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The Community, Autonomy, and Divinity Scale (CADS)

A new tool for the cross-cultural study of morality

Valeschka M. Guerra

Roger Giner-Sorolla

University of Kent

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Abstract

Moral rules are an important aspect of culture. Yet, to date no published scale exists to measure the endorsement of different moral codes. We report the development of the CADS (Community, Autonomy and Divinity Scale), based on Shweder's (2003a) moral codes, as a means to measure cross-cultural, sub-cultural, and individual differences in the contents of morality. Scale development, confirmatory factor analysis, convergent and discriminant validity are reported in Studies 1 and 2, as well as analysis for structural invariance and meaningful differences across British and Brazilian cultural contexts. We find the CADS to be a reliable and valid scale, thereby enabling the cross-cultural quantitative study of similarities and differences in endorsement of moral codes.

The Community, Autonomy, and Divinity Scale (CADS)

A new tool for the cross-cultural study of morality

Morality has been considered as an important aspect of culture (Narvaez, Getz, Rest & Thoma, 1999). Although the existence of moral systems is universal, research findings have demonstrated important differences in the use of morality-based arguments across cultures (Miller & Bersoff, 1992; Rozin, Lowery, Imada & Haidt, 1999). This research addresses a lack in the literature by systematically developing a theory-based questionnaire measuring endorsement of moral codes that can be used to study cultural and individual differences.

Morality and culture

Does moral judgment follow universal or culture-specific rules? According to Gert (1988), philosophers have not traditionally been interested in cultural differences in morality. Plato (1984) and Kant (1789/1965), for example, while aware of the variation of moral conduct in different societies, nonetheless proposed universal theories associating ethics with virtue and rationality. Research on morality in psychology has primarily dealt with the development of morality and the process of reasoning and moral judgment (see Miller, 2001). Universalists, such as Piaget (1977) and Kohlberg (1981, 1984), propose a single legitimate moral domain consisting of concerns with justice, rights and protection from harm (Bhatia, 2000; Miller, 2001); a domain that can be found in all cultures, and whose development follows the same sequence in all cultures (Kohlberg, 1981; Piaget, 1977). Relativists, however, propose that this rights-based code, while emphasized in Western cultures, does not account for the whole moral domain (Chiu, Dweck, Tong & Fu, 1997; Shweder, Much, Mahapatra & Park, 1997). They suggest that moral norms are relative to the culture they are part of (Harman, 1975; Shweder, 1990a). Such approaches recognize the possibility of moral universals, but do not confine the moral domain to these. Instead, they emphasize the cultural

nature of moral beliefs that are not so extensively studied, such as duty, interpersonal relationships, and religious norms (Darley & Shultz, 1990; Miller, 2001).

Several studies have shown that such cultural values predict moral reasoning and judgment (Miller & Bersoff, 1992; Narvaez, et al., 1999). Shah (2004), for example, suggests that religiosity strongly influences the moral behavior of teenagers. Religious practices and beliefs are culturally defined (Tarakeshwar, Stanton & Pargament, 2003), and universalist approaches have largely ignored religion's role in morality. However, for some people, morality may be entirely related to personal religious beliefs (Miller, 2001).

Shweder (2003b) also proposed that different cultures value different moral goods. Using ethnographic methods, Shweder found moral judgment in Indian culture to depend on strict social rules to be universally applied, based on community duties and, sometimes, on religious rules. However, in the United States, participants showed a greater liberality in social rules, endorsing instead a morality based on individual rights (Shweder et al., 1997). This work led to a three-category taxonomy, a "Big Three" of morality. These three ethics, as proposed by Shweder (1990a; Shweder et al., 1997), can coexist in the same culture, but with varying degrees of emphasis.

Ethics of autonomy. This code defines the individual as the source of moral authority. The autonomy moral system is based on people's rights to pursue their needs and desires, and on fairness and justice (Haidt, Koller, & Dias, 1993). Shweder (2003a) suggests that in autonomy ethics, the individual is seen as "a preference structure, [where] obligations come from being a person" (p. 98). Key moral concepts are equality of rights between individuals, independence, freedom of choice and personal well-being (Jensen, 2004).

Ethics of community. This morality is based on loyalty, duty, honor, respect, self-control, obedience to authority, and actions consistent with one's social roles. People are defined as having social roles in families, nations, or other social groups that are part of their

identity, and interpersonal responsibilities are a moral duty (Miller, 2001; Shweder, 2003a). The basis of moral beliefs is one's role in a social group (Arnett, Ramos & Jensen, 2001).

Ethics of divinity. The ethics of divinity describe a person as a spiritual entity subject to a higher order (Shweder, 2003a). It connects the self to a higher force, and the body is sacred, making it important to maintain purity (Haidt, et al., 1993). Divinity does not require any particular religious outlook. Its central values are anchored in the concept of divine or natural law, often based on religious authorities and texts (e.g., the Bible), as well as on obligations, punishments, and rewards with respect to supernatural forces (Arnett et al., 2001; Jensen, 1995). The concepts for the ethics of divinity were developed from the study of two different religious traditions: monotheistic (Christian, in the U.S.), and polytheistic (Hindu, in India), with most core concepts shared by both types of tradition.

A number of studies have looked at the use of these codes in Brazil, India, Japan, the Philippines, and the U.S. (Jensen, 1995; Rozin et al., 1999; Vasquez, Keltner, Ebenbach, & Banaszynski, 2001). Haidt et al. (1993) found differences in endorsement of ethics as a function of both nation and social class when studying adults and children in Brazil and the U.S. University students in both countries used the ethics of autonomy more often than the other two ethics. Among the non-university population, Americans used ethics of autonomy more than Brazilians, whereas the latter presented arguments mainly based on both autonomy and community. Similar results were found by Vasquez et al (2001) with samples from the U.S, where participants presented moral judgments based on autonomy, and the Philippines, where all three ethics were used. Jensen (1995), studying adults in the U.S., suggests that the language of autonomy is common among middle-class young adults; midlife and older adults, on the other hand, balanced the importance of autonomy values with concerns for the demands of the community, nature, and God. These findings show that the moral codes can also identify differences between subcultures, such as different generations or social classes.

Socio-historical processes in place in specific contexts may be responsible for this variation in ethics within each culture, as they can convert preferences into values at the individual and cultural levels (Miller, 2001). For example, to explain the reliance on autonomy ethics among liberal sectors, Rozin (1999) suggests that the decline of divinity concerns in modern Western cultures may have granted a greater importance to rights and protection from harm, for which the moral authority is the ideal of justice. Individual moral orientations (Forsyth, 1980; Forsyth & Berger, 1982) can help predict moral judgments; however, culture also has an important role. The variation is not only in individual orientations, but in background principles emphasized by each culture (Miller, 2001).

The majority of studies in this tradition have used ethnographic and free coding methods, rather than a standardized measure of endorsement of the moral codes. The development of a standardized measure will make the exploration of this field easier for researchers, and allow findings to be associated with other constructs. In particular, developing a standard instrument allows researchers to take the novel approach of viewing variations in moral code endorsement as an individual as well as a cultural difference.

This paper presents two studies that develop, validate, and test a quantitative measure of the Big Three moral codes: the Community, Autonomy, and Divinity Scale (CADS). Two nations (United Kingdom and Brazil) were selected as examples of collectivist and individualist cultures (Brazil IC Rating = 3.90, indicating collectivism; UK IC Rating = 8.95, indicating individualism; Fernández, Páez, & González, 2005), while having similarities in other respects (e.g., both are Western cultures and subscribe to Judeo-Christian traditions). Additionally, Brazilian culture tends to be more religious than European countries (Gouveia & Clemente, 2000), whereas Britain presents a low religiosity (Voas & Crockett, 2005).

Study 1 was conducted in Britain with a pilot version of the scale, and data reduction analyses were used to compose its final version. Study 2 was designed to examine the

psychometric properties of the CADS, as well as to validate the CADS in Portuguese for a Brazilian sample, checking whether the structure of the measure remained similar across populations, and at the same time reflected cultural differences in mean moral code endorsement. Based on theory and previous findings, we generated two types of hypotheses: cultural hypotheses (e.g., C1, C2), covering characteristics of specific cultures and subgroups, and differences between them; and structural hypotheses (e.g., S1, S2), covering the structure of relationships among the moral codes and other measures that should hold across cultures. These hypotheses were tested only in the UK in Study 1, but in both countries in Study 2.

Study 1

Study 1 tested an initial version of the CADS, selecting the best items to compose the final scale, and testing the resulting scale for convergent and discriminant validity toward other constructs. Although the titles "autonomy" and "community" might suggest a one-to-one mapping to individualism and collectivism, conceptually these ethics are more strongly related to the horizontal and vertical dimensions of individualism/collectivism. In fact, the core concepts of the autonomy code emphasize values central to the horizontal attributes of both individualism and collectivism. Triandis and Gelfand (1998) suggest that *horizontality* emphasizes equality, while *verticality* emphasizes hierarchical systems. Therefore, vertical individualism is not expected to relate to autonomy, due to its emphasis on hierarchy (e.g., a hierarchy of individual ability), but horizontal individualism and horizontal collectivism would both be related to autonomy (*hypothesis S1*), because each can underlie concern for equality and the rights of others (Schwartz, 2007). Another clear conceptual mapping connects divinity and community to vertical collectivism (*hypothesis S2*), as both ethics rely on hierarchy and duty – be it to family, group leaders or God.

Based on previous findings associating religiosity with endorsement of the divinity moral code (Haidt & Hersh, 2001; Jensen, 1998), we expected a positive association between intrinsic religiosity orientation and divinity ethics (*hypothesis S3*).

In correlations among the three codes, Haidt et al. (1993) suggest an association between divinity and community; both support a hierarchical system and conservative social norms, while families and communities often share religious beliefs. Therefore, *hypothesis S4* predicts a positive correlation between the ethics of community and divinity.

In specific cultural predictions, British students should present high scores in horizontality and individualism (*hypothesis C1*). Although the UK has high individualism (Suh, Diener, Oishi, & Triandis, 1998), Schwartz and Ros (1995) show that Western European countries follow values such as egalitarianism and harmony more than hierarchy and achievement. Therefore British individualism might be more horizontal than vertical.

The literature offers contradictory findings about gender differences in ethics. Some researchers have suggested that women consider interpersonal context more than men in moral judgment (Gilligan, 1982; Ford & Lowery, 1986). Therefore, women may score higher than men in divinity and community ethics (*hypothesis C2*). However, this hypothesis is only tentative. Other researchers have concluded there are no meaningful gender differences in moral judgment (for a review, see Jaffee & Hyde, 2000); also, concern for interpersonal context may not translate into a more divinity- or community-oriented view, as such concern can also arise under autonomy ethics (e.g., balancing different people's rights).

Finally, as suggested by research on Western cultures (e.g., Haidt et al., 1993), British people are expected to endorse autonomy most highly among all three ethics (*hypothesis C3*).

Method

Participants

Data were collected with 275 British-born students (65% women) from a large British university, who participated in exchange for partial course credit or £3 (three pounds). Participants' ages ranged from 18 to 42 with a mean of 20.3 (*SD*=2.85). The majority of the participants did not have religious beliefs (52%); those who did were mainly Catholics (25%).

Measures

A pool of 107 items was generated to represent the three ethics (Shweder et al., 1997), based on the coding manual developed by Jensen (2004), to categorize participants' moral justifications in interviews. These categories emerged from participants' freely given answers, showing the existence of the ethics in everyday moral discourse. Previous studies of these ethics have focused on how they are used to judge actions as morally wrong. We decided, however, to introduce a novel approach by also measuring how ethics relate to approval of moral actions as right. While social psychology tends to focus on pro-social acts, undoing harm or affirming rights, as a primary example of positive moral behavior (e.g., Penner, Dovidio, Piliavin, & Schroeder, 2005), it has not looked as much at actions that support community or divinity ethics, such as fulfilling duties or respecting sacred boundaries.

Our initial goal was to reduce this first pool of items to create a parsimonious and internally valid instrument. The items were presented to 15 judges, who read definitions of the ethics, then were asked to read each phrase and to categorize it into one of the three ethics. Only the 82 items that reached 70% agreement among all judges were included in the questionnaire presented to the participants in Study 1: 26 for autonomy, 28 for community, and 28 for divinity. All items were presented on a 7-point Likert scale, ranging from 1 (*Not important at all*) to 7 (*Of the utmost importance*), and were preceded by these instructions:

The following sentences express standards that different people may have when judging something as morally right or morally wrong. When YOU are judging something as RIGHT / WRONG, to what extent is each of the following standards important to your judgment?

The other scales included to verify their relation to the CADS were analyzed as individual-level variables, as suggested by Van de Vijver and Leung (1997) when only a small number of cultures is available for analysis. They were:

Individualism-Collectivism. This scale measures the horizontal and vertical dimensions of individualism – collectivism (Triandis & Gelfand, 1998). This 16-item measure uses 7-point scales, ranging from *1 = Strongly disagree* to *7 = Strongly agree*. Cronbach's alpha were acceptable in the UK (Horizontal Individualism-HI α = .60; Vertical Individualism-VI α = .69; Horizontal Collectivism-HC α = .61; and Vertical Collectivism-VC α = .68).

Intrinsic Religiosity. This scale comprised the nine items measuring intrinsic religiosity in the Religious Orientation Scale (Allport & Ross, 1967). It uses 5-point scales from *1 = Strongly disagree* to *5 = Strongly agree* (Cronbach's α = .93). The intrinsic religiosity scale is usually presented with the extrinsic scale (Allport & Ross, 1967). However we decided to include only the intrinsic scale as it represents personal religiosity, which is more related conceptually to divinity ethics, rather than participation in religious practices due to external reasons, which is less of a moral than a social choice.

Finally, participants provided their sex, age, nationality and religion, and answered a five-point scale measuring general religiosity/spirituality, where 1 meant "no religiosity/ spirituality" and 5, "strong religiosity/spirituality" (Inglehart, Basanez, & Moreno, 1998).

<div align="center">Results and Discussion</div>

Item Analysis and Exploratory Factor Analysis

Each item that did not correlate with any other item or with its proposed subscale at r = +/-.40 or more was discarded, excluding 11 in total. The remaining 71 items were submitted to separate maximum likelihood factor analysis using an orthogonal (*Varimax*) rotation. To be retained, an item had to present a factor loading equal to or higher than +/-.45 in only one factor; any items presenting factor loadings higher than +/-.40 in more than one factor, or in no factors, were discarded. These limits were chosen in order to include only strong items in each factor. The χ^2 index of the Bartlett's Test of Sphericity was 14,490.93 ($p < .001$), indicating the matrix was suitable for factor analysis.

From the set of 71 items, 59 presented acceptable factor loadings in the expected categories. The initial solution presented five factors with *eigenvalues* higher than 1. However, a *scree plot* analysis (Cattel, 1966) suggested three main factors to be retained. The first factor (21 items) expressed divinity, with factor loadings from .85 to .49. This dimension presented an *eigenvalue* of 12.85, explaining 18% of the variance (Cronbach's α = .96). The second factor (19 items) expressed community ethics, with factor loadings from .75 to .49, an *eigenvalue* of 10.03, and 14% of explained variance (Cronbach's α = .94). The third factor (19 items) expressed autonomy ethics, with factor loadings from .75 to .46. It explained 10.20% of the variance, with an *eigenvalue* of 7.24 (Cronbach's α = .89). The three main factors explained altogether 42.4% of the variance.

Structural hypotheses

Correlations among the CADS dimensions and the other constructs were next examined (Table 1). Among the dimensions, divinity and community had the strongest correlation, corroborating hypothesis S4. Community also had a positive correlation with autonomy. These two correlations were significantly different from each other, t (272) = 2.25, $p < .05$. Autonomy and divinity were not correlated, and this lack of association was also

significantly different from the correlation between community and autonomy, t (272) = 3.53, $p < .01$, and between community and divinity, t (272) = 5.83, $p < .01$.

Insert Table 1 around here

Horizontal individualism correlated only with autonomy, while vertical individualism did not correlate with any of the CADS dimensions. Horizontal collectivism was positively associated with all dimensions, but most strongly with community as opposed to divinity, t (272) = 4.27, $p < .01$, and autonomy, t (272) = 2.53, $p < .05$. Vertical collectivism had near-identical correlations with divinity and community. This supports hypotheses S1 and S2.

Both religiosity variables correlated only with divinity, supporting hypothesis S3.

Cultural hypotheses

British students were expected to score highly on the horizontal and individualist dimensions (*hypothesis C1*). In a 2 (Dimension: individualism-collectivism) x 2 (Attribute: horizontal-vertical) repeated measures analysis of variance there was a main effect of dimension, F (1, 274) = 118.47, $\eta^2 = 30$, $p < .001$, with individualism generally higher than collectivism; a main effect of attribute, F (1, 274) = 257.18, $\eta^2 = .48$, $p < .001$, with the horizontal dimension higher than the vertical; and a significant interaction, F (1, 274) = 107.52, $\eta^2 = .28$, $p < .001$, where participants endorsed horizontal individualism (M = 5.44), vertical individualism (M = 5.03) and horizontal collectivism (M = 5.21) highly, but not vertical collectivism (M = 3.98). These results support the proposed hypothesis (C1).

A 2 (Gender) x 3 (Ethics) mixed analysis tested overall differences and gender differences in endorsement of specific ethics (hypotheses C3 and C2 respectively). A main effect of ethics was found, F (2, 544) = 218.34, $\eta^2 = .45$, $p < .001$, with the ethics of autonomy endorsed most highly, as expected in a Western culture, while divinity had the

lowest mean, and community fell between divinity and autonomy, supporting hypothesis C3. Gender also had a significant main effect, $F (1, 272) = 25.38$, $\eta^2 = .09$, $p < .001$, suggesting an overall stronger endorsement of morality items among women. However, there was no significant interaction, so hypothesis C2 was not confirmed.

<center>Study 2</center>

Study 2 investigated the test-retest reliability of the CADS among the British sample. It also aimed at testing it for multigroup invariance through confirmatory factor analysis (CFA), and examining cultural differences between a British and a Brazilian population.

We expected the results of hypotheses C1 through C3, and hypotheses S1 through S4, from Study 1 to be replicated in Study 2, which also introduced a number of new hypotheses.

The British culture nowadays is known for its secularity (e.g. Voas & Crockett, 2005). However, Hatch, Burg, Naberhaus, and Hellmich (1998) suggest that spirituality is a broader dimension than religiosity. Individuals can be spiritual (e.g. having mystical experiences) and not religious (e.g. taking part in religious rituals). Although we have already seen that British individuals were low in adherence to religion, it is possible that they consider themselves more spiritual than religious (*hypothesis C4*), and that spiritual beliefs correlate with endorsement of divinity ethics (*hypothesis S5*). Due to space constraints in the Brazilian version of the questionnaire, the items on spiritual beliefs could be included only in Britain.

The association between religiosity and morality is highly important, in comparing Brazilian and British culture. Out of the total Brazilian population, 75% are Catholic (IBGE, 2001). Previous research (Gouveia & Clemente, 2000) has shown a high level of religiosity, even when the sample was formed by university students. Therefore, we can expect that religiosity and divinity would be more highly endorsed among participants in Brazil than in Britain (*hypothesis C5*). Overall, we expected that the CADS' structure and relationships to other scales would be replicated in Brazil, while the mean levels of dimensions would vary.

Method

Participants

British participants were 142 university students; recruitment and incentive were the same as in Study 1. Participants were informed that they would be asked to return after four weeks to complete a retest, with a total of 138 returning participants (97%). Sixty-two percent were women, and the mean age was 20.3 (SD = 2.85). British nationals were 68% of the sample, and 47% belonged to a religious denomination, with a Catholic plurality (18%).

Brazilian participants were 288 undergraduates (56% women) from two universities in the Northeast of Brazil, with a mean age of 25.8 (SD=8.48). Catholics formed 54% of the sample. The students participated on a voluntary basis.

Measures

CADS. The final scale consisted of 59 items (21 on divinity, 20 on community, and 18 on autonomy). To validate the CADS for the Brazilian context, a back-translation approach was used by two bilingual psychologists. The items were presented to a group of first-year university students to test for difficulty in comprehension, and revised accordingly.

Horizontal and vertical individualism and collectivism. Also used in Study 1, Cronbach's alphas in the British and Brazilian samples were, respectively: HI = .62 and .63; VI = .71 and .62; HC = .71 and .60; VC = .67 and .65. Although most of these indices are below the .70 cut-off criteria, they can be considered acceptable (Garson, 2008) and they are consistently similar to values found in previous research (Gouveia, Andrade, Jesus, Meira & Soares, 2002; Triandis & Gelfand, 1998).

Intrinsic Religiosity. Also used in Study 1, the Intrinsic Religiosity Scale had Cronbach's alpha of .91 for the British sample and .90 for the Brazilian sample.

Spiritual Involvement and Beliefs Scale. Developed by Hatch et al, (1998), this scale assesses spiritual beliefs without referring to a specific religion. It consists of 23 items (e.g.:

My life has a purpose; I have a personal relationship with a power greater than myself)
answered on a five-point scale, from Strongly disagree (1) to Strongly agree (5). It presented
an internal consistency (Cronbach's alpha) of .85 in the British sample.

      Socio-demographic questions. Age, gender, religion, country of origin and years living
in own country were assessed, as well as the general religiosity item from Study 1.

      For British participants, the two sessions were separated by four weeks. Brazilian
participants answered the questionnaires in only one session in a classroom environment.

<div align="center">Results and Discussion</div>

Test-Retest Reliability

      Generally, the correlations indicated acceptable test-retest reliability. Divinity score in
Time 1 (T1) correlated at .87, $p < .001$ with Divinity in Time 2 (T2); Community in T1
correlated at .73, $p < .001$, with the same score in T2, while Autonomy (T1) correlated at .60,
$p < .001$, in T2. Although one of the test–retest correlations is below the proposed value of
0.70 or above (Anastasi & Urbina, 2000), it is important to consider that the longer the
interval between the first and second administration of the scale, the lower this index will be.
A four-week period was chosen due to the fact that two weeks may be short to prevent the
participants from remembering the answers, inflating reliability values (Anastasi & Urbina,
2000). The instrument, consequently, can be considered reliable over time. The three
proposed factors also presented satisfactory Cronbach's alpha: .93 (T1) and .92 (T2) for
Community; .86 (T1) and .85 (T2) for Autonomy; and .94 (T1) and .95 (T2) for Divinity.

      Each scale's scores were submitted to a paired-sample t test to verify if there was a
significant difference in their means after the four-week interval. No significant difference
was found for any of the factors. Overall there was a stronger endorsement of the Autonomy
factor (T1 $M = 5.23$, $SD = .78$; T2 $M = 5.33$, $SD = .75$) when compared to Community (T1 M

= 4.32, *SD* = .94; T2 *M* = 4.28, *SD* = .97) and Divinity (T1 *M* = 3.41, *SD* = 1.32; T2 *M* = 3.32,

SD = 1.29), replicating Study 1 findings and corroborating hypothesis S7.

Confirmatory Factor Analyses (CFA)

To confirm the structure of the CADS in the UK and Brazil, all items were submitted

to a multigroup confirmatory factor analysis using AMOS Software, version 7. For this and

all subsequent analyses, the British sample was reduced to include only British-born

participants (N = 97), allowing comparison between natives of both countries. Before

conducting the analysis, however, CADS items were centered in each sample to control for

acquiescence and extremity bias (Fischer, 2004; Van de Vijver & Leung, 1997), with further

analyses conducted with the standardized scores.

The three-factor model suggested by Study 1's exploratory factor analysis was the first

to be tested. Sixteen items (3 community, 10 autonomy, and 3 divinity items) were dropped

due to non significant loadings in both samples, and/or significant loadings in a different

dimension; after these items were dropped, the final scale formed by 43 items was tested

again. Model 1 results (Table 2) show the goodness-of-fit indices for the final scale analysis

and suggests the original three-factor first order structure is not suitable for this data.

An examination of modification indices and residual matrix suggested stronger

associations between five items in the divinity dimension, such as 03 (*It follows nature's law*),

and 39 (*It is unnatural*). In terms of item content, these items used the idea of 'obedience to

laws of nature' as a means of justification for moral judgment. The same was observed for

five items in the community dimension, such as 13 (*It respects family traditions*), and 45 (*The

family considers it unacceptable*), which emphasized the importance of family's rules and

beliefs. For autonomy, stronger associations were suggested for the five positive (e.g., *It

expresses someone's autonomy*), and the five negative items (e.g., *It restricts the individual's

rights*), also creating two groups.

Based on these residuals, Models 2, 3, and 4 were developed. Model 2 proposes two sub-factors for divinity (first, nature, and second, other items) and two sub-factors for community (first, family, and second, other items), with autonomy remaining as a single factor. Model 3 adds to Model 2, proposing two sub-factors for autonomy positive and negative items. And finally, Model 4 tested the hypothesis that the subdivision in the factors was due to item wording, separating the community and divinity dimensions on the basis of right and wrong items in addition to family or nature items. Table 2 gives these model tests.

Dividing the dimensions into six subscales improved the model significantly, as suggested by the $\Delta\chi^2$ results. The model presenting eight sub-factors based on the right/wrong items had lower goodness of fit, showing that the division between positive and negative items was confined to Autonomy. In Model 5, fit was not greatly reduced by adding three extra latent variables representing the original three higher order factors predicting the six first-order factors found in Model 3. We included three extra latent variables, predicting directly the six latent factors found in Model 3, and indirectly the items. Although in general CFI and NNFI values were lower than ideal, they can still be considered an acceptable fit to the data (Byrne, 2004).

Insert Table 2 around here

This analysis confirmed the "big three" structure of the CADS while indicating the existence of important subscales in our instrument. Community is divided into *Family*, with items emphasizing the importance of the family group as an authority in the moral domain; and *Social Rules*, which accords moral authority to the society as a whole, with its rules, laws and sanctions. Cronbach's alphas were recalculated with the centered data for each sub-scale,

and for the British and Brazilian samples, they were respectively .90 and .79, for social rules and .87 and .70 for family (.91 and .83 for the full Community scale).

Divinity is divided into *Nature*, highlighting the importance of the laws of nature and an ideal of purity associated with moral character; and *Religious rules*, involving respect for religious tradition and authority when justifying right/wrong actions. In the British and Brazilian samples, Cronbach's alpha for religious rules were, respectively, .95 and .90; .88 and .77 for nature (.94 and .89 for the full Divinity scale).

The Autonomy dimension showed a distinction between positive and negative rights. *Positive rights* presented Cronbach's alphas of .72 (British) and .78 (Brazilian), and *Negative rights* indices were .83 (British) and .88 (Brazilian), with full Autonomy scale indices of .86 (British) and .84 (Brazilian). Although the items in both sub-dimensions seem to present a similar content, the actions that are justified by these standards are different. Right and wrong, in this case, might not be a bipolar dimension. Gewirth (2001) defines positive rights as the ones that "entail positive duties, i.e., duties to [respect and] help persons to have the objects of their rights" (p. 322). An example could be found in the following item: "expressing someone's autonomy" is in accordance with positive rights, as well as acts that help other persons to express their autonomy, such as laws that defend freedom of speech. Negative rights "entail negative duties, i.e., duties to forbear or refrain from interfering with persons' having the objects of their rights" (p. 322). Laws or norms emphasizing that no one can restrict someone else's autonomy is an example of a negative right. An action that is not "morally wrong" is not necessarily right; one person might be more concerned with positive promotion of rights than negative restriction of rights, while another might take the opposite view. The differentiation of positive and negative rights in the autonomy dimension indicates more complexity in this moral code.

Measurement invariance

Results regarding the measurement equivalence for the British and Brazilian samples are presented in Table 3. According to Steenkamp and Baumgartner (1998), the two forms of invariance that must be established are configural invariance (similar factor structures in two groups) and metric invariance (similar factor loadings across groups). However, to compare countries on a mean level, full or partial scalar invariance should also be tested (Byrne, 2004; Steenkamp & Baumgartner, 1998). All three scales were tested for configural equivalence, and results were used as the baseline model for subsequent analyses. After metric invariance (constraining factor loadings across groups) was obtained, scalar invariance (constraining intercepts across groups) was tested (see review in Lucas et al., 2008).

Insert Table 3 around here

Results for the autonomy dimension suggested its invariance across cultures. However, community and divinity dimensions cannot be considered fully invariant. According to Steenkamp and Baumgartner (1998), and Byrne (2004), further tests of partial invariance can be conducted by constraining the intercepts of each item individually to identify non-invariant items. After this identification, these items may be removed or unconstrained (see Cheung & Rensvold, 2000). Scalar invariance has to be found for at least one item, besides the marker item in each factor for possible cross-national comparisons (Steenkamp & Baumgartner, 1998). After conducting these analyses for each dimension, in the community scale, from a total of 15 items, four were considered non-invariant and unconstrained in further analysis, all belonging to social rules (17. *It follows the rules of one's social group; 27. It brings disorder to society; 33. Society considers it unacceptable*; and 34. *It opposes the rules of society*.). Partial invariance was obtained, with a non-significant difference found between the partially constrained and the configural models. Similar

analyses were performed divinity, with only one non-invariant item belonging to religious rules, found in a total of 18 (37. *It pollutes the spirit*). General findings suggest the acceptability of the measure for cross-cultural research.

Structural hypotheses

Once the final set of items was established, mean averages were calculated for British (N = 97) and Brazilian participants (N = 288).These scores were used to test the theoretical hypotheses proposed, aiming at corroborating Study 1 results.

Initially, correlations among the sub-factors showed strong associations between both sub-factors in each dimension. For both British and Brazilian samples, respectively, social rules presented the highest correlation with family ($r = .57$, $p < .01$ and $r = .52$, $p < .01$); positive rights, with negative rights ($r = .70$, $p < .01$ and $r = .52$, $p < .01$); and religious rules, with nature ($r = .47$, $p < .01$ and $r = .31$, $p < .01$). Social rules also correlated with religious rules ($r = .16$, $p < .05$ and $r = .19$, $p < .05$) and nature ($r = .41$, $p < .01$ and $r = .26$, $p < .01$) in both countries. In Brazil, social rules also correlated with positive rights ($r = .19$, $p < .05$) and negative rights ($r = .23$, $p < .01$). Family correlated with religious rules ($r = .29$, $p < .01$ and $r = .32$, $p < .01$) and nature ($r = .29$, $p < .01$ and $r = .26$, $p < .01$) in both countries, and with negative rights ($r = .18$, $p < .05$) in Brazil only, partially confirming hypothesis S4, which suggested the direct association between divinity and community. In Brazil, positive rights correlated with religious rules ($r = -.16$, $p < .05$), and negative rights with nature ($r = .28$, $p < .01$). Associations to other constructs are presented in Table 4.

Insert Table 4 around here

Hypothesis S1 suggested a direct association between horizontal individualism-collectivism and autonomy, and results partially corroborated this hypothesis. In the UK, only

horizontal individualism was associated with autonomy and its subscales, whereas in Brazil both horizontal individualism and collectivism presented this association. Hypothesis S2, suggesting associations between divinity, community, and vertical collectivism, was corroborated for both countries.

These findings suggest an interesting pattern of association between the moral codes and individualism-collectivism. As Triandis and Gelfand (1998) and Schwartz and Ros (1995) propose, the distinction between individualist and collectivist cultures is not sufficient to describe a country's cultural characteristics. The horizontal and vertical attributes suggest an essential difference in the way people in these countries value their moral judgments: emphasizing equality or being part of a hierarchical system (Triandis & Gelfand, 1998).

Hypothesis S3 suggested the association between intrinsic religiosity and divinity, which was also corroborated. In the UK, a fifth structural hypothesis was tested, suggesting the relationship between spirituality and divinity. Corroborating the proposed association, spiritual beliefs presented direct correlations to both religious rules and nature subscales.

Cultural hypotheses

The differentiated association of autonomy with horizontal individualism in the UK, and horizontal collectivism in Brazil, could be an expression of the more collectivist tendency of the Brazilian culture (Gouveia & Clemente, 2000). To test for this tendency and for hypothesis C1 that higher scores would be found for horizontality and individualism, a 2 (Dimensions: individualism-collectivism) x 2 (Attributes: horizontal-vertical) x 2 (Country: UK-Brazil) mixed analysis was conducted. There was a main effect of dimension, F (1, 366) = 161.45, η^2 = .31, p < .001, with individualism scores higher than collectivism across countries. A main effect of attribute was found, F (1, 366) = 406.88, η^2 = .53, p < .001, with a higher endorsement of horizontality in general, corroborating the proposed hypothesis.

Of greater importance, a significant three-way interaction was found between dimension (Ind-Col), attribute (Horiz-Vert) and country, $F(1, 366) = 10.48$, $\eta^2 = .04$, $p < .01$, with Brazil presenting higher scores in horizontal collectivism ($M = 5.85$, $SD = .61$) than the UK ($M = 5.40$, $SD = .67$), $F(1, 367) = 23.17$, $p < .001$; and marginally higher scores in vertical collectivism (Brazil $M = 5.17$, $SD = .76$; UK $M = 4.98$, $SD = .96$), $F(1, 367) = 2.95$, $p = .09$. A main effect of country on individualism scores was not found.

Another mixed analysis, 2 (country, between) x 2 (gender, between) x 6 (ethics, within) was conducted to test for overall differences in ethics endorsement and possible moderation of these differences by gender and country. Unlike Study 1, a significant main effect of gender was not found, $F(1, 286) = 1.527$, $p = .22$, nor was any interaction found that involved gender. These results are in accordance with a growing amount of research suggesting a lack of association between morality and gender (Jaffee & Hyde, 2000).

A main effect of ethics was found, $F(5, 1430) = 3.65$, $\eta^2 = 02$, $p < .001$, with Autonomy subscales presenting the highest endorsement overall. A similar pattern to Study 1 was found, with Divinity subscales presenting the lowest means and Community subscales in between the other dimensions, replicating previous results and corroborating hypothesis C3. A main effect of country was not found, but an Ethics x Country interaction was observed, $F(5, 1430) = 5.96$, $\eta^2 = 02$, $p < .01$. Brazilians presented a higher endorsement of religious rules, $F(1, 289) = 4.81$, $p < .05$, in comparison to British, corroborating hypothesis C5.

For our measures of religiosity, analysis of variance showed that Brazilian participants presented a higher religiosity on the single item (BR: $M = 3.04$, $SD = 1.25$; UK: $M = 2.20$, $SD = 1.26$), $F(1, 365) = 16.62$, $p < .001$, and on the intrinsic religiosity scale (BR: $M = 3.25$, $SD = .91$; UK: $M = 2.03$, $SD = .92$) than British participants, $F(1, 365) = 100.16$, $p < .001$, replicating previous findings (Gouveia & Clemente, 2000).

To test hypothesis C4 regarding differences in religiosity and spirituality in the UK, a repeated measures analysis was conducted, with the intrinsic religiosity scale and the spiritual beliefs scale entered as within-subject variables. Results shown a main effect of scale on the scores, $F(1, 95) = 50.52$, $\eta^2 = .35$, $p < .01$, with higher means found for the spiritual beliefs scale ($M = 3.17$) in comparison with intrinsic religiosity ($M = 2.03$).

Overall, the results of the second study have confirmed our hypotheses. In general, these results are consistent with predictions made by the literature, in terms of the core ideas and judgment pertaining to each moral code (Shweder, 1990b; Shweder et al., 1997).

General Discussion

The main objective of the present research was to develop a measure of endorsement of different moral codes that can be used to study differences between cultures and individuals. In general, the results have confirmed the meaningful structure, validity, and consistency of our scale, supporting Shweder's proposal.

It is also important, however, to discuss possible limitations of this work. Our participants were exclusively university students from urban areas, and samples were not representative of each country. Specific findings could be a result of the university environment and also an age effect, especially if considering that 91.5% of the sample consisted of people from 18 to 24 years old. University students might also be considered more similar than different in terms of moral discourse, not clearly reflecting their national culture. A similarity between university samples when compared to non-university samples was also found by Haidt and colleagues (1993) in terms of the use of the three ethics.

Another important limitation to discuss is the use of a morality scale developed in two Christian cultures. Although they are different cultural contexts, they also present similarities due to shared values. Therefore, the adequacy of the proposed scale for use in non-Christian cultures has to be evaluated by the researcher in terms of construct and cultural biases (Van de

Vijver & Leung, 1997). Due to the lack of full scalar invariance in multigroup comparisons for community and divinity dimensions, alternative explanations for the results are needed, such as differences in the meaning of the items in both cultures. However, it is important to emphasize that full score invariance is not usually found; partial measurement equivalence allow us to compare correlations, explain variances and patterns of scores across cultures, as well as average scores, but with caution (Steenkamp & Baumgartner, 1998).

Although it is important to validate a scale against existing morality instruments, the use of the chosen measures was due to the main interest of associating the moral codes with cultural orientations (individualism-collectivism) and cultural values (such as religious beliefs). CADS items were developed strictly based on free moral discourse registered by Shweder and colleagues (1987, 1997) and Jensen (2004) in ethnographic studies. This discourse might not express the levels of moral reasoning of these cultures, but it does express specific contents used with moral force in judgements of actions.

In comparisons across cultures, the more religious nature of Brazilian culture was reflected in differences between the samples on religious rules, while British participants, though overall lower in ethics of divinity, used concepts of nature to express their divinity concerns.

The development of this instrument can bring numerous benefits to the study of morality. A quantitative measure helps in collecting data and can be translated into different cultures. Also, this instrument attempts to measure not only morally "wrong" standards, but also covers morally "right" actions, poorly studied in the psychological literature (Camacho, Higgins, & Luger, 2003). In terms of model testing, the main structure holds in both cultures with sound psychometric properties. As expected, each culture presents specificities in terms of the relationship among the factors. In the UK, social rules' association to positive and negative rights, and family's association to negative rights were not found. In the ethics of

community, social and family norms are the base of the discourse. The family, as the social group closest to the self, is also associated with the autonomy code in Brazil, as well as the social rules factor. In general, Brazilians presented moral views that were more balanced across moral codes, suggesting that they are not seen as incompatible with each other, while the British model shows a stronger division of moral standards.

Clearly, more focused research is needed to examine the extent to which these associations are specific to Brazilian culture. The greater association among ethics in Brazil might imply the existence of cross-justifications (e.g., justifying fidelity to the community through religious rules) to a greater extent there than in the UK. Other questions for future research have already arisen. Does the use of moral codes change according to the culture the group is in? Immigrants and sojourners, for example, have to deal with values and standards that are different from their culture of origin and that might affect their moral judgment.

As a cross-cultural proposal, it is also important to increase the sample of nations, as well as studying how moral codes vary within the same country, helping to understand the different cultures inside the same nation. When studying other cultures, it is possible to test the unique relationship moral dimensions might have, expressing culture-specific features. Additionally, we propose the instrument presents potential for detecting not only cultural, but also individual differences.

The content of morality merits further cross-cultural research, and the development of the CADS facilitates such research. This theory-based questionnaire was found to have a clear structure, good reliability and validity, and good replicability across two different cultures. We hope that this questionnaire will elicit more studies into the content of moral discourse, as well as cross-cultural similarities and differences in the way the moral codes are used, thereby advancing cross-cultural understanding.

References

Allport, G., & Ross, J. (1967). Personal religious orientation and prejudice. *Journal of Personality and Social Psychology, 5*, 432-443.

Anastasi, A., & Urbina, S. (2000). *Testagem psicológica* (7th ed.). Porto Alegre: ArtMed.

Arnett, J., Ramos, K., & Jensen, L. (2001). Ideological views in emerging adulthood: Balancing autonomy and community. *Journal of Adult Development, 8*, 69-79.

Bhatia, S. (2000). Can we return to the concept of duty in a culture of rights? Implications for morality and identity. *Culture & Psychology, 6*, 303-316.

Byrne, B. (2004). Testing for multigroup invariance using AMOS Graphics: A road less travelled. *Structural Equation Modeling, 11*, 272-300.

Camacho, C., Higgins, E., & Luger, L. (2003). Moral value transfer from regulatory fit: What feels right is right and what feels wrong is wrong. *Journal of Personality and Social Psychology, 84*, 498-510.

Cattel, R. (1966). The scree test for the number of factors. *Multivariate Behavior Research, 1*, 245-276.

Cheung, G. & Rensvold, R. (2000). Assessing extreme and acquiescence response sets in cross-cultural research using structural equation modeling. *Journal of Cross-Cultural Psychology, 31*, 187-212.

Chiu, C., Dweck, C., Tong, J., & Fu, J. (1997). Implicit theories and conceptions of morality. *Journal of Personality and Social Psychology, 73*, 923-940.

Darley, J. & Shultz, T. (1990). Moral rules: Their content and acquisition. *Annual Review of Psychology, 41*, 525-556.

Fernández, I., Páez, D., & González, J. (2005). Independent and interdependent self-construals and socio-cultural factors in 29 nations. *International Review of Social Psychology, 18*, 35-63.

Fischer, R. (2004). Standardization to account for cross-cultural response bias: A classification of score adjustment procedures and review of research in JCCP. *Journal of Cross-Cultural Psychology, 35*, 263-282.

Ford, M. & Lowery, C. (1986). Gender differences in moral reasoning: A comparison of the use of justice and care orientations. *Journal of Personality and Social Psychology, 50*, 777-783.

Forsyth, D. (1980). A taxonomy of ethical ideologies. *Journal of Personality and Social Psychology, 39*, 175-184.

Forsyth, D. & Berger, R. (1982). The effects of ethical ideology on moral behavior. *The Journal of Social Psychology, 117*, 53-56.

Garson, G. (2008). Reliability analysis. In: *Statnotes: Topics in Multivariate Analysis.* Retrieved June 10, 2008 from http://www2.chass.ncsu.edu/garson/pa765/statnote.htm.

Gert, B. (1988). Morality: A new justification of the moral rules. Oxford: Oxford University Press.

Gewirth, A. (2001) Are all rights positive? *Philosophy and Public Affairs, 30*, 321-333.

Gilligan, C. (1982). *In a Different Voice*. Cambridge: Harvard University Press.

Gouveia, V. & Clemente, M. (2000). O individualismo-coletivismo no Brasil e na Espanha: correlatos sócio-demográficos. *Estudos de Psicologia, 5*, 317-346.

Gouveia, V., Andrade, J., Jesus, G., Meira, M. & Soares, N. (2002). Escala multi-fatorial de individualismo e coletivismo: Elaboração e validação de construto. *Psicologia: Teoria e Pesquisa, 18*, 203-212.

Haidt, J., & Hersh, M. (2001). Sexual morality: The cultures and emotions of conservatives and liberals. *Journal of Applied Social Psychology, 31*, 191-221.

Haidt, J., Koller, S., & Dias, M. (1993). Affect, culture, and morality, or is it wrong to eat your dog? *Journal of Personality and Social Psychology, 65*, 613-628.

Harman, G. (1975). Moral relativism defended. *The Philosophical Review, 84*, 3-22.

Hatch, R., Burg, M., Naberhaus, D., & Hellmich, L. (1998). The Spiritual Involvement and Beliefs Scale: Development and testing of a new instrument. *Journal of Family Practice, 46*, 476-486.

Inglehart, R., Basanez, M., & Moreno, A. (1998). *Human values and beliefs - A cross-cultural sourcebook.* Michigan: University of Michigan Press.

IBGE. (2001). *Censo demográfico.* Instituto Brasileiro de Geografia e Estatística.

Jaffee, S. & Hyde, J. (2000). Gender differences in moral orientation: A meta-analysis. *Psychological Bulletin, 126*, 703-726.

Jensen, L. (1995). Habits of the heart revisited: Autonomy, community, and divinity in adults' moral language. *Qualitative Sociology, 18*, 71-86.

Jensen, L. (1998). Moral divisions within countries between orthodoxy and progressivism: India and the United States. *Journal for the Scientific Study of Religion, 37*, 90-107.

Jensen, L. (2004). *Civic engagement coding manual*. Unpublished manuscript.

Kant, I. (1789/1965). *The metaphysical elements of justice: On the metaphysics of morals*. Indianapolis: Bobbs Merrill.

Kohlberg, L. (1981). *The philosophy of moral development: Moral stages and the idea of justice*. San Francisco: Harper & Row.

Kohlberg, L. (1984). *Essays on Moral Development: Vol 2: The Psychology of Moral development*. San Francisco: Harper and Row.

Lucas, T., Parkhill, M., Wendorf, C., Imamoglu, E., Weisfeld, C., Weisfeld, C., & Shen, J. (2008). Cultural and evolutionary components of marital satisfaction: A multidimensional assessment of measurement invariance. *Journal of Cross-Cultural Psychology*, *39*, 109 – 123.

Miller, J. (2001). Culture and moral development. In D. Matsumoto (Ed.). *The handbook of culture and psychology* (pp.151-170). New York: Oxford University Press.

Miller, J. & Bersoff, D. (1992). Culture and moral judgment: How are conflicts between justice and interpersonal responsibilities resolved? *Journal of Personality and Social Psychology, 62*, 541-554.

Narvaez, D., Getz, I., Rest, J. & Thoma, S. (1999). Individual moral judgment and cultural ideologies. *Developmental Psychology, 35*, 478-488.

Penner, L., Dovidio, J., Piliavin, J., & Schroeder, D. (2005). Prosocial behavior: Multilevel perspectives. *Annual Review of Psychology, 56*, 365-392.

Piaget, J. (1977). *The moral judgment of the child*. Harmondsworth: Penguin.

Plato. (1984). *The Dialogues of Plato*. New Haven; London: Yale University Press.

Rozin, P. (1999). The process of moralization. *Psychological Science, 10*, 218-221.

Rozin, P., Lowery, L., Imada, S., & Haidt, J. (1999). The CAD triad hypothesis: A mapping between three moral emotions (contempt, anger, disgust) and three moral codes (community, autonomy, divinity). *Journal of Personality and Social Psychology, 76*, 574-586.

Schwartz, S. (2007). Universalism values and the inclusiveness of our moral universe. *Journal of Cross-Cultural Psychology, 38*, 711-728.

Schwartz, S. & Ros, M. (1995). Values in the West: A theoretical and empirical challenge to the Individualism-Collectivism cultural dimension. *World Psychology, 1*, 99-122.

Shah, A. (2004). Self-religiosity, father's attitude and religious education in the moral behaviour of adolescents. *Psychology and Developing Societies, 16*, 187-207.

Shweder, R. (1990a). Ethical relativism: Is there a defensible version? *Ethos, 18*, 205-218.

Shweder, R. (1990b). In defense of moral realism: Reply to Gabennesch. *Child Development, 61*, 2060-2067.

Shweder, R. (2003a). *Why do men barbecue? Recipes for cultural psychology*. Cambridge: Harvard University Press.

Shweder, R. (2003b). Toward a deep cultural psychology of shame. *Social Research, 70*, 1109-1130.

Shweder, R., Much, N., Mahapatra, M., & Park, L. (1997). The "big three" of morality (autonomy, community, divinity) and the "big three" explanations of suffering. In A. Brandt & P. Rozin (Eds.), *Morality and Health* (pp. 119-169). London: Routledge.

Steenkamp, J. & Baumgartner, H. (1998). Assessing measurement invariance in cross-national consumer research. *Journal of Consumer Research, 25*, 78-90.

Suh, E., Diener, E., Oishi, S., & Triandis, H. (1998). The shifting basis of live satisfaction judgments across cultures: Emotions versus norms. *Journal of Personality and Social Psychology, 2*, 482-493.

Tarakeshwar, N., Stanton, J., & Pargament, K. (2003). Religion: An overlooked dimension in cross-cultural psychology. *Journal of Cross-Cultural Psychology, 34*, 377-394.

Triandis, H., & Gelfand, M. (1998). Converging measurement of horizontal and vertical individualism-collectivism. *Journal of Personality and Social Psychology, 74*, 118-128.

Triandis, H., & Suh, E. (2002). Cultural influences on personality. *Annual Review of Psychology, 53*, 133-160.

Van de Vijver, F., & Leung, K. (1997). *Methods and data analysis for cross-cultural research*. London: Sage.

Vasquez, K., Keltner, D., Ebenbach, D., & Banaszynski, T. (2001) Cultural variation and similarity in moral rhetorics: Voices from the Philippines and the United States. *Journal of Cross-Cultural Psychology, 32*, 93-120.

Voas, D., & Crockett, A. (2005). Religion in Britain: Neither believing nor belonging. *Sociology, 39*, 11-28.

Author Note

Valeschka Guerra is a PhD candidate in the Centre for the Study of Group Processes at the University of Kent at Canterbury. Her PhD explores the three moral codes and their relationship to honor concerns in different cultural contexts.

Dr. Roger Giner-Sorolla is a senior lecturer in psychology at the University of Kent at Canterbury. He specializes in emotions and their role in self-control, morality, prejudice, and attitudes, with a focus on intergroup relations.

Table 1. Associations between the CADS dimensions, religiosity and horizontal-vertical individualism and collectivism in Britain (Study 1)

	M (SD)	1	2	3	4	5	6	7	8
1. Community	4.43 (.92)	-							
2. Autonomy	5.10 (.83)	.26**	-						
3. Divinity	3.53 (1.13)	.43**	.04	-					
4. Horizontal Individualism	5.21 (.79)	-.08	.17**	-.03	-				
5. Vertical Individualism	3.98 (1.00)	.11	.01	.07	.19**	-			
6. Horizontal Collectivism	5.44 (.71)	.47**	.30**	.22**	.01	-.19**	-		
7. Vertical Collectivism	4.04 (.96)	.50**	.09	.40**	.01	.11	.31**	-	
8. Intrinsic Religiosity	2.13 (.98)	.04	-.10	.59**	-.09	.03	.01	.32**	-
9. Level of religiosity	2.12 (1.15)	.03	-.08	.54**	-.12	.03	.03	.23**	.82**

Note: * $p < .05$, ** $p < .01$; N = 275.

Table 2. Testing the factorial structure of the CADS (Study 2)

Models	df	χ^2	χ^2/d.f.	CFI	NNFI	RMSEA	$\Delta\chi^2$	Δdf	ΔCFI
First order models									
Model 1 – Three factors	1322	3370.51**	2.550	.81	.73	.057	-	-	-
Model 2 – Five factors	1316	3149.53**	2.393	.83	.74	.054	220.98**	06	.02
Model 3 – Six factors	1306	2544.15**	1.948	.90	.79	.046	826.36**	16	.09
Model 4 – Eight factors	1262	2999.79**	2.377	.84	.76	.052	370.72**	60	.03
Second order model									
Model 5 – Three 2nd and six 1st order factors	1368	2858.87**	2.090	.90	.78	.048	-	-	-

Note: χ^2/d.f. = chi-square divided by its degrees of freedom; CFI = comparative fit index; NNFI = non-normed fit index; RMSEA = root mean square error of approximation. ** $p < .01$; N = 397.

Table 3. Cultural Invariance of CADS with Brazilian and British University Students (Study 2)

Models	df	χ^2	χ^2/d.f.	CFI	NNFI	RMSEA	$\Delta\chi^2$	Δdf	ΔCFI
First order models									
Community									
Step 1: Configural	153	467.12**	3.053	.91	.87	.063	-	-	-
Step 2: Metric	170	494.45**	2.909	.91	.86	.064	27.33	17	.00
Step 3: Intercepts (all items)	190	519.69**	2.735	.90	.86	.061	52.67*	37	.01
Step 4: Family intercepts	175	494.46**	2.825	.91	.86	.062	27.34	22	.00
Step 5: Partial invariance	**186**	**502.72****	**2.703**	**.91**	**.86**	**.061**	**35.60**	**33**	**.00**
Autonomy									
Step 1: Configural	62	99.54**	1.605	.98	.95	.036	-	-	-
Step 2: Metric	70	108.23**	1.546	.98	.94	.034	8.69	08	.00
Step 3: Intercepts (all items)	**80**	**108.27****	**1.353**	**.98**	**.94**	**.027**	**8.73**	**18**	**.00**
Divinity									
Step 1: Configural	238	603.93**	2.538	.94	.91	.057	-	-	-
Step 2: Metric	251	625.26**	2.491	.94	.90	.057	21.33	13	.00
Step 3: Intercepts (all items)	270	800. 06**	2.963	.91	.88	.064	196.13**	32	.03
Step 4: Nature intercepts	256	625.28**	2.442	.94	.90	.056	21.35	18	.00
Step 5: Partial invariance	**269**	**646.69****	**2.404**	**.94**	**.90**	**.055**	**42.76**	**31**	**.00**

Note: χ^2/d.f. = chi-square divided by its degrees of freedom; CFI = comparative fit index; NNFI = non-normed fit index; RMSEA = root mean square error of approximation. ** $p < .01$; N = 397.

Table 4. CADS averaged scores and nomological network in the UK and Brazil (Study 2)

	UNITED KINGDOM							BRAZIL					
	Mean	HI	VI	HC	VC	SB	IR	*Mean*	HI	VI	HC	VC	IR
Community	*-.01*	-.05	.30**	.15	.33**	.05	.03	*.01*	-.06	.06	.19*	.28**	.11
Social Rules	*-.07*	-.02	.27**	.17*	.26**	.01	.01	*-.03*	-.04	.09	.17*	.21*	.04
Family	*.10*	-.07	.26**	.16*	.36**	.10	.06	*.09*	-.08	-.02	.17*	.33**	.20*
Autonomy	*.10*	.19*	.10	.10	-.05	-.13	-.06	*.10*	.16*	.14	.17*	-.03	-.20*
Positive Rights	*.11*	.20*	.07	.08	-.07	-.16*	-.07	*.22*	.16*	.18*	.08	-.03	-.26**
Negative Rights	*.09*	.17*	.12	.10	-.01	-.08	-.04	*-.02*	.12	.07	.20*	-.03	-.10
Divinity	*-.08*	-.03	.07	.06	.17*	.70**	.63**	*-.01*	-.10	-.03	.09	.31**	.66**
Religious Rules	*-.10*	-.04	.06	.04	.17*	.73**	.65**	*.10*	-.07	-.03	.11	.32**	.73**
Nature	*-.02*	-.01	.08	.11	.12	.32**	.06	*-.11*	-.13	-.01	-.03	.10	.06

Note: Total averaged scores were calculated based on standardized data; * $p < .05$, ** $p < .01$; UK N = 97; BR N = 288; HI = Horizontal individualism; VI = Vertical individualism; HC = Horizontal collectivism; VC = Vertical collectivism; SB = Spiritual beliefs; IR = Intrinsic religiosity.