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A Multidimensional Approach to the Relationship between Individualism-Collectivism and Guilt and Shame

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Abstract

Guilt and shame proneness are commonly thought to be associated with culture, yet research on this relationship is fragmented and often inconsistent. In a comprehensive review of the existing social scientific literature, we demonstrate that no consistent relationship between guilt and shame, on the one hand, and individualism and collectivism, on the other, has yet been established. To move this research area forward, we apply a new two-dimensional, quaternary perspective to both guilt/shame and cultural orientation. Specifically, both evaluative and behavioral dimensions of guilt and shame are considered using the Guilt and Shame Proneness scale (GASP; Cohen, Wolf, Panter, & Insko, 2011), as well as the degree of hierarchy (i.e., horizontality-verticality) in individuals' cultural orientation (Triandis & Gelfand, 1998). A study of individuals from five countries (US, India, China, Iran, and Spain; total $N = 1{,}466$) confirmed our hypotheses that individuals culturally socialized to be more interpersonally oriented (i.e., horizontal collectivism) are more motivated to engage in reparative action following transgressions, whereas those culturally socialized to be more attuned to power, status, and competition (i.e., vertical individualism) are more likely to withdraw from threatening interpersonal situations, and that these relationships are stronger than corresponding relationships with guilt- and shame-related evaluations. In addition to supporting these hypotheses, our data also provide the first cross-cultural evidence regarding the invariance of the GASP.

Keywords: Guilt, shame, culture, individualism, collectivism

A Multidimensional Approach to the Relationship between Individualism-Collectivism and Guilt and Shame

The link between cultural factors, on the one hand, and experiences of negative self-conscious emotions on the other has been a site of fascination throughout nearly the entire history of modern social science. Early comparative anthropologists distinguished between "shame cultures" and "guilt cultures"—a perspective popularized by Benedict (1946). This distinction was problematized and largely abandoned in anthropology by the 1970s. However, with the recent rise of cultural psychology, the idea of shame and guilt cultures has resurfaced, but has yet to reach a state of coherent synthesis. We suggest that the state of confusion in research on individualism (IND) and collectivism (COL) and guilt-shame stems from the fact that researchers (a) have primarily adopted a *binary* approach to both IND-COL and guilt-shame, whereas a dimensional, *quaternary* approach to each might be more revealing, (b) vary in their definitions and operationalizations of guilt and shame, and (c) do not establish that measurement scores are comparable (i.e., invariant) across samples.

With respect to culture, we propose that considering individuals' orientation toward social hierarchy (i.e., one's prioritization of within-culture status differences; Triandis & Gelfand, 1998)—a dimension orthogonal to IND-COL—should shed light on the inconsistencies in this literature. In essence, without considering the horizontality-verticality dimension of culture, existing research is missing meaningful distinctions between *types* of IND-COL (Shavitt, Torelli, & Reimer, 2010; Sullivan, 2016).

With respect to guilt and shame, both guilt and shame have distinct cognitive-evaluative and behavioral components (Wolf, Cohen, Panter, & Insko, 2010). While advances in measurement have made it possible to distinguish reliably between the evaluative versus

behavioral tendencies associated with guilt and shame (Cohen et al., 2011), no systematic empirical work has addressed the perennial question of their relationships with cultural orientation.

We sought to test two hypotheses regarding cultural orientation's relation to guilt and shame proneness. Specifically, we hypothesized that individuals who are socialized to be more interpersonally oriented (i.e., are high in horizontal collectivism) are more motivated to engage in reparative action following transgressions, whereas those culturally socialized to be more attuned to power, status, and competition (i.e., are high in vertical individualism) are more likely to withdraw from threatening interpersonal situations. We define guilt proneness as the tendency to feel negatively about one's behavior after committing a private transgression, and the accompanying tendency to engage in reparative behavior to address the transgression (Cohen, Wolf, Panter, & Insko, 2011). We define shame proneness as the tendency to feel negatively about one's self after committing a public transgression, and the accompanying tendency to engage in withdrawal behavior to distance oneself from the transgressional context (Cohen et al., 2011).

Guilt and Shame in Relation to Cultural Orientation: Different Perspectives, Findings, and Definitions

At a broad level it is generally recognized that both guilt and shame are *negative self-conscious emotions*, meaning they are negatively valenced and distinctly human emotions in that they require self-awareness (Tracy & Robins, 2007). Theorists and researchers also agree that these emotions arise in the wake of acts that represent violations of internalized standards, rules, or goals (M. Lewis, 1997). Beyond these points of agreement, however, literature proliferates in terms of definitions, hypotheses, and findings.

Many relationships between these emotions and cultural factors have been proposed over the years. By far the majority of this work has centered on IND-COL, a dimension that can be defined as a proclivity to experience the self either as an isolated entity free to choose between flexible relationships, commitments, and environments (IND), or as an entity embedded in a web of predetermined, immutable relationships, commitments, and environments (COL; Adams, 2012; Cross, Hardin, & Gercek-Swing, 2011). However, a number of inconsistencies have contributed to a state of disarray in this literature (for a review, see Silfver-Kuhalampi, Dillen, & Scherer, 2013).

Some research suggests that IND and guilt are associated with each other, on the one hand, and that COL and shame are associated on the other (corresponding to the perspectives of Benedict, 1946; Mead, 1937). In support of this perspective, Scheff (2003) argues that the potential for experiencing shame has historically been a mechanism of social control. Further, he argues that individualists increasingly find the experience of shame objectionable, leading it to be replaced by the internalized and less disagreeable emotion of guilt. This perspective has received some support, such as Fessler's (2004) finding that Californians, relative to Indonesians, use more guilt language (e.g., descriptions of internalized regret) when describing past social transgressions. Some research has supported the other side of this view, the COL-shame association, by showing that those with collectivistic tendencies tend to report more (Dean & Fles, 2016) and possess more highly elaborated shame cognitions (Bedford, 2004; Wong & Tsai, 2007).

Other researchers have argued for the exact opposite of the above perspective, instead arguing that COL-guilt and IND-shame associations exist. This perspective stems from the view that guilt results from violations of social expectations and shame results from discrepancies

from one's internalized ideal-self (e.g., Piers and Singer, 1953/1971). From this perspective, the social nature of guilt makes it appropriate for collectivistic contexts in which social belonging and responsibility are prioritized (Cross et al., 2011). Supporting this perspective, a review by Miller, Chakravarthy, and Rekha (2008) concluded that COL settings promote positive attitudes toward guilt and see it as an inherent aspect of social life. In support of the corresponding shame-IND hypothesis, some theorizing (e.g., Hoggett, 2017) suggests that hyper-focus on one's ideal self is associated with heightened proneness to crippling, negative self-evaluations. Some evidence (Tang, Wang, Qian, Gao, & Zhang, 2008) supports this view by showing that, relative to Chinese college students, American college students report higher levels of shame in response to vignettes depicting either personal or vicarious social transgressions.

The existing research suffers from a lack of synthesis, as indicated by the discrepancies in the literature reviewed above. We contend that three issues have contributed to the ambiguous state of the literature. First, we suggest that research has been too focused on binary conceptions of IND-COL and guilt and shame, whereas a dimensional approach could shed light on the theoretical and empirical inconsistencies. Second, as can be seen above, the definitions and operationalizations of guilt and shame vary considerably between research programs. Third, cross-cultural research on guilt and shame often fails to consider cross-cultural patterns of response biases that can occur when collecting data from multiple populations. As described in detail elsewhere (e.g., Berry, Poortinga, Segall, & Dasen, 2002), what may appear at first to be cross-cultural differences in survey responses may in fact be due to response biases or a lack of construct validity across populations. As such, it is necessary to take steps to ensure psychometric equivalence before meaningful comparisons can be made (e.g., Thielmann et al., 2019). Table 1 provides some illustrative examples of these problems in the literature. In order to

shed some light on this literature, we propose taking a quaternary approach to both guilt-shame and IND-COL.

A Quaternary Approach to Guilt and Shame

One possible path out of the impasse described above lies in moving away from a categorical distinction between guilt and shame and toward quaternary distinctions between shame and guilt *evaluations* and *behaviors*. Within contemporary psychology, the predominant conception of guilt and shame is attributional in nature, and holds that guilt is defined by a local, behavior-focused attribution, whereas shame is defined by a global, self-focused attribution (H. B. Lewis, 1971; Tangney & Dearing, 2002). However, this binary distinction sometimes obscures the fact that both shame and guilt involve evaluative and behavioral reactions (Cohen et al., 2011; Wolf et al., 2010). For example, guilt characteristically involves a behavioral tendency to make reparations for interpersonal harm-doing, while shame involves a tendency to withdraw from the threatening situation (Tangney & Dearing, 2002). We suspect that cultural differences in negative self-conscious emotions may have less to do with categorical differences between guilt and shame and may instead manifest in the behavioral dimension of these emotions. Finally, such a dimensional approach permits the inspection of guilt and shame's relationship with cultural orientation in a way that circumvents lexical differences that may obscure more generalizable patterns of phenomenological experience and behavior (Breugelmans & Poortinga, 2006).

Emerging evidence suggests that cultural differences may manifest more strongly in behavioral tendencies as opposed to explicitly measured values, attitudes, or beliefs, emphasizing the importance of considering the behavioral dimension of guilt and shame. For instance, some research finds little support for the conception of culture as shared systems of meaning and

values (Morris, 2014; Schwartz, 2014), while other research suggests that cultural orientations manifest in habitual "cultural tasks" (i.e., "culturally scripted procedures or means by which to achieve the culture's mandate," Kitayama, Park, Sevincer, Karasawa, & Uskul, 2009, p. 238; also see Kitayama & Imada, 2010). In an example of how cultural differences may influence behavior, a recent cross-cultural study revealed that Americans, relative to Taiwanese, select and generate ideas in a creative group task based more on the idea's originality; whereas Taiwanese, relative to Americans, tend to select and generate ideas based more on the idea's usefulness to the group (Liou & Lan, 2018). In light of these developments, one would expect differences in cultural orientation to be more pronounced in behavioral, rather than strictly evaluative, dimensions of guilt and shame.

Given the utility of approaching guilt and shame dimensionally, particularly with respect to their potential manifestation in behavioral (versus evaluative) dimensions, our intention is to measure these emotions in a two-dimensional, quaternary way. The Guilt and Shame Proneness (GASP) scale (Cohen et al., 2011) is an individual difference measure that allows for the separate examination of the evaluations and behaviors that follow from private and public transgressions. Specifically, the GASP provides four subscales. Two are evaluative: The negative behavior-evaluations (NBE) subscale associated with guilt and the negative self-evaluations (NSE) subscale associated with shame. The two other subscales capture behavioral tendencies: Repair action tendencies (Repair) and withdrawal action tendencies (Withdraw), associated with guilt and shame respectively. The NBE and Repair subscales ask about evaluative and behavioral responses to private transgressions whereas the NSE and Withdraw subscales ask about evaluative and behavioral responses to public transgressions (for more on why the private vs. public distinction is important for distinguishing guilt and shame, see Cohen et al., 2011; Wolf et

al., 2010). Using the GASP to measure guilt and shame allows for a more nuanced analysis of guilt and shame, permitting the examination of the relationship between cultural orientation and individual GASP subscales.

A Quaternary Approach to Individualism and Collectivism

While the majority of research in cultural psychology operates on the theoretical basis of the IND-COL binary, there is an alternate tradition in social science of distinguishing between four cultural types according to a two-variable model (Sullivan, 2016). One prominent representative of this tradition is the horizontal-vertical IND-COL scale (HVIC; Singelis, Triandis, Bhawuk, & Gelfand, 1995; Triandis & Gelfand, 1998). The HVIC approach plots a two-dimensional space in which IND-COL is orthogonally crossed with a variable representing *status differences* or hierarchy in society, namely horizontality-verticality. Regardless of their level of IND-COL, horizontal cultures tend to institutionally and attitudinally afford status equality between group members, whereas vertical cultures afford clear hierarchical differences (Shavitt et al., 2010; Triandis, 1995).

There is a major difference between large collectivist groups with a history of social stratification (e.g., many East Asian nations; Shavitt et al., 2010) and small hunter-gather or other communitarian groups that practice interdependence but emphasize egalitarianism (Douglas, 1970). The former may be called vertically collectivist (VC) cultures, in which social interdependence coincides with deference to status differences (e.g., man vs. woman; employer vs. employee). Such societies place a strong emphasis on social norms and tend to be culturally "tight" (Douglas, 1970; Gelfand et al., 2011; Shavitt et al., 2010; Triandis, 1995). The other type of society may be called horizontally collectivist (HC), and members of such societies emphasize social harmony and relatedness in the absence of a rigid social hierarchy.

Where IND is concerned, a distinction exists between IND based on either a common recognition of human essence and entitlement, or on variations in skills, traits, and status between persons. The former type is horizontal individualism (HI), where individuals' common humanity and right to develop their unique potentialities is prioritized (Shavitt et al., 2010). The latter, vertically individualist (VI) cultures are characterized instead by social atomism and a "free market" ethos, promoting de-regulation of social life so that individuals may succeed or fail according to their merits. In contrast to HI, VI cultural orientations promote a competitive, socially ambivalent outlook.

Beyond differences in IND-COL, horizontality versus verticality accounts for additional variation in motivation, impression management, and information processing, particularly in relation to one's social surroundings (Shavitt et al., 2010). Thus, it is likely that by ignoring horizontality-verticality, existing research has obscured the relationships between cultural orientation and negative self-conscious emotion.

Research Overview and Hypotheses

In the present study, we attempt to make sense of the conflicted research on culture's relationship with negative self-conscious emotions by mounting an investigation of culture's relationship with guilt and shame using two-dimensional, quaternary approaches to both culture and guilt-shame. We do so by measuring responses to transgressions with the GASP scale (Cohen et al., 2011) and assessing individual-level variation in HVIC in five countries using the Horizontal and Vertical Individualism and Collectivism scale (Singelis et al., 1995). We generated two hypotheses:[1]

[1] Note that, given the complex and often contradictory body of theory and research in this area, we could have easily devised additional or alternative hypotheses. We conducted the research in a somewhat exploratory spirit, trying to determine whether the dimensional, quaternary approach to culture and negative self-conscious

Hypothesis 1: Horizontal collectivism (HC) will positively predict guilt-related behavior (Repair), and this relationship will be stronger than the association with guilt-related evaluations (NBE).

Hypothesis 2: Vertical individualism (VI) will positively predict shame-related behavior (Withdraw), and this relationship will be stronger than the association with shame-related evaluations (NSE).

The first hypothesis—the proposed HC-guilt (Repair) association—was made in observance of the fact that a major element of HC culture is the maintenance of harmonious relationships with others (Cross et al., 2011). Because the behavioral element of guilt (Repair) has been theorized to be essential in maintaining social relationships (Baumeister et al., 1994), we expected that HC would be associated with greater guilt, and that this guilt would be most strongly manifested in Repair tendencies (vs. NBE). In other words, individuals who are motivated to maintain interpersonal relationships (i.e., are high in HC) should be more prone to actively resolving interpersonal transgressions. This is consistent with recent evidence showing that, at least among North Americans, HC is positively associated with a prosocial, cooperative social value orientation (Moon, Travaglino, &Uskul, 2018).

Providing further complementary evidence for Hypothesis 1, research has found that impression management tendencies vary as a function of HVIC. Specifically, HC has a uniquely positive relationship with efforts to save face by engaging in impression management (Lalwani, Shavitt, & Johnson, 2006), a characteristic that likely contributes to the maintenance of social

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emotion might shed new light on their relationship. We thus restricted ourselves to two hypotheses about which we felt most confident. However, as an anonymous reviewer noted, one might also have hypothesized a connection between VC and shame, given that strongly hierarchical (particularly East Asian) cultures have often been characterized as shame-oriented (going back to Benedict's 1946, original formulation). We did not feel especially confident in such a prediction, however, given some of the nuances and debate referred to in the Introduction.

relationships. While we do not contend that our predicted relationship between HC and Repair can be reduced to impression management, per se, we see these phenomena as related insofar as those who outwardly present their "best self" (i.e., act in socially desirable ways) may also be more prone to engaging in reparative action after interpersonal transgressions. Both impression management and Repair tendencies are likely parts of a broader constellation of interpersonally oriented tendencies, including motivations to help others and a self-society relationship characterized by interpersonal responsibility (see Shavitt et al., 2010, for review).

With regard to the second hypothesis—the proposed VI-shame (Withdraw) association—prior research (Sullivan, 2016) demonstrates that tendencies toward VI are associated with higher levels of anxiety and more defensive forms of self-esteem maintenance, resulting from the strain of evaluating the self in constant competitive comparison with others. VI culture places a very strong emphasis on categorical differences between "winners" and "losers," and does not emphasize commitment to social situations or groups. Because prior studies also show that defensive forms of self-esteem maintenance are associated with Withdrawal tendencies (Gausel & Leach, 2011; Tangney & Dearing, 2002), we predicted that high-VI individuals might be more likely to demonstrate shame, which again should be most strongly manifested in Withdrawal tendencies (vs. NSE). Put differently, those who see themselves in competition with (vs. integrated in) their social environment (i.e., are high vs. low in VI) should perceive their relationships as contingent upon the satisfaction they provide (Oishi, Schug, Yuki, & Axt, 2015), thus promoting Withdrawal from threatening interpersonal situations. In support of Hypothesis 2, some research finds that, while individuals in both IND cultures and COL cultures experience the negative self-evaluative aspects of shame, they differ in their behavioral responses (Bagozzi, Berbeke, & Gavino, 2003). Other research, using VI specifically, finds a relationship between VI

and "proself" (i.e., prioritizing one's own needs over others') tendencies across cultural contexts (Moon et al., 2018). All of these findings are consistent with the growing literature implicating VI in a variety of asocial tendencies, ranging from prioritizing personal achievement to a lack of concern with relationship maintenance (see Shavitt et al., 2010, for review).

These hypotheses focus on individual-level responses, as recent studies suggest that cultural values tend to show greater within-group (i.e., individual-level) variation compared to variation between cultural groups and nations (Schwartz, 2014; Vargas & Kemmelmeier, 2013). This is an area of debate in cultural psychology, but the literature generally suggests that "culture" as it is often stereotypically conceived (e.g., national culture) is insufficient for understanding psychological processes, particularly as globalism has amplified cross-national convergence (Greenfield, 2014). Thus, we examine variation in our cultural constructs at the individual level within culturally diverse but conveniently accessible samples.

Method

This study uses a cross-sectional, self-report design with a cross-national sample to test these hypotheses. Data were collected from five countries: The United States, China, India, Iran, and Spain. Responses to the HVIC and GASP scales were collected via online surveys. Though we were primarily interested in relationships between variables at the individual-level, collecting data from countries with such diverse political systems, dominant religions, and languages allows us to examine our hypotheses in samples that extend beyond the Western, educated, industrialized, rich, and democratic (i.e., W.E.I.R.D.) populations from which psychological research often draws (Henrich, Heine, & Norenzayan, 2010). The analysis plan consisted of two steps: (1) Assessing cross-national measurement invariance of the GASP (Cohen et al., 2011) and (2) testing Hypotheses 1 and 2 using hierarchical linear modeling. Regarding the first step,

establishing measurement invariance, specifically metric invariance (as indicated by acceptable multi-sample measurement model fit when constraining the factor loadings to be equivalent between groups), helps assess construct validity when using multiple samples, and is therefore necessary when using measures that have not been used in prior cultural research (Berry et al., 2002; Fischer, 2009, Little, 2013).

For our hypothesis tests, we were interested in examining the effect of culture on guilt and shame scores *independent* of the association between guilt and shame. A common procedure in the guilt and shame literature is to examine "Guilt-Free Shame" and "Shame-Free Guilt" by analyzing semi-partial correlations or residualized scores (Furukawa, Tangney, & Higashibara, 2012; Tangney, Stuewig, & Mashek, 2007). This procedure is common practice in the contemporary literature on cultural influences on these emotions (Dean & Fles, 2016). A recent meta-analysis (Tignor & Colvin, 2017) confirmed that semi-partial correlations (e.g., "Guilt-Free Shame") reveal stronger relationships between guilt and shame and other variables. Accordingly, the authors of this meta-analysis recommended using semi-partial correlations when a theoretical rationale exists for doing so. Our rationale is rooted in the literature suggesting that cultural variation may be masked if constructs are not sufficiently discriminated (e.g., Kitayama & Imada, 2010). Guilt and shame evaluations, in particular, tend to be highly correlated (Cohen et al., 2011; Tangney & Dearing, 2002), and hence any subtleties of cultural variation in relative proneness to these constructs may be obscured by their overlapping association. While guilt and shame behaviors are more sharply differentiated, and hence less susceptible to this issue (Cohen et al., 2011), we conducted all our analyses using the same procedure across models for consistency.

Data, R-code, results output and GASP translations (anonymized for peer review) are available on the Open Science Framework (OSF) at https://osf.io/83zse/?view_only=17ff24ad03934ebca6fb6e5da594d5bf.

Participants

Data were collected online from individuals in the United States, China, India, Iran, and Spain. Based on the complexity of the 4-factor GASP model, we strived to collect approximately 300 observations per site in order to meet minimum sample size recommendations (Jöreskog & Sörbom, 1996; Myers, Ahn, & Jin, 2011; E. J. Wolf, Harrington, Clark, & Miller, 2013) and to approach the recommended sample size for using weighted least squares estimation (Flora & Curran, 2004). In some cases, the final *N* fell below this target size due to difficulty recruiting participants (e.g., Spain) or exclusion rates that exceeded expectations (e.g., India). Estimates within these countries should thus be interpreted with appropriate caution. All final samples had at least 90% power to detect what is generally considered the lower boundary of a moderate effect size (Cohen's $f^2 = .10$) for a regression model with five predictors (Faul, Erdfelder, Buchner, & Lang, 2009). The method of recruitment and compensation differed by country, though all participants were required to be at least 18 years old. Data collection among US participants took place in two waves. Participants in the first and second wave were awarded \$0.75 and \$0.50 for completing the survey, respectively. Indian participants were awarded \$0.50 for their participation. For the US and India, participants were recruited using Amazon Mechanical Turk (MTurk, www.mturk.com), restricting eligibility to residents of the appropriate country. Surveys in both the US and India were conducted in English.

In order to collect data from Chinese participants in their native language, data were collected using Zhubajie, a Chinese alternative to Mechanical Turk. The GASP and HVIC scales

were translated to Mandarin using a back-translation procedure (Brislin, 1970). Chinese participants were awarded 5 RMB for participation. The Iranian sample was recruited through the cultural forums on Telegram, the most popular social network application in Iran with an estimated penetration rate of 58% to 80% at the time of data collection ("Fourteen important findings", 2018; Jafari, 2017). For this population, the survey was translated to Persian using a back-translation procedure. As an incentive for participation, Iranian participants received personality feedback after their survey. The Spanish sample completed the Spanish-language materials developed in prior work (Alabèrnia-Segura, Feixas, & Gallardo-Pujol, 2018), and were recruited using a snowball sampling procedure, with initial invitations being shared via university email lists and social media sites. The Spanish sample was comprised of volunteers who received no compensation. Across all samples, participants were excluded from analyses if they provided incomplete surveys. Additionally, within the data from the U.S., China, and India, participants were excluded if they failed one or more attention check items embedded in the survey (e.g., "Please select strongly agree for this question."). Initial *N*s and final *N*s are reported in Table 2.

All participants were asked to complete a survey containing the HVIC (Singelis et al., 1995) and the GASP (Cohen et al., 2011).[2] Participants also completed a battery of demographic items, including questions regarding the participants' age, gender, religiosity (response scale: 1 – 9), and subjective socio-economic status (MacArthur Scale of Subjective Social Status; Adler & Stewart, 2007; response scale: 1 – 10). These measures were administered for the purpose of providing richer descriptive information about the samples (Rozin, 2001) and were not

[2] In the U.S., Chinese, and Indian samples, scales were presented as follows: Demographic items, the GASP, and the HVIC. In the Iranian sample, the order was the same except that demographic items were administered last. In the Spanish sample, the order was as follows: HVIC and then the GASP. There was no order randomization at the item- or scale-level.

associated with the tests of our hypotheses. Religiosity and socio-economic status were not collected in the Spanish sample due to an oversight on behalf of the research team. In some of the samples (US, China, India, and Iran), other scales were included for exploratory or other research purposes. None of those measures are relevant to the present research and are not reported further. For a summary of sample information and demographics, see Table 2.[3]

While all of these samples were collected online and are therefore susceptible to the effects of globalization (Greenfield, 2014), collecting data in these different contexts allows for some degree of confidence that the pattern of results is not entirely due to idiosyncratic processes specific to a single context. In other words, each subsample serves as a replication of the global predictions in contexts with unique histories, languages, and political systems.

Horizontal-Vertical Individualism-Collectivism (HVIC)

To assess participants' personal levels of HVIC, the Singelis et al. (1995) measure was administered. The number of items used to represent each of the four subscales contained in the HVIC measure varied (see Table 3). Specifically, in some of our data collection efforts, we used short forms of the HVIC in order to minimize survey length and potential for participant burnout. Regardless of the number of items, each of the four quadrants (horizontal individualism [HI], vertical individualism [VI], horizontal collectivism [HC], and vertical collectivism [VC]) were represented in all five countries. The samples that utilized an abridged version of the HVIC used items from a short version of the scale that has been validated in previous literature (Sullivan, 2016). Items from this measure include statements such as "Competition is the law of nature"

[3] In addition to the vast linguistic, religious, and political differences between these samples, there was considerable heterogeneity in terms of religiosity and socio-economic status. Collapsing across the cultures, 13.4% of participants considered their religious belief to be very important to them, 31% considered these beliefs to be not important at all, and the remaining 55.6% responded somewhere in between. Furthermore, 56.1% of the participants considered their social status within the society to be in the middle (scores of 4 to 6 on the MacArthur scale), whereas 17.5% reported lower social status (scores < 4), and 26.4% reported higher social status (scores > 6).

(VI), “I enjoy being unique and different from others in many ways” (HI), “I would sacrifice an activity that I enjoy very much if my family did not approve of it” (VC), and “It is important to maintain harmony within my group” (HC). Participants responded on a seven-point rating scale (1 = *strongly disagree*, 7 = *strongly agree*). For means and standard deviations for each country, see Supplemental Appendix Table S3.

The HVIC scale is one of the most widely used measures in cross-cultural psychology research, having been employed in over 200 published studies and demonstrated to be metrically invariant across multiple countries by several researchers (e.g., Györkös et al., 2013; Li & Askoy, 2007; Soh & Leong, 2002), including for comparisons across the Unites States, India, and China (Woodard et al., 2016). However, evidence is mixed for the invariance of the HVIC scale in Spain and Iran (Gouveia, Clemente, & Espinosa, 2003; Green & Deschamps, & Paez, 2005). We did not conduct invariance tests of the HVIC with our data because the number of items differed across samples. Instead, we conducted CFAs within each sample that tested whether the 4-factor structure of the HVIC items had better model fit than other possible factor structures. Replicating prior work (e.g., Györkös et al., 2013; Li & Askoy, 2007; Lee, Choi, & Kim, 2017; Soh & Leong, 2002; Triandis & Gelfand, 1998), we found that the HVIC items are best understood as representing four discrete factors: HI, VI, HC, and VC (Supplemental Appendix, Table S1). This finding is important for justifying our two-dimensional, quaternary approach to IND-COL in all countries. In terms of internal consistency, inspection of the Cronbach’s alphas of the HVIC subscales in Iran and Spain (Table 3) indicates that they have similar or better internally reliability compared to countries where more extensive psychometric analyses have been conducted (i.e., the United States, India, and China). Furthermore, inspection of these alpha coefficients suggests that the main source of variability in these values appears to

be whether the HVIC scale administered in a particular sample contained more versus fewer items, which is to be expected based on known properties of coefficient alpha (Schmitt, 1996).

Guilt and Shame Proneness (GASP)

Responses to transgressions were assessed with the GASP scale (Cohen et al., 2011). The GASP breaks guilt and shame into evaluative (negative behavior-evaluation [NBE] and negative self-evaluation [NSE]) and behavioral subscales (Repair and Withdraw). Participants rate the likelihood that they would respond in particular ways in different hypothetical situations in which the person commits a private (guilt) or public (shame) transgression (1 = *very unlikely*, 7 = *very likely*). Four items assess each of the four subscales. Sample items include: "After realizing you have received too much change at a store, you decide to keep it because the salesclerk doesn't notice. What is the likelihood that you would feel uncomfortable about keeping the money?" (NBE); "You reveal a friend's secret, though your friend never finds out. What is the likelihood that your failure to keep the secret would lead you to exert extra effort to keep secrets in the future?" (Repair); "You make a mistake at work and find out a coworker is blamed for the error. Later, your coworker confronts you about your mistake. What is the likelihood that you would feel like a coward?" (NSE); and "A friend tells you that you boast a great deal. What is the likelihood that you would stop spending time with that friend?" (Withdraw).

As previously stated, a preliminary goal of the present research is to determine the degree of invariance exhibited by the GASP measure. Thus, we sought to establish metric measurement invariance of the GASP because, relative to the HVIC measure, usage of the GASP outside of the U.S. is less prominent. Establishing measurement invariance has been identified as a critical step in conducting cross-cultural research, as it helps to ensure cross-population construct validity and reduces the chance of misinterpreting measurement or response biases as actual

differences between samples (Fischer, 2009, Little, 2013). Most importantly for the present research, establishing metric invariance of the 4-factor model of GASP is a necessary step for determining whether this operationalization of guilt- and shame-related evaluative and behavioral tendencies is tapping into the same psychological constructs across contexts (e.g., Thielmann et al., 2019). The results of these analyses are reported in the Results section below. For means and standard deviations by country, see Supplemental Appendix Table S4.

Results

Table 4 and 5 present the bivariate correlations and descriptive statistics at the item- and subscale-level respectively, collapsed across the different samples. Our analyses were guided by two main goals.

First,[4] as previously discussed, we sought to establish invariance of the GASP measure across the different samples. Second, we tested our predictions regarding the relationships between the cultural orientation predictors and the individual GASP subscales (Hypotheses 1 & 2). In order to do so, we analyzed the cross-national sample using multi-level modeling that treats individual observations as nested within their country of origin. Each of the four outcomes (i.e., the four GASP subscales) were assessed separately. The exact procedure of these analyses is described below.

Measurement Invariance of the GASP

Multi-sample confirmatory factor analyses were conducted to assess three levels of invariance: Configural, metric, and scalar invariance. Analyses were conducted using lavaan

[4] Prior to assessing invariance, we assessed the suitability of alternative structural models for the GASP. We intended to establish that the originally proposed 4-factor structure of the GASP was indeed appropriate across contexts, rather than other plausible 1- and 2-factor structures. These analyses are available in the Supplemental Appendix and Table S2. Results suggest that the 4-factor structure was the best model in all samples.

package version 0.6-1 (Rosseel et al., 2017) in the R software package and diagonally weighted least squares (DWLS) estimator with robust standard errors. This approach performs well in the case of non-normally distributed responses and is suitable for our sample sizes, considering the complexity of the models (Flora & Curran, 2004; Wirth & Edwards, 2007). Fit statistics are reported in Table 6.

First, configural invariance was tested by specifying the same factor structure (i.e., a model with four factors and four items per factor) for all countries, while other parameters (e.g., pattern coefficients) were freely estimated within each sample. The analysis indicated that the configural invariance model has acceptable fit. As the next step, a metric invariance model that constrained all the unstandardized pattern coefficients to be equal across samples was tested. The metric invariance model had acceptable fit indices, similar to those of the configural invariance model. Specifically, CFIs and TLIs in the configural and metric models were within .01 of each other and the two models' RMSEA confidence intervals overlap nearly perfectly, indicating support for metric invariance (Milfont & Fischer, 2010).

Finally, analyses of scalar invariance were conducted, in which the intercepts of each indicator were constrained to be equal over the groups. As is often the case in cross-cultural research (Davidov, Muthen, & Schmidt, 2018), the scalar invariance model had poor fit. Without scalar invariance, mean comparisons between cultures cannot be meaningfully interpreted, as any observed differences may be the consequence of response bias (Berry, Poortinga, Segall, & Dasen, 2002). Nonetheless, scalar invariance is not required to test Hypotheses 1 and 2, as those predictions do not involve group-mean comparisons. Rather, metric invariance is needed to test the hypotheses and metric invariance of the GASP was firmly established across all of the samples.

Hierarchical Linear Models

Having established configural and metric invariance, the relationships between the four HVIC subscales and the GASP subscales were explored using linear mixed-effects modeling. These analyses were conducted using the R-package lme4 version 1.1.17 (Bates, Mäechler, Bolker, & Walker, 2015). Four models were assessed, each predicting one of the four GASP subscales. These models included all four of the HVIC subscales as predictors in order to assess the *relative* impact of each cultural predictor. This constitutes a more conservative test of the hypotheses, as it determines whether the unique effect of the hypothesized relationships remains significant in a model accounting for all four HVIC subscales simultaneously. This method of analysis also allows for the global observations required for assessing Hypotheses 1 and 2. Specifically, if our hypotheses are supported, the results will show that HC is more strongly associated with Repair rather than NBE (Hypothesis 1), and that VI is more strongly associated with Withdraw rather than NSE (Hypothesis 2).

In addition to the four HVIC subscales, the GASP subscales that correspond to the criterion variable of each model were also entered as predictors. For example, in an analysis of Withdraw, the other behavioral subscale (Repair) was entered as a predictor. Likewise, in an analysis of NSE, the other evaluative subscale (NBE) was entered as a predictor. As previously discussed, this approach is congruent with prior research on cultural differences in guilt and shame (Dean & Fles, 2016), and allows us to more cleanly differentiate how guilt versus shame relate to the HVIC scales (Tignor & Colvin, 2017).

For all analyses, predictors were group-mean centered. This approach was employed because (a) group-mean centering predictor variables can help reduce the impact of between-sample mean differences on relationships within a multi-national sample (e.g., Fischer et al.,

2014) and (b) such a procedure helps to partially address the differences in the HVIC scales between samples (i.e., the number of items included). However, group-mean centering can mask between-group differences that may not be entirely due to measurement or response biases (Van de Vijver & Leung, 1997). Thus, the same analyses described below were also conducted using both grand-mean centered and raw scores of the predictors, in order to asses for discrepancies. Those analyses yield results that are nearly identical to those described below and are available in the online supplement on OSF.

In the models described below, the four HVIC subscales and corresponding GASP subscale were entered as fixed factors and the observations are treated as nested within country (i.e., specified as random intercepts). In addition to the descriptions below, full model results are presented in Table 7.

Relationship between HC and guilt. The analyses revealed a positive relationship between HC and both NBE (b = .167 [.114, .220]) and Repair (b = .255 [.204, .305]). The relationship with Repair is descriptively larger in magnitude; to formally examine this, we applied a b to z transformation (Clogg, Petkova, & Haritou, 1995; Paternoster, Brame, Mazerolle, & Piquero, 1998) in order to test whether the difference in slopes was significant. This analysis yielded support for our prediction that the relationship between HC and Repair is larger than that between HC and NBE (z = 2.35, p = .009). These results are consistent with Hypothesis 1.

Relationship between VI and shame. The analyses revealed a positive relationship between VI and both NSE (b = .085 [.040, .146]) and Withdraw (b = .121 [.067, .176]). While the relationship between VI and Withdraw is descriptively larger than between VI and NSE, this

difference was not significant (z = .89, p = .190). Thus, Hypothesis 2 was only partially supported.

HC and VI both had positive relationships with NSE, whereas VI is the only HVIC subscale that was positively associated with Withdraw. Further, analyses of each country individually (see Supplemental Appendix, Tables S16-S20) reveal that VI positively predicts Withdraw in every country (.090 < bs < .229, ps < .05) except India (b = -.092 [-.332, .148], p = .449), whereas VI predicts NSE in only one country (China; b = .176 [.061, .291], p = .003; all other ps > .05). Given the relative consistency with which VI predicts Withdraw within our samples, it appears that our predictions regarding culture orientations' impact on behavioral (vs. evaluative) tendencies were supported insofar as VI displays a more reliable relationship with Withdraw than it does with NSE. This supports the inference that individuals' cultural orientations are more visible in behavioral rather than evaluative dimensions of guilt and shame.

Discussion

We collected and analyzed data from five countries to investigate the utility of a dimensional, quaternary approach to studying relationships between vertical and horizontal forms of IND and COL, and guilt and shame. Invariance analyses of the GASP (Cohen et al., 2011) indicated configural and metric invariance across the five countries, suggesting that the GASP is appropriate for correlational analyses in the context of this multi-country investigation. Additionally, these findings lend credence and generalizability to the original claims made by Cohen and colleagues (2011) that evaluative and behavioral responses to transgressions should be distinguished. However, the lack of support for scalar invariance indicates that it is inappropriate to make mean-level comparisons between countries, as any differences observed may be the result of response biases rather than meaningful differences in the underlying

constructs. Thus, as we suspected, discrepancies in prior literature may be partially attributable to inappropriate use of group-mean comparisons in cultural comparisons.

Finally, with respect to Hypothesis 1 and Hypothesis 2, the results supported the hypothesized HC-Repair and VI-Withdraw relationships. The results also largely supported the prediction that these relationships would be stronger than the corresponding relationships with the evaluative aspects of guilt and shame. Specifically, HC predicted Repair more strongly than NBE, and VI predicted Withdraw more reliably (i.e., in more countries; but not necessarily more strongly) than NSE. These results are readily interpretable in light of our theoretical analysis. Individuals socialized to rely on close relationships are strongly motivated to engage in reparative action when they transgress against others; whereas individuals who are socialized to be competitive and attuned to status and power differences in the social environment are more likely to withdraw from relationships in the wake of interpersonal transgressions.

Though a number of our effect sizes are small, this is to be expected for phenomena that are as multiply determined as responses to the GASP (Cohen et al., 2011). Comparison of the *R*-squared values for the different models in Table 7 shows some variation in the variance accounted for between models. Notably, the models predicting the evaluative GASP dimensions (NBE and NSE) account for more variance than the models predicting the behavioral dimensions (Repair and Withdraw), but this is likely due to the fact that each of these models controls for the associated GASP subscale (e.g., the model predicting NBE controls for NSE). Because the evaluative subscales (NBE and NSE) were strongly correlated ($r = .60$), including either dimension as a predictor of the other inflates the *R*-squared of these models due to the strong relationship between the criterion and the associated GASP covariate.

In addition to the relationships predicted by our two hypotheses, a number of other significant effects emerged. Though these relationships were not hypothesized, a number of them are similar in magnitude to our predicted relationships, and therefore warrant some consideration.

For NBE, in addition to the hypothesized association with HC, the analyses revealed a positive relationship with VC and a negative relationship with VI. These results suggest that NBE may have a positive association with both aspects of COL regardless of one's orientation toward social hierarchy, while revealing a uniquely negative relationship with VI. All four cultural predictors significantly predicted Repair. However, it is noteworthy that the effect size for our hypothesized predictor (HC) was considerably larger in magnitude than the other effects. In addition, VI—the variable that we suspected would be related most strongly with Withdraw (functionally Repair's opposite)—was the only cultural variable that was negatively related to Repair. For NSE, there was an unanticipated effect of HC that surpassed our hypothesized predictor (VI) in magnitude. This may suggest that NSE is positively (but weakly) associated with both egalitarian, interpersonal and competitive, asocial orientations. This could speak to a relationship between NSE and motivations for both maintaining social ties and (more strategically) striving for power and status. For Withdraw, the analyses revealed negative relationships with both HI and HC, in addition to the predicted positive relationship with VI. This perhaps speaks to the role of horizontal social orientations, or lack thereof, in preventing individuals from withdrawing from social situations.

At first blush, these results may appear to undermine our hypotheses. However, as (a) our general approach assumed that each GASP outcome would be multi-determined and (b) because we limited ourselves to the hypotheses in which we were most confident, we do not find these

results particularly surprising. If anything, these results should point to the importance of considering all four of the quaternary cultural "types" and rejecting simple, binary associations between culture and guilt and shame.

Culture-Level Variation

Because our predictions concerned individual-level variation in cultural orientation, hierarchical linear modelling (treating individuals as nested within country) is the most appropriate method for testing our hypotheses. However, inspection of the intraclass correlations (ICCs, Table 7) and the regression analyses within each country (Supplemental Appendix, Tables S16-S20) reveals some ways in which our predictions were borne out more or less by individual samples. First, inspection of the ICCs in Table 7 indicates some variation in the guilt and shame outcomes. ICC values for each model represent the proportion of variation in the outcome variable that occurs between countries versus the total variation in the outcome (Finch, Bolin, & Kelley, 2014). As indicated by the higher ICCs in the shame models (NSE and Withdraw), the estimated associations in models predicting the GASP shame subscales may be more culturally variable than those predicting the guilt subscales.

Second, inspection of the within-country regressions (Supplemental Appendix, Tables S16-S20) reveals that the predicted relationship between HC and Repair (Hypothesis 1) is significant and the strongest in three out of the five countries (US, China, and Iran). In Spain, though marginal, the relationship between HC and Repair was descriptively the strongest of the cultural predictors of Repair. In China, there was a relatively strong relationship between VC and Repair tendencies that dwarfs all the other cultural orientation predictors. Though we are limited to speculation, this latter finding possibly speaks to a different role of vertical collectivism in

China—one that affords maintaining one's position within a network of hierarchical social relationships through reparative tendencies following transgressions.

A significant and uniquely positive VI-Withdraw relationship in four out of the five countries (US, China, Iran, and Spain) speaks to the robustness of the predicted relationship between VI and Withdraw tendencies (Hypothesis 2). In India, the relationship between VI and Withdraw was not significant. However, this sample revealed a negative relationship between HC and Withdraw tendencies. It stands to reason that a deficit in one's egalitarian, relationally-oriented values (i.e., low HC) might also be associated with withdrawal tendencies.

Limitations

Though our predictions were largely supported, it is worth considering several limitations that may restrict the interpretation and generalizability of these findings. The primary psychometric limitation of these findings is the relatively low internal consistency reliability of the HVIC subscales (Singelis et al., 1995). Though it is not uncommon for these subscales to have somewhat low reliability, this is especially true when abridged versions of the scales are utilized. As the constructs captured by each of the HVIC subscales are broad in scope, these shortened versions contain items that optimize the breadth of the measure (i.e., content validity) rather than the items' internal consistency.

However, one particularly severe violation of typical reliability standards occurred in India. In this sample, it was necessary to modify the VI scale due to one item having a negative item-total correlation (see note for Table 3). Further inspection of this item ("When another person does better than me, I get tense and upset") reveals that the only significant relationship with Withdraw of the three VI items used in India ($r = .374$, $p < .001$; other ps $> .05$). This speaks to two potential issues: (1) low validity of the VI construct in India and (2) a stronger

relationship between certain VI items and withdraw tendencies. We are hesitant, however, to speculate regarding either issue as they extend beyond the primary aims of our project and because the data from India were possibly of lower quality compared to the other samples (only 66% of the Indian sample was retained due to extensive failure on attention check items, whereas all other samples had retention rates of 75% or higher). Finally, though we were unable to assess invariance of the HVIC measure the items varying by country, we did determine that the 4-factor conceptualization of HVIC had the best fit (compared to other plausible models) in all of the samples.

A second limitation revolves around the nature of assessment of emotional and behavioral tendencies more broadly. At no point in this research did we measure emotional experience or actual behavioral responses, but instead measured self-reported cognitive and behavioral responses to hypothetical scenarios. As previous investigations of similar methods of assessing emotional proneness suggest (e.g., Giner-Sorolla, Piazza, & Espinosa, 2011), these methods of assessment often relate more strongly to motivation than to emotional experience *per se*. However, this perspective is not inconsistent with our predictions or findings that differences in cultural orientation are more strongly manifested in behavioral tendencies rather than attributions or affective experience. While affective experience following interpersonal transgressions may be subject to a large number of personal and contextual factors, individuals' cultural orientation may have a stronger influence on their motives and subsequent behavior. Our results are consistent with an emerging consensus in cross-cultural psychology that behavioral variation is more common and dramatic than attitudinal or cognitive variation (Kitayama & Imada, 2010; Morris, 2014; Schwartz, 2014).

As the question of self-report measures' association with actual behavior and psychological states is a perennial issue in psychological research, particularly when social desirability of responding is a concern (e.g., Crowne & Marlowe, 1960; Paulhus, 1986), it is worth approaching the present results with a degree of caution. However, while actual behavior was not assessed in the present research, previous research has shown that scores on the GASP relate to behavioral outcomes, such as lying for financial gain (Cohen et al., 2011) and trustworthy behavior in interpersonal exchanges (Levine, Bitterly, Cohen, & Schweitzer, 2018). Future research could meaningfully build on the current work by investigating how objective indicators of reparative and withdrawal behaviors relate to cultural orientation.

Lastly, some concerns regarding the data quality exist. The inconsistencies in the method of participant recruitment represents a confound between the different samples. While we recruited some samples from existing research crowdsourcing networks (e.g., MTurk) and provided payment, some samples were recruited from other online communities and received alternate or no compensation. This raises questions regarding whether the between-sample differences are actually due to their nation of origin, as opposed to some other factor (e.g., self-selection). Additionally, sample-dependent exclusion rates raise questions about data quality more generally. However, as our overall goal was to assess the hypotheses in contexts extending beyond typical, W.E.I.R.D. (Henrich, Heine, & Norenzayan, 2010) research populations, we see these issues as acceptable compromises for achieving the goals of this research. Nonetheless, future research could extend the current work by addressing these issues and eliminating such confounds.

Implications and Directions for Future Research

Our findings underline the utility of a dimensional approach to this contested research area. The largely binary approaches to culture and self-conscious emotions to date may be obscuring certain sources and consequences of cultural variation, yielding seemingly contradictory results that are more understandable from a quaternary perspective. These results bring into question the utility of the labels of "guilt culture" and "shame culture," as it is perhaps research that parses apart culture's relationship with the evaluative versus behavioral dimensions of guilt and shame that may be most fruitfully pursued.

Additionally, it will be important in future cultural research to sample more extensively from diverse cultural subgroups in order to determine whether the relationships reported above are consistent with non-convenience samples. For purposes of assuring power and internal validity in this initial investigation, we restricted our data to large convenience samples using data collected online. Our findings of relatively high between-country consistency fit emerging arguments in cultural psychology regarding the effects of globalization (e.g., Greenfield, 2014).

Furthermore, our samples did not demonstrate the scalar invariance necessary for meaningful mean-level comparisons across cultures (Milfont & Fischer, 2010), suggesting that one major problem with prior literature might be that researchers have been inappropriately comparing guilt and shame measures across cultures when the scores on these measures may be subject to culture-based biases. Given that social desirability can impact reports of guilt and shame proneness (Cohen et al., 2011), and distinct levels of socially desirable responding are one of the most common sources of cross-cultural scalar variance (Berry, Poortinga, Breugelmans, Chasiotis, & Sam, 2011), one possibility is that cultural variation in social desirability alters the functioning of guilt and shame measures across contexts. Generally speaking, researchers

moving forward in this area should demonstrate the invariance of their guilt and shame measures before making cross-cultural mean comparisons.

Finally, we strongly advocate for gathering more diverse cross-cultural data on guilt and shame proneness. Given the apparent promise of the quaternary approach, it will be vital for researchers to collect data from a range of populations that vary not only in their level of IND-COL, but also along the dimension of horizontality-verticality. Our results also suggest that future research should collect behavioral indices of guilt and shame in cross-cultural research.

Conclusions

Our review of the literature revealed that many researchers have attempted to reduce the relationship between negative self-conscious emotions and culture to a simple problem of binary matching. The question of how IND and COL map onto the "guilt culture" and "shame culture" distinction has been repeatedly raised, and conflicting theoretical models, operationalizations, and results have prevented the field from reaching any satisfactory consensus. Our research illuminates the potential for a dimensional, quaternary approach to both culture and negative self-conscious emotions, and in so doing opens a new path in this fractured research area. Instead of dichotomizing cultures as being prone to guilt or shame, it is better to conclude on the basis of these data that individuals possessing a more horizontal, communal form of COL will be especially prone to guilt-related behaviors (i.e., repair responses to transgressions), while those with a more vertical, competitive form of IND will be more prone to shame-related behaviors (i.e., withdrawal responses to transgressions). Our findings provide support for these within-country cultural patterns across five national samples. Cultural variation in guilt and shame proneness manifests more prominently on the behavioral, as opposed to the evaluative aspect of guilt and shame; and cultural attitudes toward hierarchy play an essential role in influencing guilt

and shame beyond global IND-COL. Future theory and research should move beyond binary approaches to this problem to achieve a more nuanced view of the relationships between culture, guilt, and shame.

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Table 1

Research on the Relationship between Culture and Guilt and Shame

Article	Guilt characteristic(s)	Shame characteristic(s)	Populations	Invariance testing
Anolli & Pascucci (2005)	Negative behavior-evaluation	Negative self-evaluation	Indians & Italians	No
Bear et al. (2009)	Negative behavior-evaluation	Negative self-evaluation	Americans and Japanese	No
Bierbrauer (1992)	Self-criticism after private violations	Fear of criticism from others and ostracism	Germans, Kurds, and Lebanese	No
Fessler (2004)	Internal remorse or regret, punish self, compensate victim	Others' negative evaluations, flight from the situation	Americans and Indonesians (Benkulu)	Not applicable
Fontaine et al. (2006)	Regret, repair tendencies, self-reproach, feeling like a bad person	Embarrassment, reputation concerns, feeling gazed at, wanting to disappear	Belgians, Hungarians, & Peruvians	Not applicable

Furukawa et al. (2012)	Negative behavior-evaluation	Negative self-evaluation	Americans, Koreans, & Japanese	Differential item functioning analysis
Grey et al. (2018)	Negative behavior-evaluation	Negative self-evaluation	Emiratis & Irish	No
Johnson et al. (1987)	Violations of interpersonal trust	Public embarrassment	Americans, Koreans, and Taiwanese	No
Stipek (1998)	Semantic: "Guilty" [a]	Semantic: "Ashamed" [a]	Americans and Chinese	No
Zhuang & Bresnahan (2017)	Negative self-focused affect, remorse	Humiliation, physical symptoms (e.g., blushing, perspiring)	Americans and Chinese	Yes [b]

Note. To be included in this table, articles had to be (a) rooted in the discipline of psychology, (b) collect data in at least two geographic regions, (c) and consider both guilt and shame as unique constructs.
[a] In this study, participants were directly asked "how guilty and ashamed they would feel" in response to several situations.
[b] Results of invariance testing not reported.

Table 2

Sample Information by Country

	US [a]	India	China	Iran	Spain [b]	Total
Initial *N*	601	300	332	357	273	1863
Final *N* (male)	450 (249)	198 (132)	271 (146)	320 (119)	227 (58)	1466 (704)
M age (*SD*)	37.62 (12.03)	32.82 (8.60)	33.11 (8.15)	33.01 (9.08)	29.45 (14.44)	33.88 (11.18)
M SES (*SD*)	4.69 (1.81)	6.38 (1.53)	5.06 (1.54)	5.86 (1.78)	-	5.33 (1.82)
M Religiosity (*SD*)	3.99 (3.24)	6.87 (2.24)	3.96 (2.56)	3.96 (2.81)	-	4.45 (3.04)
Language	English	English	Mandarin	Persian	Spanish	-
Number of HVIC items	Wave 1: 16 Wave 2: 12	12	16	29	20	-

Note. Participants were excluded from each sample for either failing attention checks or providing incomplete data.
[a] US samples were collected in two waves utilizing different numbers of HVIC items.
[b] SES and religiosity were not collected in the Spanish sample.

Table 3

HVIC Subscale Reliabilities and Number of Items by Sample

	US (wave 1)	US (wave 2)	China	India	Iran	Spain
HI α (number of items)	.71 (4)	.56 (3)	.66 (4)	.56 (3)	.71 (8)	.68 (5)
VI α (number of items)	.82 (4)	.52 (3)	.64 (4)	.51 (2) [a]	.68 (6)	.68 (5)
HC α (number of items)	.84 (4)	.69 (3)	.85 (4)	.64 (3)	.72 (6)	.63 (5)
VC α (number of items)	.83 (4)	.68 (3)	.76 (4)	.61 (3)	.78 (9)	.61 (5)

Note. HI = horizontal individualism, VI = vertical individualism, HC = horizontal collectivism, VC = vertical collectivism.
[a] The original, three-item version of the VI subscale in India resulted in extremely low reliability (α = .02). One item ("When another person does better than me, I get tense and upset") had a negative item-total correlation; accordingly, it was removed from all analyses. This value indicates the Spearman-Brown reliability coefficient for the remaining two items (Eisinga, Grotenhuis, & Pelzer, 2013).

Table 4

Zero-order Correlations and Descriptive Statistics for the Entire Dataset

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1. HI	-																					
2. VI	.23**	-																				
3. HC	.06*	.21**	-																			
4. VC	.09**	.42**	.35**	-																		
5. Religiosity[a]	-.01	.24**	.25**	.26**	-																	
6. SES[a]	.05	.19**	.19**	.08**	.21**	-																
7. GASP1	-.03	-.08**	.13**	.06*	.05	.04	-															
8. GASP2	.06*	.14**	.22**	.18**	.05	.07*	.12**	-														
9. GASP3	-.02	-.02	.19**	.08**	-.01	-.02	.24**	.30**	-													
10. GASP4	-.02	.17**	.02	.09**	.10**	.08**	-.01	0	.00	-												
11. GASP5	.08**	-.10**	.15**	.07*	.01	-.07*	.23**	.21**	.21**	-.07**	-											
12. GASP6	.02	-.08**	.09**	-.03	-.09**	-.11**	.17**	.26**	.39**	.12**	.22**	-										
13. GASP7	.04	.18**	-.07*	.13**	.07*	.04	-.03	.07**	.02	.33**	-.02	.07**	-									
14. GASP8	-.01	.15**	-.09**	.08**	.03	-.02	-.05	.00	-.02	.30**	-.04	.02	.30**	-								
15. GASP9	-.02	-.06*	.18**	.16**	.08**	-.05	.37**	.26**	.38**	-.10**	.34**	.29**	-.01	.02	-							
16. GASP10	.07**	.05	.14**	.14**	.04	-.04	.28**	.20**	.44**	.05*	.30**	.37**	.08**	.05	.50**	-						
17. GASP11	.11**	-.09**	.15**	.08**	-.03	-.02	.24**	.25**	.29**	-.05	.41**	.29**	-.01	-.12**	.29**	.31**	-					
18. GASP12	.00	.25**	.06*	.23**	.07*	.05	.08**	.06*	.10**	.36**	.05	.08**	.29**	.26**	.09**	.22**	.05*	-				
19. GASP13	.00	-.15**	.16**	-.08**	-.08**	.00	.21**	.18**	.33**	.04	.26**	.43**	.01	-.04	.28**	.37**	.34**	.09**	-			
20. GASP14	.02	-.14**	.17**	.04	-.04	-.04	.29**	.20**	.39**	-.07**	.36**	.36**	-.03	-.11**	.38**	.40**	.37**	.05	.43**	-		
21. GASP15	.05	-.17**	.18**	-.02	-.03	-.02	.21**	.23**	.32**	-.10**	.38**	.33**	-.08**	-.16**	.27**	.25**	.50**	-.01	.37**	.42**	-	
22. GASP16	.00	-.08**	.21**	.11**	.07*	.01	.39**	.20**	.33**	-.05*	.42**	.28**	-.03	-.07**	.45**	.41**	.38**	.10**	.34**	.47**	.43**	-

Note. N = 1,466. Because the number of HVIC items varied by country, correlations with composite scores of the HVIC subscales are presented. For within-country item-level correlations between the HVIC and the GASP, see Supplemental Appendix, Tables S5-S15. HI = horizontal individualism, VI = vertical individualism, HC = horizontal collectivism, VC = vertical collectivism. NBE (negative behavior-evaluation) = GASP1, GASP9, GASP 14, GASP 16; NSE (negative self-evaluation) = GASP3, GASP6, GASP 10, GASP13; Repair = GASP2, GASP5, GASP11, GASP15; Withdraw = GASP4, GASP7, GASP8, GASP 12. * $.05 > p \geq .01$; ** $.01 > p \geq .001$; *** $p < .001$.

[a] Religiosity and SES were not assessed in the Spanish sample.

Table 5

Zero-order Subscale Correlations and Descriptive Statistics for the Entire Dataset

	HI	VI	HC	VC	NBE	Repair	NSE	Withdraw	Religiosity [a]	SES [a]
VI	.23***	-								
HC	.06*	.21***	-							
VC	.09**	.42***	.35***	-						
NBE	-.01	-.12***	.23***	.13***	-					
Repair	.11***	-.07*	.25***	.12***	.56***	-				
NSE	.03	-.07**	.20***	.04	.60***	.53***	-			
Withdraw	.00	.27***	-.03	.19***	-.02	-.05	.11***	-		
Religiosity	-.01	.24***	.25***	.26***	.05	.00	-.05	.10**	-	
SES	.05	.19***	.19***	.08***	-.01	-.01	-.06*	.05	.21***	-
M	5.46	4.43	5.27	4.43	5.41	5.71	5.38	3.39	4.45	5.33
SD	.94	1.39	1.12	1.39	1.25	1.00	1.23	1.25	3.04	1.82

Note. N = 1,466. For within-country item-level correlations between the HVIC and GASP, see Supplemental Appendix, Tables S5-S15. HI = horizontal individualism, VI = vertical individualism, HC = horizontal collectivism, VC = vertical collectivism, NBE = negative behavior-evaluation (guilt), NSE = negative self-evaluation (shame). * $.05 > p \geq .01$; ** $.01 > p \geq .001$; *** $p < .001$.
[a] Religiosity and SES were not assessed in the Spanish sample.

Table 6

GASP Invariance Models in Combined Dataset

	χ^2 (scaled)	Robust CFI	Robust TLI	Gamma-hat	Robust RMSEA (90% CI)	SRMR
Configural model	1201.22	.95	.94	.985	.053 (.049, .056)	.061
Metric model	1296.48	.94	.93	.971	.057 (.053, .061)	.070
Scalar model	2009.00	.88	.88	.937	.075 (.072, .079)	.084

Table 7

Hierarchical Linear Models of HVIC Predicting GASP Subscales in Combined Dataset

	NBE			Repair			NSE			Withdraw		
	b [95% CI]	SE	*p*	*b* [95% CI]	SE	*p*	*b* [95% CI]	SE	*p*	*b* [95% CI]	SE	*p*
Alt. GASP scale [a]	.569 [.526, .612]	.022	< .001	.013 [-.028, .055]	.021	.526	.553 [.511, .595]	.021	< .001	.021 [-.043, .085]	.033	.525
HI	-.003 [-.060, .049]	.028	.923	.146 [.093, .199]	.027	< .001	.039 [-.015, .093]	.028	.153	-.076 [-.142, -.009]	.034	.025
HC	**.167 [.114, .220]**	**.027**	**< .001**	**.255 [.204, .305]**	**.026**	**< .001**	.093 [.040, .146]	.027	< .001	-.092 [-.157, -.028]	.033	.005
VI	-.134 [-.179, -.089]	.023	< .001	-.077 [-.120, -.033]	.022	< .001	**.085 [.040, .130]**	**.023**	**< .001**	**.121 [.067, .176]**	**.028**	**< .001**
VC	.085 [.037, .134]	.025	< .001	.088 [.042, .135]	.024	< .001	-.004 [-.051, .044]	.024	.883	.006 [-.053, .064]	.030	.849
Marginal R^2	.370			.117			.336			.015		
Conditional R^2	.424			.156			.419			.201		
ICC (Country)	.087			.044			.125			.189		

Note. Bolded values indicate the relationships involved in Hypotheses 1 & 2. HI = horizontal individualism, VI = vertical individualism, HC = horizontal collectivism, VC = vertical collectivism, NBE = negative behavior-evaluation (guilt), NSE = negative self-evaluation (shame). *P*-values were calculated using the Satterthwaite's degrees of freedom approximation method in R-package lmerTest version 3.0.1 (Kuznetsova, Brockhoff, & Christensen, 2017). The marginal *R*-squared takes into account only the variance of the fixed effects, whereas the conditional *R*-squared takes both the fixed and random effects into account (Nakagawa, Johnson, & Schielzeth, 2017).

[a] Alt. GASP scale (Alternate GASP subscale) indicates the subscale associated with the dependent variable that is treated as a covariate. Specifically, the analysis of NBE controlled for NSE; the analysis of Repair controlled for Withdraw; the analysis of NSE

controlled for NBE; the analysis of Withdraw controlled for Repair. These predictors are included to control for the statistical overlap between the criterion variable and the related GASP subscale.

A Multidimensional Approach to the Relationship between Individualism-Collectivism and Guilt and Shame

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Online Supplemental Appendix

Content:

Factor Structure of the HVIC Scale

In order to determine whether the original, 4-factor structure of the HVIC measure (Singelis, Triandis, Bhawuk, Gelfand, 1995) was indeed supported across the different samples, we assessed this structure in comparison to several plausible alternative structures. Specifically, we tested a single factor model in which all items loaded on a single factor; a 2-factor model consisting of individualism (IND) and collectivism (COL) factors; a 2-factor model consisting of horizontal (HOR) and vertical (VER) factors; and the hypothesized, 4-factor structure consisting of horizontal collectivism (HC), vertical collectivism (VC), horizontal individualism (HI), and vertical individualism (VC) factors.

We compared the fit of these four potential structural models within each country using confirmatory factor analyses in the R software package (lavaan package version 0.6-3, Rosseel et al., 2017). Diagonally weighted least squares (DWLS) estimator with robust standard errors was used, which is robust against non-normal distributions of the indicators and appropriate given our sample sizes and model complexity (Flora & Curran, 2004; Wirth & Edwards, 2007). We compared models based on standard fit indices (i.e., robust CFI and TLI values, robust RMSEA values, and SRMR values; Byrne, 2010; Kline, 2016; Cheung & Rensvold, 2002) using the cutoffs suggested by prior literature (Hu & Bentler, 1999; Marsh, Hau, & Wen, 2004). Specifically, we were interested in whether the 4-factor structure fits the data than the other plausible models.

The patterns of fit indices (Table S1) clearly indicate that the hypothesized 4-factor structure is superior to the alternative models. However, in several countries, fit indices for the 4-factor model failed to achieve the standard cutoffs for acceptable model fit. After post hoc modifications, these models achieved a level of acceptable fit. These models demonstrate the

need for further psychometric work on the HVIC scale in future research. While pointing to potential psychometric limitation of the HVIC scales in certain countries, these analyses do support the assumption that these items are best conceptualized as capturing four discrete subscales: HC, VC, HI, and VI. For details regarding fit indices by country as well as post hoc modifications, see Table S1.

Table S1

Structural Model Comparisons of HVIC by Country

Country		1-Factor	2-Factor (IND-COL)	2-Factor (HOR-VER)	4-Factor	4-Factor with modifications
US (Wave 1)	Robust CFI	.64	.84	.69	.96	-
	Robust TLI	.59	.82	.63	.95	-
	Robust RMSEA (90% CI)	.160 (.152, .168)	.106 (.097, .115	.150 (.143, .159)	.057 (.048, .066)	-
	SRMR	.159	.120	.151	.069	-
US (Wave 2)	Robust CFI	.58	.68	.66	.80	.91[a]
	Robust TLI	.49	.60	.57	.73	.87
	Robust RMSEA (90% CI)	.135 (.121, .149)	.118 (.104, .133)	.123 (.109, .137)	.098 (.083, .114	.068 (.052, .084)
	SRMR	.138	.125	.121	.101	.073
China	Robust CFI	.88	.93	.88	.96	-
	Robust TLI	.86	.92	.86	.95	-
	Robust RMSEA (90% CI)	.082 (.075, .088)	.060 (.053, .068)	.080 (.074, .087)	.050 (.043, .057)	-
	SRMR	.106	.084	.104	.070	-
India	Robust CFI	.97	.97	.97	.98	-
	Robust TLI	.97	.97	.96	.97	-
	Robust RMSEA (90% CI)	.050 (.033, .067)	.049 (.032, .066)	.051 (.034, .068)	.044 (.025, .062)	-
	SRMR	.066	.064	.066	.056	-
Iran	Robust CFI	.56	.64	.59	.78	.90[b]
	Robust TLI	.53	.61	.56	.76	.88
	Robust RMSEA (90% CI)	.115 (.111, .120)	.104 (.099, .109)	.111 (.107, .116)	.082 (.077, .086)	.060 (.054, .066
	SRMR	.127	.115	.124	.094	.073
Spain	Robust CFI	.42	.52	.52	.85	.91[c]
	Robust TLI	.35	.46	.46	.83	.89
	Robust RMSEA (90% CI)	.109 (.101, .117)	.099 (.091, .107)	.099 (.090, .107)	.056 (.046, .065)	.045 (.034, .055)
	SRMR	.122	.113	.115	.076	.068

Note. As indicated by the last column (4-Factor with modifications), post hoc model modifications were applied in three out of the six samples. IND = individualism, COL = collectivism, HOR = horizontal, VER = vertical.

[a] Post hoc modifications for the US (Wave 2) sample included allowing HVIC8 to cross-load on HI and HC and allowing covariances between the following pairs of items: HVIC11 and HVIC8; HVIC9 and HVIC8; and HVIC10 and HVIC7.

[b] Post hoc modifications for the Iran sample included removing the following cross-loading items: VC9, HI1, HC2, VC1, and HI5; as well as allowing covariances between the following pairs of items: VC2 and VC3; HC6 and VI5; HC6 and VI6; and VI5 and VI6.

[c] Post hoc modifications for the Spain sample included allowing covariances between the following pairs of items: vcs1 and vis5; vis4 and vis5; and his1 and his5.

Factor Structure of the GASP Scale

As a preliminary step, we were interested in assessing whether the 4-factor structure of the GASP (Cohen, Wolf, Panter, & Insko, 2011), which had been developed and tested in the US, is a better fitting model compared to other possible factor structures within each sample. To do this, we assessed four theoretically plausible structures within each culture: A single factor model in which all GASP items loaded on a single construct (Model 1); a 2-factor model only consisting of guilt and shame constructs (i.e., combining NBE and Repair, on one hand, and NSE and Withdraw on the other; Model 2); a 2-factor model that, instead of distinguishing between shame and guilt, treats all the evaluative response items (i.e., NBE and NSE) as one latent variable and all the behavioral response items (i.e., Repair and Withdraw) as the second latent variable (Model 3); and finally the traditional 4-factor model of the GASP (Model 4).

We compared the fit of four potential structural models within each country individually and within a combined data set. Confirmatory factor analyses were conducted using the lavaan package version 0.6-1 (Rosseel et al., 2017) in the R software package. The diagonally weighted least squares (DWLS) estimator with robust standard errors was used; this approach performs well in the case of non-normally distributed responses and is suitable for our sample sizes, considering the complexity of the models (Flora & Curran, 2004; Wirth & Edwards, 2007). Following the standard practices in CFA, the overall fit of each model was assessed based on a number of fit indices (Byrne, 2010; Kline, 2016; Cheung & Rensvold, 2002). Specifically, robust CFI and TLI values, and Gamma-hat values above .90, robust RMSEA values below .06, and SRMR values below .08 were interpreted as indication of acceptable model fit (Hu & Bentler, 1999; Marsh, Hau, & Wen, 2004).

Results of these analyses are available in Table S2. As is clear by the pattern of fit indices, the 4-factor model has superior fit in all countries and in the combined dataset. Specifically, when considering a combination of various fit indices such as robust CFIs and TLIs (for which higher values indicate a better fit), as well as RMSEAs and SRMRs (for which lower values indicate a better fit), Model 4 had the best fit compared to the other three models. These analyses indicate that the original 4-factor conceptualization of the GASP that was proposed in the initial scale development work in the U.S. (Cohen et al., 2011) is indeed appropriate in all of our different samples.

Table S2

Structural Model Comparisons of the GASP by Country and within a Combined Dataset

	Country					Combined
	US	India	China	Iran	Spain	Sample
Model 1						
χ^2	844.08	402.45	361.94	427.61	302.14	2089.54
Robust CFI	.86	.93	.91	.87	.73	.86
Robust TLI	.83	.92	.90	.85	.69	.84
Robust RMSEA (90% CI)	.094 (.088, .100)	.078 (.070, .086)	.067 (.060, .075)	.074 (.067, .081)	.076 (.066, .086)	.086 (.082, .089)
SRMR	.098	.086	.078	.084	.093	.083
Model 2						
χ^2	819.03	378.51	336.441	381.73	282.73	2032.63
Robust CFI	.86	.94	.92	.88	.75	.86
Robust TLI	.84	.93	.91	.86	.71	.84
Robust RMSEA (90% CI)	.093 (.087, .099)	.075 (.067, .083)	.064 (.057, .072)	.069 (.062, .077)	.073 (.063, .083)	.085 (.082, .088)
SRMR	.097	.083	.074	.079	.091	.081
Model 3						
χ^2	781.27	402.55	358.54	430.33	301.84	2035.80
Robust CFI	.87	.93	.92	.87	.73	.86
Robust TLI	.85	.92	.90	.84	.68	.84
Robust RMSEA (90% CI)	.091 (.085, .097)	.078 (.070, .086)	.067 (.060, .075)	.074 (.067, .082)	.076 (.066, .086)	.085 (.082, .088)
SRMR	.093	.085	.077	.083	.092	.081
Model 4						
χ^2	240.85	210.70	299.67	274.74	183.85	656.42
Robust CFI	.97	.97	.93	.92	.88	.96
Robust TLI	.97	.97	.92	.91	.85	.91
Robust RMSEA (90% CI)	.043 (.036, .050)	.050 (.041, .060)	.063 (.055, .071)	.058 (.050, .066)	.051 (.040, .063)	.048 (.045, .049)
SRMR	.053	.064	.071	.070	.072	.049

Note. Model 1 = single factor (all items loading on one factor); Model 2 = shame vs. guilt (NSE/Withdraw loading one on factor and NBE/Repair loading on a second factor); Model 3 = behavior vs. evaluation (Repair/Withdraw loading on one factor and NBE/NSE loading on a second factor); Model 4 = four-factor (original, 4-factor model). NBE = negative behavior-evaluation (guilt), NSE = negative self-evaluation (shame).

Table S3

HVIC Means and Standard Deviations by Country

	US (Wave 1)	US (Wave 2)	China	India	Iran	Spain
HI *M* (*SD*)	5.73 (.93)	5.28 (.96)	5.38 (.90)	5.76 (.77)	5.52 (.86)	5.09 (1.04)
VI *M* (*SD*)	3.67 (1.42)	4.02 (1.24)	5.11 (.96)	5.94 (.87)	4.28 (1.15)	3.68 (1.15)
HC *M* (*SD*)	4.96 (1.38)	5.20 (1.13)	5.01 (1.09)	6.10 (.76)	5.07 (1.00)	5.51 (.77)
VC *M* (*SD*)	4.79 (1.37)	3.91 (1.33)	5.79 (.97)	5.39 (.96)	4.42 (1.13)	3.49 (.99)

Note. HI = horizontal individualism, VI = vertical individualism, HC = horizontal collectivism, VC = vertical collectivism.

Table S4

GASP Means and Standard Deviations by Country

	US (Wave 1)	US (Wave 2)	China	India	Iran	Spain
NBE *M* (*SD*)	5.42 (1.27)	5.57 (1.28)	5.50 (1.03)	4.82 (1.30)	5.53 (1.32)	5.53 (1.18)
Repair *M* (*SD*)	5.67 (1.03)	5.72 (.99)	5.70 (.93)	5.34 (1.12)	5.87 1.01)	5.85 (.86)
NSE *M* (*SD*)	5.44 (1.25)	5.61 (1.21)	5.21 (1.04)	4.76 (1.32)	5.51 (1.26)	5.68 (1.06)
Withdraw *M* (*SD*)	3.08 (1.21)	3.04 (1.28)	4.02 (1.00)	4.03 (1.17)	3.37 (1.23)	2.78 (1.08)

Note. NBE = negative behavior-evaluation (guilt), NSE = negative self-evaluation (shame).

Table S5

Item-level Correlations between HVIC and GASP in the Sample from US (Wave 1)

	HI_1_1	HI_2_1	HI_3_1	HI_4_1	VI_1_1	VI_2_1	VI_3_1	VI_4_1	HC_1_1	HC_2_1	HC_3_1	HC_4_1	VC_1_1	VC_2_1	VC_3_1	VC_4_1
GASP1	0.10	0.09	-0.03	0.05	-0.05	-0.07	-.13*	-0.02	.33**	.24**	0.04	.14*	0.04	0.08	0.06	0.07
GASP2	-0.03	0.00	0.05	0.09	.13*	0.08	0.07	.13*	.33**	.34**	.36**	.38**	.24**	.28**	.29**	.33**
GASP3	-0.10	0.08	-0.06	.13*	-0.04	0.05	-0.10	0.01	.30**	.33**	0.12	.24**	0.12	.21**	.24**	.23**
GASP4	-0.04	-.21**	-.16*	-0.10	0.02	.28**	.23**	0.12	-0.12	-0.02	0.03	-.13*	0.05	-.17**	-0.01	0.06
GASP5	0.04	0.07	0.09	.15*	-0.05	-.14*	-.18**	-0.06	.31**	.29**	.18**	.24**	0.11	.19**	.20**	.16*
GASP6	-0.07	0.08	-0.08	0.12	0.00	.13*	-0.10	0.06	.25**	.20**	-0.01	.19**	0.08	.17**	.13*	.21**
GASP7	-0.01	0.01	0.04	0.08	-0.02	0.05	0.00	-0.01	-0.07	0.00	-0.09	-0.04	0.03	-0.10	-0.03	-0.05
GASP8	-0.09	-0.06	-0.11	-.16*	-0.11	0.12	0.09	0.02	-.14*	-0.10	-0.05	-.20**	-0.04	-.19**	-.17**	-0.09
GASP9	-0.05	0.02	0.09	0.09	0.05	-0.04	-0.04	0.06	.39**	.35**	.20**	.31**	0.11	.27**	.22**	.21**
GASP10	0.02	0.10	-0.01	.13*	0.08	.17**	0.05	.17**	.19**	.17**	0.02	.19**	0.03	.20**	0.10	.16*
GASP11	0.08	0.04	0.12	.25**	-0.03	-0.12	-.21**	-0.10	.31**	.30**	0.12	.25**	.15*	.27**	.24**	.24**
GASP12	-0.03	-0.08	-0.08	-.17**	-0.01	.22**	.13*	0.08	-.14*	-0.11	-0.04	-.14*	-0.01	-.19**	-0.09	-0.10
GASP13	-0.06	-0.01	-.20**	0.11	-.14*	-0.01	-.13*	-0.06	.43**	.34**	.14*	.26**	0.09	.13*	.18**	.18**
GASP14	0.11	.13*	0.04	.24**	0.00	-0.04	-0.12	0.01	.35**	.34**	.13*	.29**	.17**	.25**	.21**	.21**
GASP15	0.10	0.06	0.04	.19**	-0.06	-.16*	-.26**	-0.10	.31**	.33**	0.11	.27**	0.10	.26**	.14*	.21**
GASP16	-0.02	0.02	-0.03	0.11	-0.10	-.14*	-.18**	-0.03	.42**	.36**	.15*	.24**	.17**	.18**	.24**	.21**

Note. For the item descriptions, see the Codebook on the project's OSF page. * indicates $p < .05$ ** indicates $p < .01$.

Table S6

Item-level Correlations between HVIC and GASP in the Sample from US (Wave 2)

	HVIC1	HVIC2	HVIC3	HVIC4	HVIC5	HVIC6	HVIC7	HVIC8	HVIC9	HVIC10	HVIC11	HVIC12
GASP1	-0.12	.15*	0.11	-0.08	.14*	0.09	-.15*	0.11	.21**	.19**	0.01	-0.12
GASP2	0.07	.28**	0.09	0.08	0.13	.18*	-0.01	.28**	.28**	0.12	0.11	-0.12
GASP3	0.09	.43**	0.07	0.08	0.12	0.05	-0.13	.22**	.24**	.25**	0.13	0.04
GASP4	-.14*	0.00	0.07	-.18*	0.07	-.17*	-0.02	-0.11	-0.06	0.09	-0.10	.27**
GASP5	-0.11	.23**	-0.10	-0.02	0.00	.22**	0.02	.26**	.23**	0.10	0.07	-.33**
GASP6	-0.06	.27**	0.10	-.17*	0.13	0.03	-0.02	0.14	.16*	.24**	0.11	.14*
GASP7	-0.03	-0.02	0.00	-.16*	0.08	-.15*	-0.08	-0.09	-0.06	0.12	-0.05	.14*
GASP8	0.01	-0.08	0.05	-0.05	0.07	-0.09	-0.03	-0.06	-0.11	0.04	-0.11	0.13
GASP9	-0.02	.26**	0.06	-0.02	.14*	0.11	-0.01	.27**	.32**	.20**	.22**	-0.06
GASP10	-0.08	.30**	0.07	-0.03	.18**	0.08	0.00	.23**	.27**	.24**	0.14	0.02
GASP11	0.07	.23**	-0.08	-0.01	0.05	.15*	0.14	.20**	.18*	0.12	0.10	-0.13
GASP12	-0.09	-0.01	0.13	-0.08	.16*	-.15*	-0.10	-.15*	-0.08	0.02	-0.11	.21**
GASP13	0.02	.31**	0.02	-0.09	0.09	0.03	-0.07	0.08	.23**	.18*	.15*	-0.01
GASP14	-0.04	.24**	-0.01	-0.03	-0.02	0.06	-0.06	.19**	.19**	0.10	.18**	-0.09
GASP15	0.03	.35**	-0.04	0.00	0.02	.16*	0.08	0.13	.26**	.19**	0.04	-0.13
GASP16	-0.03	.31**	0.03	0.03	0.12	0.14	-0.04	.21**	.20**	.16*	0.13	-0.08

Note. For the item descriptions, see the Codebook on the project's OSF page. * indicates $p < .05$ ** indicates $p < .01$.

Table S7

Item-level Correlations between the HVIC subscales, SES and Religiosity, and GASP items in the Sample from the US

Variable	1	2	3	4	5	6
1. HI						
2. VI	.10*					
3. HC	-.01	.06				
4. VC	.00	.20**	.42**			
5. Religiosity	-.10*	.08	.22**	.31**		
6. SES3	-.08	.09*	.19**	.14**	.17**	
7. GASP1	.03	-.10*	.23**	.06	.12*	.03
8. GASP2	.08	.09*	.37**	.23**	.11*	.19**
9. GASP3	.02	.03	.33**	.17**	.07	.04
10. GASP4	-.16**	.11*	-.03	-.01	.04	-.01
11. GASP5	.17**	-.16**	.27**	.10*	.11*	-.08
12. GASP6	.02	.01	.23**	.13**	.00	-.05
13. GASP7	-.03	-.01	-.03	.00	.09	.01
14. GASP8	-.11*	.04	-.11*	-.07	-.01	-.05
15. GASP9	.09	-.01	.35**	.20**	.19**	.08
16. GASP10	.09	.07	.24**	.14**	.09	-.06
17. GASP11	.18**	-.09	.26**	.15**	.05	-.03
18. GASP12	-.14**	.08	-.08	-.02	.09	.01
19. GASP13	-.03	-.07	.32**	.13**	.07	.01
20. GASP14	.12*	-.05	.28**	.15**	.06	.03
21. GASP15	.14**	-.13**	.31**	.12*	.04	-.02
22. GASP16	.07	-.09*	.32**	.17**	.22**	-.02

Note. For results based on the whole dataset, see the manuscript. HI = horizontal individualism, VI = vertical individualism, HC = horizontal collectivism, VC = vertical collectivism. * indicates $p < .05$; ** indicates $p < .01$.

Table S8

Item-level Correlations between HVIC and GASP in the Sample from China

	HI_1_1	HI_2_1	HI_3_1	HI_4_1	VI_1_1	VI_2_1	VI_3_1	VI_4_1	HC_1_1	HC_2_1	HC_3_1	HC_4_1	VC_1_1	VC_2_1	VC_3_1	VC_4_1
GASP1	-.17**	0.11	.17**	0.04	.13*	-0.04	-0.03	0.11	.19**	.17**	0.05	.14*	-0.03	0.05	0.10	.16*
GASP2	-0.05	.17**	.15*	.16**	.22**	0.05	0.04	.26**	0.09	.24**	0.04	.22**	.15*	.16*	.22**	.30**
GASP3	-0.03	.15*	0.01	.14*	.12*	0.09	0.06	0.11	.18**	.19**	.18**	.19**	.15*	0.09	.21**	.23**
GASP4	0.04	-0.06	-0.07	0.02	-0.08	.12*	.24**	0.02	0.02	0.03	.15*	0.04	0.04	-0.03	-0.09	-0.08
GASP5	0.06	0.11	.21**	.13*	.17**	0.03	-0.07	.14*	.16**	.18**	0.10	.14*	0.10	0.05	.24**	.19**
GASP6	0.08	.21**	.14*	.28**	.21**	.14*	0.11	.24**	0.11	0.11	0.01	.14*	0.12	0.09	.17**	.14*
GASP7	-0.04	0.00	-0.03	0.06	0.02	-0.02	.15*	0.01	-.18**	-.17**	-0.07	-.15*	0.05	-0.03	0.05	-0.04
GASP8	0.11	0.03	-0.04	0.00	-0.08	.18**	0.09	-0.02	-0.09	-.13*	-0.01	-0.05	-0.04	-0.05	-0.08	-0.09
GASP9	-0.03	.19**	.26**	.19**	.21**	-0.01	-0.06	.23**	.22**	.27**	.14*	.29**	.18**	.18**	.33**	.24**
GASP10	0.05	.19**	.19**	.22**	.23**	0.08	0.11	.27**	.18**	.26**	.19**	.28**	0.11	0.12	.20**	.19**
GASP11	0.01	.24**	.33**	.21**	.29**	0.05	-0.03	.22**	.18**	.27**	0.09	.26**	.22**	.21**	.32**	.22**
GASP12	0.03	0.10	0.02	.16**	.14*	0.07	.16*	.16**	.21**	.19**	.21**	.22**	.18**	0.08	0.04	.15*
GASP13	0.01	.15*	0.09	.15*	0.08	0.12	.21**	.16**	.16**	0.11	.17**	.15*	0.08	0.10	0.04	0.11
GASP14	-0.08	0.08	.13*	0.08	0.11	-0.03	0.11	.18**	.18**	.18**	.18**	.19**	.13*	0.08	.23**	.20**
GASP15	0.05	0.10	.13*	0.08	.16*	0.04	0.12	.21**	.21**	.22**	.23**	.23**	.30**	.23**	.27**	.24**
GASP16	-0.07	0.06	0.11	0.09	.17**	-0.07	0.06	.21**	.16**	.24**	.14*	.22**	0.12	0.06	.27**	.21**

Note. For the item descriptions, see the Codebook on the project's OSF page. * indicates $p < .05$ ** indicates $p < .01$.

Table S9

Item-level Correlations between the HVIC subscales, SES and Religiosity, and GASP items in the Sample from China

Variable	1	2	3	4	5	6
1. HI						
2. VI	.43**					
3. HC	.25**	.36**				
4. VC	.37**	.40**	.60**			
5. Religiosity	.11	.13*	.10	.01		
6. SES3	.05	.08	.16**	.06	.14*	
7. GASP1	.05	.05	.16**	.09	.00	-.01
8. GASP2	.15*	.19**	.17**	.26**	.03	.10
9. GASP3	.10	.13*	.22**	.21**	-.04	.16**
10. GASP4	-.02	.14*	.08	-.05	-.14*	.10
11. GASP5	.18**	.07	.18**	.18**	.08	-.06
12. GASP6	.25**	.24**	.10	.16**	-.11	.03
13. GASP7	-.01	.06	-.16**	.01	-.12*	.03
14. GASP8	.03	.08	-.08	-.08	-.09	.08
15. GASP9	.21**	.11	.27**	.30**	.05	.05
16. GASP10	.23**	.24**	.27**	.20**	.02	.06
17. GASP11	.28**	.17**	.24**	.31**	.09	.01
18. GASP12	.11	.18**	.25**	.15*	-.09	.07
19. GASP13	.14*	.21**	.18**	.11	-.06	.07
20. GASP14	.07	.12*	.22**	.20**	-.01	.05
21. GASP15	.13*	.18**	.27**	.34**	.04	.04
22. GASP16	.07	.12	.23**	.21**	.08	.06

Note. For results based on the whole dataset, see the manuscript. HI = horizontal individualism, VI = vertical individualism, HC = horizontal collectivism, VC = vertical collectivism. * indicates $p < .05$; ** indicates $p < .01$

Table S10

Item-level Correlations between HVIC and GASP in the Sample from India

	HVIC1	HVIC2	HVIC3	HVIC4	HVIC5	HVIC6	HVIC7	HVIC8	HVIC9	HVIC10	HVIC11	HVIC12
GASP1	.14*	.20**	0.03	0.02	0.06	-0.03	-0.04	0.02	0.08	0.11	0.07	-0.03
GASP2	.24**	.30**	.19**	0.14	0.13	0.07	0.07	.21**	.25**	0.08	.21**	0.00
GASP3	.28**	.24**	.17*	0.01	.15*	0.07	0.08	0.09	0.02	0.09	0.13	-0.01
GASP4	-0.07	-.25**	0.05	-0.08	0.00	-0.03	0.04	-0.07	-0.12	-0.13	-0.04	.33**
GASP5	.18*	.20**	0.12	.15*	0.10	.15*	0.05	.15*	.16*	0.02	0.13	-0.06
GASP6	.19**	.21**	0.05	0.01	.17*	-0.02	0.12	0.03	-0.01	0.04	0.11	0.01
GASP7	-.21**	-0.12	-0.14	-0.08	-0.13	0.01	-0.02	-0.07	-0.10	-0.13	-0.05	.28**
GASP8	-.16*	-0.11	-0.11	-0.09	-0.01	-0.07	-0.11	-0.09	-.17*	-.16*	-.16*	.30**
GASP9	.26**	.25**	0.09	0.07	.16*	.15*	0.03	0.02	0.02	0.07	0.11	-0.04
GASP10	.19**	.19**	.14*	.15*	0.13	0.04	0.03	0.09	0.05	0.10	0.13	0.05
GASP11	.15*	.25**	0.11	0.09	0.04	0.12	-0.01	.17*	.14*	.14*	0.05	-.15*
GASP12	0.02	0.00	0.02	0.05	0.05	0.02	-0.02	0.06	-0.05	0.12	-0.02	0.14
GASP13	.15*	.20**	.23**	0.03	0.03	0.11	0.06	0.02	0.02	.27**	0.13	0.11
GASP14	.24**	.28**	.17*	0.00	.17*	0.07	0.01	0.06	0.08	.25**	.16*	-0.04
GASP15	.17*	.17*	.15*	0.05	.15*	0.13	-0.06	0.11	0.12	0.10	0.12	-0.08
GASP16	.21**	.31**	.14*	0.04	.21**	-0.04	0.03	0.11	0.09	.16*	0.13	0.03

Note. For the item descriptions, see the Codebook on the project's OSF page. * indicates $p < .05$ ** indicates $p < .01$.

Table S11

Item-level Correlations between the HVIC subscales, SES and Religiosity, and GASP items in the Sample from India

Variable	1	2	3	4	5	6
1. HI						
2. VI	.49**					
3. HC	.45**	.57**				
4. VC	.37**	.40**	.48**			
5. Religiosity	-.03	.06	.07	.14*		
6. SES3	.02	.07	.00	.01	.32**	
7. GASP1	-.02	.10	.17*	.07	.03	.02
8. GASP2	.16*	.23**	.27**	.23**	-.02	-.12
9. GASP3	.11	.18*	.16*	.20**	-.04	-.14*
10. GASP4	-.02	-.09	-.22**	.02	.19**	.13
11. GASP5	.15*	.19**	.16*	.14*	-.03	.00
12. GASP6	.07	.12	.11	.15*	-.03	-.16*
13. GASP7	-.04	-.18*	-.15*	-.14*	.13	.19**
14. GASP8	-.12	-.15*	-.19**	-.12	.18*	.21**
15. GASP9	.08	.20**	.15*	.16*	.05	-.05
16. GASP10	.07	.20**	.16*	.18*	.05	.03
17. GASP11	.13	.15*	.24**	.08	-.03	-.15*
18. GASP12	.02	.05	.04	.02	.10	.03
19. GASP13	.09	.11	.22**	.17*	-.01	-.10
20. GASP14	.07	.15*	.28**	.22**	.00	-.10
21. GASP15	.08	.13	.17*	.18*	.08	-.10
22. GASP16	.05	.15*	.25**	.22**	.06	-.08

Note. For results based on the whole dataset, see the manuscript. HI = horizontal individualism, VI = vertical individualism, HC = horizontal collectivism, VC = vertical collectivism. * indicates $p < .05$; ** indicates $p < .01$.

Table S12

Item-level Correlations between HVIC and GASP in the Sample from Iran

	GASP1	GASP2	GASP3	GASP4	GASP5	GASP6	GASP7	GASP8	GASP9	GASP10	GASP11	GASP12	GASP13	GASP14	GASP15	GASP16
VC1	0.01	0.00	0.08	0.08	-0.02	0.11	0.04	-0.02	0.06	0.01	-0.01	0.07	0.03	0.06	0.04	0.09
VC2	-0.06	-0.02	-0.06	0.10	-0.03	-0.01	0.11	-0.04	0.10	0.09	-0.07	.16**	-0.05	0.03	0.00	0.11
VC3	0.03	0.11	0.04	0.09	-0.02	0.05	0.04	-0.08	0.08	0.02	0.01	0.10	-0.11	0.00	.13*	.13*
VC4	0.09	0.09	.23**	0.03	.12*	.18**	-0.04	-.16**	.15**	.19**	.12*	.12*	.14*	.26**	.14*	.22**
VC5	0.01	0.05	0.07	-0.04	0.03	-0.06	-0.04	-0.05	.12*	0.06	0.03	0.11	-.14*	0.10	0.03	.12*
VC6	.14*	0.09	0.11	0.02	0.10	0.09	0.02	-0.06	.12*	.12*	.13*	0.06	-0.03	0.09	.12*	.19**
VC7	.15**	-0.04	0.03	0.00	.12*	0.09	-0.11	-0.10	.15**	.15**	.14*	.12*	0.08	.15**	.17**	.20**
VC8	-0.02	0.07	-0.10	-0.10	0.03	-0.06	-0.07	-0.10	0.04	0.01	0.07	0.00	-0.03	0.05	0.10	0.09
VC9	0.08	.14*	0.07	-0.07	.19**	0.02	0.01	-0.03	.22**	.16**	.17**	0.05	0.06	.16**	.18**	.29**
HC1	0.06	.16**	0.08	-0.05	.13*	0.09	-0.08	-0.03	.25**	.17**	0.06	0.04	0.03	.12*	0.09	.21**
HC2	-0.01	0.10	0.03	0.01	-0.01	.12*	-0.01	0.04	-0.03	-0.04	-0.09	0.02	0.06	0.05	-0.02	-0.01
HC3	.12*	0.04	.13*	-0.03	.29**	0.05	-0.09	-.11*	.24**	.21**	.18**	.15**	.13*	.19**	.21**	.27**
HC4	0.07	.17**	.13*	-0.01	.22**	0.06	-0.10	-.17**	.12*	0.10	.21**	0.07	0.05	.16**	.24**	.22**
HC5	0.00	0.06	.16**	0.07	0.08	.16**	-0.04	-0.09	.14*	.11*	0.10	.15**	0.08	.18**	.13*	.14*
HC6	0.08	0.04	0.07	-.12*	0.08	-.16**	-.17**	-.19**	0.11	0.00	.16**	0.00	-0.02	0.08	.19**	.16**
VI1	0.03	.16**	0.00	0.02	-0.06	0.02	0.09	0.08	0.06	0.08	-0.05	0.01	-0.08	0.00	0.00	0.05
VI2	-0.04	0.10	-0.06	-0.10	-0.03	-.13*	-0.06	-0.02	0.04	0.09	-0.02	-0.02	-0.10	-0.07	0.06	0.08
VI3	0.06	-0.05	-0.01	0.06	0.09	-0.01	-0.03	-0.07	-0.03	-0.03	0.09	0.07	0.08	0.08	0.07	0.01
VI4	-0.02	0.09	0.05	0.02	0.01	-0.01	0.02	0.01	0.11	.24**	0.01	0.10	0.07	-0.04	0.05	0.09
VI5	-0.01	0.02	0.09	.22**	-.11*	.20**	.22**	0.10	-0.06	.11*	-0.05	.14*	0.06	-0.04	-0.01	-0.06
VI6	-.11*	0.09	0.00	.12*	-.20**	0.09	.27**	.16**	-0.05	0.05	-.19**	0.09	-.15**	-.18**	-.12*	-.12*
HI1	-0.06	-0.04	-0.07	0.09	-0.03	0.10	.18**	.17**	-0.09	0.03	-0.11	-.14*	-0.05	-.15**	-.12*	-.11*
HI2	-0.05	0.01	-0.06	0.02	-0.01	0.03	0.02	.16**	-0.01	0.03	-0.01	0.01	0.07	-0.03	-0.02	0.00
HI3	0.00	0.01	0.10	-0.03	-0.05	-0.06	-0.09	-0.07	0.04	0.08	0.09	0.02	0.01	0.02	.13*	0.11
HI4	-0.08	0.01	-.13*	-0.05	0.09	-0.07	-0.04	0.04	-0.06	-0.04	0.09	0.03	-0.05	-0.03	0.01	0.08
HI5	0.00	0.01	-0.01	0.03	0.03	0.01	0.10	0.06	-0.03	0.02	.12*	0.00	0.03	-0.06	0.03	-0.04
HI6	0.04	0.04	0.09	-0.10	.11*	-0.03	-0.04	-0.03	0.06	0.10	.13*	0.08	0.10	0.05	.12*	0.09

HI7	0.01	0.00	0.01	-0.04	0.08	-0.08	0.02	0.05	0.06	0.09	0.07	0.03	.11*	0.03	0.03	0.09
HI8	0.06	.12*	0.09	-0.04	-0.01	-0.05	-0.01	0.02	-0.02	0.05	0.11	-0.02	0.11	0.03	0.06	0.01

Note. For the item descriptions, see the Codebook on the project's OSF page. * indicates $p < .05$ ** indicates $p < .01$.

Table S13

Item-level Correlations between the HVIC subscales, SES and Religiosity, and GASP items in the Sample from Iran

Variable	1	2	3	4	5	6
1. HI	-					
2. VI	.17**	-				
3. HC	-.01	.07	-			
4. VC	-.07	.23**	.46**	-		
5. Religiosity	-.12*	.20**	.08	.28**	-	
6. SES3	.18**	.01	.00	-.11	-.02	-
7. GASP1	-.02	-.06	.08	.08	.11*	.12*
8. GASP2	.03	.13*	.14*	.08	.00	-.01
9. GASP3	.00	.02	.15**	.09	.05	.02
10. GASP4	-.02	.05	-.03	.02	.08	-.10
11. GASP5	.05	-.14*	.19**	.09	.01	-.02
12. GASP6	-.02	.05	.08	.08	-.04	-.10
13. GASP7	.05	.16**	-.12*	-.01	-.03	-.12*
14. GASP8	.09	.10	-.13*	-.11*	.02	-.16**
15. GASP9	-.01	.03	.20**	.19**	.22**	.05
16. GASP10	.07	.15**	.13*	.15**	.17**	-.01
17. GASP11	.10	-.11*	.15**	.10	-.04	.10
18. GASP12	.00	.06	.11	.15**	.03	-.11
19. GASP13	.07	-.08	.08	-.02	-.19**	.08
20. GASP14	-.04	-.11*	.19**	.16**	-.01	.01
21. GASP15	.04	-.03	.20**	.16**	-.01	.07
22. GASP16	.04	.00	.24**	.26**	.08	.08

Note. For results based on the whole dataset, see the manuscript. HI = horizontal individualism, VI = vertical individualism, HC = horizontal collectivism, VC = vertical collectivism. * indicates $p < .05$; ** indicates $p < .01$.

Table S14

Item-level Correlations between HVIC and GASP in the Sample from Spain

	GASP1	GASP2	GASP3	GASP4	GASP5	GASP6	GASP7	GASP8	GASP9	GASP10	GASP11	GASP12	GASP13	GASP14	GASP15	GASP16
vcs1	0.06	-.16*	-.14*	-.21**	0.09	-.17*	-.22**	-.18**	-0.06	-0.12	0.00	0.00	-0.01	0.03	0.13	0.06
vcs2	-.17**	-0.05	-0.07	-0.06	-0.05	0.07	0.06	-0.03	-.18**	-.16*	-0.04	-0.02	-0.05	-0.01	-0.11	-0.09
vcs3	-.20**	-.14*	-0.03	-0.11	-0.01	-0.11	-0.11	-.18**	-.23**	-.13*	-0.02	-0.09	-0.07	0.06	-0.05	-.18**
vcs4	-.26**	-0.10	-0.03	0.09	0.00	0.07	0.04	-0.12	-0.07	-0.12	-0.02	0.01	-0.01	-0.01	0.05	-0.08
vcs5	0.04	0.01	0.10	-0.01	-0.03	0.00	-0.03	-0.04	-0.03	-0.06	-0.01	0.11	0.09	-0.11	0.01	0.00
hcs1	-0.05	-0.04	-.13*	-0.07	-.22**	-0.11	0.09	-0.02	-0.06	-.22**	-0.07	-.13*	-0.09	-0.12	-.18**	-.15*
hcs2	-0.05	0.02	-0.12	-0.01	0.08	0.00	0.05	0.08	-0.08	-0.02	-0.07	-0.09	0.00	-0.02	-0.04	0.00
hcs3	-.17**	-0.05	-.19**	.17*	-0.02	-.14*	.23**	0.11	-.14*	-.18**	-0.05	-0.11	-0.10	-.16*	0.01	-.19**
hcs4	-.15*	-0.03	-.18**	0.13	-.13*	-0.09	.15*	0.05	-.21**	-.16*	-.13*	-0.10	-.15*	-0.09	-0.02	-.19**
hcs5	-.29**	-0.06	-0.08	-0.03	0.05	-0.01	0.01	-0.04	-0.11	-0.10	-.16*	-.13*	-.27**	-0.12	-0.07	-.22**
vis1	.24**	-.15*	0.01	0.02	0.11	-0.05	-0.09	-0.07	.13*	-0.08	0.10	-0.07	-0.02	0.06	0.11	0.05
vis2	.21**	0.00	0.13	0.09	0.04	0.06	0.07	-0.04	.19**	0.06	.17**	-0.03	0.05	.15*	0.10	0.06
vis3	-0.11	0.07	0.00	0.05	-0.09	-0.03	-0.02	0.13	-0.09	-0.13	-0.10	0.08	0.01	-0.08	-0.02	-0.11
vis4	.21**	-.20**	0.09	-0.09	0.07	-0.10	-.17*	-0.11	.17*	.14*	.27**	-0.04	0.02	.14*	.16*	0.05
vis5	0.12	-.14*	0.00	-.16*	0.09	-.16*	-.32**	-.21**	.15*	0.10	0.05	-0.01	-0.02	.17**	.20**	0.11
his1	0.06	.16*	0.07	0.04	0.02	0.06	-0.01	0.01	.16*	0.06	0.08	-0.06	0.04	0.11	0.07	0.00
his2	.18**	-0.07	0.06	-0.06	0.04	-0.08	-0.09	-0.09	0.11	0.04	.15*	0.05	0.06	-0.02	-0.06	.18**
his3	0.12	0.05	0.09	0.08	-0.07	-0.07	-0.07	0.03	.14*	-0.03	0.00	0.02	-0.03	-0.03	-0.06	0.13
his4	.15*	0.05	0.07	-0.03	-0.02	-0.02	-0.11	-0.06	.20**	-0.03	0.03	-0.03	0.06	-0.04	0.00	0.07
his5	.22**	-0.01	0.08	-0.01	0.00	-0.01	-0.01	0.08	.21**	.14*	0.07	-0.06	0.06	0.02	-0.05	0.08

Note. For the item descriptions, see the Codebook on the project's OSF page. * indicates $p < .05$ ** indicates $p < .01$.

Table S15

Item-level Correlations between the HVIC subscales and GASP items in the Sample from Spain

Variable	1	2	3	4
1. HI	-			
2. VI	.16*	-		
3. HC	-.20**	-.05	-	
4. VC	-.22**	.13	.13*	-
5. GASP1	-.22**	-.27**	.22**	.16*
6. GASP2	-.05	.16*	.05	.13*
7. GASP3	-.11	-.07	.21**	.05
8. GASP4	.00	.05	-.04	.10
9. GASP5	.01	-.12	.05	.00
10. GASP6	.04	.07	.10	.04
11. GASP7	.08	.14*	-.15*	.08
12. GASP8	.01	.16*	-.05	.17*
13. GASP9	-.24**	-.22**	.18**	.18**
14. GASP10	-.06	-.10	.20**	.19**
15. GASP11	-.10	-.21**	.16*	.03
16. GASP12	.02	.07	.18**	-.01
17. GASP13	-.06	-.01	.19**	.01
18. GASP14	-.01	-.18**	.16*	.02
19. GASP15	.04	-.18**	.09	-.01
20. GASP16	-.14*	-.12	.22**	.09

Note. This sample did not complete religiosity and SES items. For results based on the whole dataset, see the manuscript. HI = horizontal individualism, VI = vertical individualism, HC = horizontal collectivism, VC = vertical collectivism. * indicates $p < .05$; ** indicates $p < .01$.

Table S16

Regression Models of HVIC Predicting GASP Subscales (United States)

	NBE			Repair			NSE			Withdraw		
	β [95% CI]	SE	*p*	β [95% CI]	SE	*p*	β [95% CI]	SE	*p*	β [95% CI]	SE	*p*
Alt. GASP scale [a]	.567 [.489, .645]	..040	< .001	-.025 [-.093, .043]	.035	.472	.559 [.482, .635]	.039	< .001	-.047 [-.175, .081]	.065	.472
HI	.120 [.027, .212]	.047	.011	.214 [.127, .301]	.044	< .001	-.032 [-.125, .060]	.047	.493	-.206 [-.327, -.085]	.062	.001
HC	**.181 [.099, .262]**	**.041**	**< .001**	**.315 [.243, .387]**	**.037**	**< .001**	.130 [.048, .211]	.042	.002	-.069 [-.175, .038]	.054	.205
VI	-.113 [-.181, -.046]	.035	.001	-.107 [-.170, -.043]	.032	.001	**.052 [-.016, .120]**	**.036**	**.134**	**.090 [.002, .177]**	**.045**	**.044**
VC	.030 [-.041, .100]	.036	.414	.051 [-.015, .117]	.033	.126	.009 [-.062, .079]	.038	.805	-.021 [-.111, .070]	.046	.653
Adjusted R^2 (*p*-value)	.421 (< .001)			.227 (< .001)			.402 (< .001)			.033 (.001)		

Note. Bolded values indicate the relationships involved in Hypotheses 1 & 2. HI = horizontal individualism, VI = vertical individualism, HC = horizontal collectivism, VC = vertical collectivism, NBE = negative behavior-evaluation (guilt), NSE = negative self-evaluation (shame).

[a] Alt. GASP scale (Alternate GASP subscale) indicates the subscale associated with the dependent variable that is treated as a covariate. Specifically, the analysis of NBE controlled for NSE; the analysis of Repair controlled for Withdraw; the analysis of NSE controlled for NBE; the analysis of Withdraw controlled for Repair. These predictors are included to control for the statistical overlap between the criterion variable and the related GASP subscale.

Table S17

Regression Models of HVIC Predicting GASP Subscales (China)

	NBE			Repair			NSE			Withdraw		
	β [95% CI]	SE	*p*	β [95% CI]	SE	*p*	β [95% CI]	SE	*p*	β [95% CI]	SE	*p*
Alt. GASP scale [a]	.604 [.507, .702]	.050	< .001	.023 [-.082, .128]	.053	.667	.595 [.499, .691]	.049	< .001	.030 [-.109, .170]	.071	.667
HI	-.043 [-.165, .078]	.062	.484	.122 [-.009, .252]	.066	.067	.121 [.001, .241]	.061	.048	-.030 [-.181, .122]	.077	.700
HC	**.107 [-.004, .219]**	**.057**	**.060**	**.081 [-.039, .303]**	**.061**	**.184**	.037 [-.075, .148]	.056	.517	-.000 [-.138, .138]	.070	.999
VI	-.116 [-.233, .001]	.059	.052	.010 [-.117, .138]	.065	.874	**.176 [.061, .291]**	**.058**	**.003**	**.229 [.085, .373]**	**.073**	**.002**
VC	.113 [-.018, .243]	.066	.091	.254 [.113, .395]	.072	< .001	-.051 [-.181, .691]	.066	.440	-.079 [-.246, .087]	.084	.348
Adjusted R^2 (*p*-value)	.410 (< .001)			.142 (< .001)			.428 (< .001)			.021 (< .001)		

Note. Bolded values indicate the relationships involved in Hypotheses 1 & 2. HI = horizontal individualism, VI = vertical individualism, HC = horizontal collectivism, VC = vertical collectivism, NBE = negative behavior-evaluation (guilt), NSE = negative self-evaluation (shame).

[a] Alt. GASP scale (Alternate GASP subscale) indicates the subscale associated with the dependent variable that is treated as a covariate. Specifically, the analysis of NBE controlled for NSE; the analysis of Repair controlled for Withdraw; the analysis of NSE controlled for NBE; the analysis of Withdraw controlled for Repair. These predictors are included to control for the statistical overlap between the criterion variable and the related GASP subscale.

Table S18

Regression Models of HVIC Predicting GASP Subscales (India)

	NBE			Repair			NSE			Withdraw		
	β [95% CI]	SE	*p*	β [95% CI]	SE	*p*	β [95% CI]	SE	*p*	β [95% CI]	SE	*p*
Alt. GASP scale [a]	.650 [.547, .753]	.052	< .001	.167 [.036, .299]	.067	.013	.687 [.578, .796]	.055	< .001	.191 [.041, .341]	.076	.013
HI	-.173 [-.376, .030]	.103	.094	.015 [-.218, .247]	.118	.902	.079 [-.131, .289]	.106	.458	.065 [-.184, .313]	.126	.609
HC	**.289 [.062, .516]**	**.115**	**.013**	**.299 [.036, .561]**	**.133**	**.026**	-.104 [-.341, .133]	.120	.388	-.328 [-.608, -.048]	.142	.022
VI	.013 [-.183, .209]	.099	.879	.130 [-.095, .354]	.114	.255	**.078 [-.123, .279]**	**.102**	**.445**	**-.092 [-.332, .148]**	**.122**	**.449**
VC	.023 [-.139, .184]	.082	.782	.088 [-.096, .271]	.093	.346	.102 [-.063, .267]	.084	.225	.000 [-.196, .196]	.100	.999
Adjusted R^2 (*p*-value)	.487 (< .001)			.091 (< .001)			.473 (< .001)			.043 (.019)		

Note. Bolded values indicate the relationships involved in Hypotheses 1 & 2. HI = horizontal individualism, VI = vertical individualism, HC = horizontal collectivism, VC = vertical collectivism, NBE = negative behavior-evaluation (guilt), NSE = negative self-evaluation (shame).

[a] Alt. GASP scale (Alternate GASP subscale) indicates the subscale associated with the dependent variable that is treated as a covariate. Specifically, the analysis of NBE controlled for NSE; the analysis of Repair controlled for Withdraw; the analysis of NSE controlled for NBE; the analysis of Withdraw controlled for Repair. These predictors are included to control for the statistical overlap between the criterion variable and the related GASP subscale.

Table S19

Regression Models of HVIC Predicting GASP Subscales (Iran)

	NBE			Repair			NSE			Withdraw		
	β [95% CI]	SE	*p*	β [95% CI]	SE	*p*	β [95% CI]	SE	*p*	β [95% CI]	SE	*p*
Alt. GASP scale [a]	.564 [.470, .659]	.048	< .001	.006 [-.082, .095]	.045	.885	.543 [.453, .634]	.046	< .001	.010 [-.130, .151]	.071	.885
HI	-.005 [-.144, .134]	.071	.942	.121 [.005, .248]	.064	.060	.042 [-.094, .178]	.069	.542	.034 [-.127, .194]	.081	.681
HC	**.120 [-.013, .252]**	**.067**	**.077**	**.227 [.106, .347]**	**.061**	**< .001**	.057 [-.074, .182]	.066	.393	-.107 [-.155, -.027]	.079	.173
VI	-.134 [-.241, -.027]	.055	.015	-.082 [-.180, .017]	.050	.105	**.094 [-.011, .200]**	**.054**	**.080**	**.151 [.027, .275]**	**.063**	**.017**
VC	.189 [.069, .310]	.061	.002	.082 [-.029, .192]	.056	.146	-.070 [-.190, .050]	.061	.251	.039 [-.101, .178]	.071	.586
Adjusted R^2 (*p*-value)	.357 (< .001)			.070 (< .001)			.317 (< .001)			.012 (.117)		

Note. Bolded values indicate the relationships involved in Hypotheses 1 & 2. HI = horizontal individualism, VI = vertical individualism, HC = horizontal collectivism, VC = vertical collectivism, NBE = negative behavior-evaluation (guilt), NSE = negative self-evaluation (shame).

[a] Alt. GASP scale (Alternate GASP subscale) indicates the subscale associated with the dependent variable that is treated as a covariate. Specifically, the analysis of NBE controlled for NSE; the analysis of Repair controlled for Withdraw; the analysis of NSE controlled for NBE; the analysis of Withdraw controlled for Repair. These predictors are included to control for the statistical overlap between the criterion variable and the related GASP subscale.

Table S20

Regression Models of HVIC Predicting GASP Subscales (Spain)

	NBE			Repair			NSE			Withdraw		
	β [95% CI]	SE	*p*	β [95% CI]	SE	*p*	β [95% CI]	SE	*p*	β [95% CI]	SE	*p*
Alt. GASP scale [a]	.400 [.273, .527]	.064	< .001	.018 [-.087, .124]	.054	.731	.371 [.253, .489]	.060	< .001	.029 [-.137, .195]	.084	.731
HI	-.127 [-.258, .004]	.067	.057	.007 [-.106, .121]	.058	.901	.053 [-.074, .180]	.065	.410	.045 [-.097, .187]	.072	.533
HC	**.216 [.039, .393]**	**.090**	**.017**	**.141 [-.008, .290]**	**.076**	**.063**	.210 [.039, .380]	.087	.016	-.035 [-.223, .153]	.095	.717
VI	-.273 [-.389, -.156]	.059	< .001	-.087 [-.189, .014]	.051	.091	**.060 [-.057, .177]**	**.059**	**.311**	**.135 [.008, .262]**	**.064**	**.037**
VC	.136 [-.001, .272]	.069	.052	.063 [-.056, .182]	.060	.298	.036 [-.097, .169]	.067	.592	.138 [-.010, .286]	.075	.067
Adjusted R^2 (*p*-value)	.303 (< .001)			.014 (.151)			.198 (< .001)			.021 (.081)		

Note. Bolded values indicate the relationships involved in Hypotheses 1 & 2. HI = horizontal individualism, VI = vertical individualism, HC = horizontal collectivism, VC = vertical collectivism, NBE = negative behavior-evaluation (guilt), NSE = negative self-evaluation (shame).

[a] Alt. GASP scale (Alternate GASP subscale) indicates the subscale associated with the dependent variable that is treated as a covariate. Specifically, the analysis of NBE controlled for NSE; the analysis of Repair controlled for Withdraw; the analysis of NSE controlled for NBE; the analysis of Withdraw controlled for Repair. These predictors are included to control for the statistical overlap between the criterion variable and the related GASP subscale.

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