultural norm fulfillment when the focus lies on Big Five norms of different ethnic groups within a country. The role of ethnicity is beyond the scope of the current work, but we did want to assure that the double dissociation hypothesis replicates across different ethnicities within a single country. Therefore, we retested this hypothesis in each of the 13 major ethnic groups from Study 1's U.S. subsample (Black, Chicano, Chinese, Filipino, Indian/Pakistani, Japanese, Korean, Latino, Middle Eastern, Native American, Pacific Islander, Puerto Rican, White). Table S6 in the online supplement presents those results. The double-dissociation hypothesis replicated in each and every ethnic group.

We focused on trait self-esteem and traits in general. This approach is in line with the bulk of literature on cultural norm fulfillment (Fulmer et al., 2010; Rosenberg, 1965), interpersonal belonging (Feeney & Noller, 1990; Roberts et al., 1996), and getting ahead (Barrick et al., 2002; Roberts & Robins, 2000). However, sociometer theory was initially formulated as an explanation for state self-esteem (Leary & Downs, 1995). Our theorizing about a dual sociometer system draws heavily on sociometer theory. Is this appropriate, given that our evidence concerns traits, rather than states? Leary and MacDonald (2003; p. 404) provide a theoretical answer: "Just as a savvy investor must monitor both the current price and long-term prospects for a stock, people must monitor both short-term fluctuations in their relational value (state self-esteem) and their relational value in the long run (trait self-esteem)." Empirical tests of sociometer theory followed suit (Leary, 2012) and found links between trait self-esteem and various belongingness indicators (Denissen, Penke, Schmitt, & van Aken, 2008; Gebauer, Leary, & Neberich, 2012; Leary, Tambor, Terdal, & Downs, 1995; MacDonald et al., 2003; Stinson et al., 2008). In fact, Baumeister (2012) recently suggested that trait self-esteem may even be more central to sociometer theory than state self-esteem. Specifically, he noted that "emotions already reacted strongly to acceptance and rejection . . . , so what was the added value of having self-esteem as a sociometer?" His answer was that "emotion was sufficient to react to momentary changes in belongingness. Self-esteem was rather a relatively *stable evaluation*, not of how many relationships you have, but how eligible you are to have multiple long-term relationships and other social

bonds" (p. 128; emphasize added). This reasoning fits well with evolutionary considerations. Specifically, the sociometer system presumably evolved in *Homo sapiens* (or their hominid ancestors) when they lived in small hunter-gatherer groups in the African savannah (Leary, 2010). In these groups, the social structure was largely fixed and changes were presumably quite slow (Leary & Buttermore, 2003), pointing to the usefulness of a sociometer system that is calibrated to slow changes in trait-like interpersonal belonging. Nonetheless, future research should examine the generalizability of our results to the state level (cf. Fleeson, 2001). Might extraverted behavior engender social influence in the moment and, thus, increase state self-esteem? Might agreeable behavior lead to trusting interpersonal interaction in the moment and, thus, lower state anxiety?

Concluding Remarks

We tested the predictions of three major self-esteem perspectives by investigating the Big Five relations with self-esteem across cultures. E was a unique predictor of higher self-esteem across all cultures, whereas A was not. At the same time, A was a unique predictor of lower N across all cultures, whereas E was not. The cultural norm-fulfillment and the interpersonal-belonging perspectives cannot fully explain this double-dissociative pattern, but the getting-ahead perspective can. The findings favor the getting-ahead perspective as an explanation for self-esteem's function.

The results also offer initial evidence for a dual sociometer system. Self-esteem can be conceptualized as a sociometer for getting ahead in the social world, whereas anxiety/N can be conceptualized as a sociometer for getting along with others. We have argued that a dual sociometer system, which separately monitors each pillar of interpersonal belonging, has theoretical value over one global sociometer. Leary (2005, p. 96) has offered an analogy to describe sociometer theory. He "compared self-esteem to the fuel gauge on a car—a device that serves an incredibly important function by alerting drivers to how much fuel is in the tank." The dual sociometer system is an offspring of sociometer theory. As such, an extension of Leary's (2005) analogy may be suitable to illustrate the value of the dual sociometer system. In order to attain a desirable social position, people need a meter assuring that they keep outrunning others (getting ahead, corresponding to a fuel meter for cars), but also a meter assuring that they advance smoothly (getting along, corresponding to an oil meter for cars).

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