

Defining collectivism as duties in relationships rather than generalized warmth improves predictive validity in 100 cultures

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Experts widely agree that East Asian cultures are more collectivistic than Western cultures. Yet 76 survey studies found no reliable difference. Our explanation is that the most-used surveys are contaminated with ‘warm fuzzy’ items, which describe warmth and prosociality towards everyone near and far. We argue that collectivism is better understood as ‘responsibilism’, which emphasizes responsibilities in close relationships. A survey found that many cultural psychologists expect collectivistic cultures to agree with warm fuzzy items. Then we developed a responsibilism scale and tested 12,247 people in 100 cultures. Results showed large cultural differences ($d = 3.98 [2.50, 5.43]$) that were previously obscured by flawed measurement. Responsibilism predicted differences across societies (such as family ties and corruption) and individuals (social class and politics) that most earlier scales missed. This study offers a solution to previous puzzling findings by distinguishing warm fuzzy prosociality from responsibilism and introducing a scale with stronger predictive validity.

In the 1990s, there was a boom in research on culture. The spark was a 1991 paper arguing that East Asian cultures are interdependent and Western cultures are independent¹. After the paper came out, it accumulated over 35,000 citations and the percentage of studies on collectivism tripled (Supplementary Fig. 17). Researchers had been studying collectivism for decades, but this paper inspired a flurry of self-report surveys to measure differences in collectivism^{2,3}.

The effort to measure collectivism has the potential to benefit many fields. Researchers in sociology, history, political science and economics have all linked collectivism to differences across societies

and across history^{4–8}. If we can create a tool to measure collectivism reliably, it could be useful across the social sciences.

With these new measures, researchers got to work. Researchers gave the scales to people in East Asia and the West. Soon, the results started coming in and they were confusing. In one study, the USA scored the highest on interdependence and Japan scored the lowest⁹. In another study, people in China endorsed independence more than Americans did¹⁰.

The confusing findings were not limited to East Asia. Germany and Australia scored more as being collectivistic than did Egypt and Tanzania¹¹. It was a puzzle.

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Table 1 | Conceptualizations of collectivism

	Warm fuzzy collectivism	Responsibilism	Utopian socialism	Ingroup/outgroup distinction
Description	Expressing positive emotions, enjoying, identifying with and being prosocial towards others without a strong line between close versus distant relationships	Behavioural duties and responsibilities in close relationships, with weaker duties in distant relationships	Putting the needs of other people (or the larger group) ahead of the individual's needs	Prioritizing the needs of one's group over one's own needs
Example scale item	'To me, pleasure is spending time with others'	'We should keep our ageing parents with us at home'	'You usually give priority to others, before yourself'	'Whatever is good for my group is good for me'
Shortcoming in describing cultural differences	Overlooks the distinction between close and distant relationships. Emphasizes thoughts and feelings rather than behavioural duties.	People may conflate responsibilities in close relationships with abstract responsibilities, such as recycling or sticking to a diet.	No distinction between close and distant relationships. Groups are overly broad. No distinction between behavioural duties versus feelings and positivity.	Groups are overly broad. Does not distinguish feelings and behavioural duties.
Related terms	Solidarity, altruism, communalism, harmony	–	Institutional collectivism, communitarianism, phalanstery	Ingroup collectivism, familism, particularism, tribalism

The results were confusing because experts expected people in East Asian cultures to be more collectivistic. For example, researchers showed the survey questions to scholars and asked them which cultures would agree more with each question. They surveyed scholars with expertise in East Asia from fields such as history, anthropology, political science and East Asian studies^{10,12}. The scholars expected that people in East Asia would agree more than Westerners with the collectivism questions. For example, one study found that agreement averaged 95% for the 12 collectivism items¹². The agreement was so strong that researchers started calling it 'the common view'¹³.

Ten years later, researchers added up all the new studies, but the data did not fit the common view. Three reviews found that self-report collectivism scales routinely failed to find East–West differences^{12–14}. In one study, the authors analysed 76 studies and concluded that the chance of finding the predicted East–West difference was no different from flipping a coin¹². One meta-analysis concluded that Japan was reliably different, except that it was reliably less collectivistic than the USA¹¹. After all that early enthusiasm, the field needed an answer to this problem.

One response was to say that the data are right and our expectations are wrong^{13,14}. For example, two researchers argued that Japanese collectivism is an inaccurate stereotype¹³.

This response is correct in pointing out that matching expert opinion is not proof of validity. For that very reason, a major goal of our study is to test the validity of scales by comparing them to objective behaviours that tap into collectivism. For example, studies have validated metrics such as living alone and helping others who are close over strangers^{15,16}. These metrics allow us to push beyond expert opinion.

The most common response in the field was that the problem is in our microscopes—in other words in the method we use to measure cultural differences. The argument is that self-report is a flawed method to measure cultural differences^{10,12,17}.

Researchers pointed to different reasons why self-report is flawed. One study argued that people in different cultures have different styles of answering surveys¹⁷. For example, maybe people in East Asia use the middle response options more than people in the USA and that cancels out the cultural difference.

Other researchers argued that survey questions are too abstract¹⁰. If we ask people in Hong Kong and France whether 'independence is important to you', they might think of very different concrete examples. That ambiguity makes it hard to compare the results across cultures.

Thirty years later, some cultural psychologists have abandoned self-report and use 'culture report' instead (including some researchers on our team)^{18–20}. Culture-report surveys ask people to rate their culture or their community, not themselves. For example, a scale measuring the tightness of social norms asks participants whether, 'People in this country almost always comply with social norms'¹⁸.

Culture report is a valid method, but it has downsides. For one, it cannot measure individual differences. It also risks measuring unfounded stereotypes or pluralistic ignorance (when most people do not agree with something but mistakenly think most people around them do)²¹.

Each of these explanations has evidence to support it. But we think these explanations miss the more fundamental problem. Our argument is that our conceptualization of collectivism is flawed and that flaw feeds into how we measure it.

Our explanation is that the classic scales often missed East–West differences because they mixed two intuitions about collectivism: 'warm fuzzy' collectivism and what we call 'responsibilism' (Table 1). Warm fuzzy collectivism describes positive thoughts and feelings towards people in general, without a sharp distinction between close and distant relationships. It could also be called 'generalized positivity'. Warm fuzzy intuitions have four elements:

- (1) Feeling warm emotions about other people
- (2) Expressing positive emotions and identifying with other people
- (3) Rejecting self-interest, competition and negative feelings about other people
- (4) Extending this positivity to everyone, without sharply distinguishing between close and distant relationships.

These warm fuzzy intuitions are easy to see in classic scale items such as, 'To me, pleasure is spending time with others' and 'I feel good when I cooperate with others'³. The problem is that scales with these items often correlate in the wrong direction for markers of collectivism, such as living with extended family and the prevalence of family clan systems across cultures (Supplementary Table 1). In our data, people in the USA agree more with these statements than do people in China (Supplementary Table 13).

The classic scales were not all wrong. They were on the right track in parts because the scales mixed in some items that tap into responsibilism. Responsibilism is a specific conceptualization of collectivism that emphasizes responsibilities, duties and roles in close relationships, but weaker ties in distant relationships. That conceptualization is easy to see in some scale items such as 'We should keep our ageing parents with us at home'³.

This item is different because it ignores warm feelings. Instead, it emphasizes the 'not fun' parts of collectivism: duties, roles and responsibilities. And it describes a specific, close relationship, rather than vague words such as 'group' and 'others'.

The concept of responsibilism is distinct from other conceptualizations of collectivism in three ways (Table 1). (1) The most distant concepts in Table 1 are the ones that overlook the distinction between close versus distant relationships. (2) Some concepts come closer

to responsibility because they mention that distinction, but they define close relationships as ‘groups’, which is overly broad. (3) In contrast to other conceptualizations, responsibility explicitly excludes warm feelings, enjoyment and identification in favour of behavioural duties.

To be clear, responsibility is about responsibilities in close relationships, not to rules or abstract principles. For example, it would be a mistake to think responsibility means following a diet or wearing sunscreen. Responsibility is about duties to other people in specific relationships, not self-discipline.

Our explanation for the puzzling results and the lack of correspondence to objective markers of collectivism is that the previous scales drew on these two conflicting conceptualizations of collectivism. Westerners tend to agree with the warm fuzzy items and people in East Asian cultures tend to agree with the items about responsibilities in close relationships. That mix produces messy results that are no different from flipping a coin¹².

If our explanation is correct, it was premature to abandon self-report. It should be possible to measure differences in collectivism using self-report. But it will only work if we make a clear distinction between items that describe warm fuzzy collectivism and items that describe responsibilities, duties and roles in close relationships. We tested this idea by creating a scale based on the concept of responsibility.

Our proposition is that responsibility accurately describes classically collectivistic cultures (such as in East Asia), as well as cultures outside East Asia. We also propose that using the concept of responsibility to guide our scale will improve its ability to predict objective markers of collectivism, such as living with extended family, and societal differences, such as laws that disfavour immigrants and outgroups.

Do we need a new term? Perhaps we could just say that our definition of collectivism is the one that more accurately maps onto behavioural markers and the cultural differences that experts have been trying to measure in people’s attitudes for decades. However, we think the word ‘collectivism’ can be misleading. The core of the word is ‘collective’, which brings to mind large groups of people, such as the collectivization programmes of socialism. If we keep using the word ‘collectivism’, it will continue to trigger mistaken intuitions that include relationships that are too broad and distant.

Our hope is that the word ‘responsibility’ will evoke more accurate intuitions. This term will make it clear that we mean the conceptualization of collectivism as duties and responsibilities in close relationships and not the other ways that people conceive of collectivism (Table 1).

We are not the first to point out that collectivism is not about loving everyone. For example, in the 1940s, the anthropologist F. Xiaotong described Chinese social life as a series of concentric circles from close to far, like waves radiating out from a pebble dropped into water²². The psychologist T. Yamagishi argued that collectivism is sustained in Japan not because people feel emotionally attached to groups but through monitoring and social punishments²³.

However, this insight seems to come and go, even among experts. A telling example comes from H. Triandis’s book *Individualism & Collectivism*. Triandis wrote that ‘collectivists make a greater distinction than individualists between ingroup and outgroup’²⁴. Yet Triandis later helped to create a scale that measured collectivism with items that describe being nice to generic others³.

The fact that accomplished researchers recognize this distinction, and then seem to forget it, speaks to how hard it is to get rid of warm fuzzy intuitions. Even after warnings against it, the warm fuzzy vision of collectivism burrows into the minds of experts and slips into our surveys.

Results

Surveying psychologists’ intuitions

A sceptic might argue that these are outdated misunderstandings. After all, the classic collectivism scales are 30 years old^{2,3,25,26}. Now that we

have accumulated studies showing that these scales fail to find differences, maybe researchers have moved past these warm fuzzy intuitions.

We tested whether researchers still hold warm fuzzy intuitions by surveying 40 authors of articles published in the *Journal of Cross-Cultural Psychology*. We told the authors that we surveyed 100 people in East Asia and the USA on 14 survey items based on warm fuzzy intuitions about collectivism. We asked them to guess whether participants agreed more in the USA, East Asia or were ‘about equal’.

The results showed that many cultural psychologists still hold warm fuzzy intuitions (Fig. 1). More cultural psychologists guessed that people in East Asia would agree more than Americans with items such as ‘I feel good when I cooperate with others’. They also predicted that Americans would agree more with competitive statements such as, ‘Winning is everything’. The guesses suggest that many researchers still expect the classic scales to find East–West differences, despite the reviews finding otherwise.

Yet cultural psychologists also showed evidence of expectations based on responsibilities in close relationships. We asked about one survey item that fits this type of intuition: ‘We should keep our ageing parents with us at home’. Almost all the researchers (95.1%) guessed correctly that participants in East Asia would agree more with this item. Thus, researchers showed evidence of mixing both concepts of collectivism. Supplementary Information Section 12 reports the results in more detail.

Creating a responsibility scale

We created a scale to measure responsibility following four principles:

- (1) Responsibilities versus warm fuzzies. We contrasted responsibilities in close relationships (which count as more responsibility) with warmth and prosociality to distant people (which count as less responsibility). For example, to tap into warm fuzzies, we wrote items about being friendly with strangers.
- (2) Specific relationships. Previous scales often used vague terms such as ‘others’ or ‘group’. We specified the relationship in each item. In collectivistic cultures, it is crucial to know who the person is—your mom, a stranger, a trusted coworker—before knowing how to act with that person.
- (3) Concreteness. We created items based on concrete scenarios, rather than abstract, context-less statements. Abstract statements run the risk that people will fill in the details differently across cultures. Concrete scenarios help to fix the details to the same situation¹⁰.
- (4) Large group membership is not sufficient. Finally, we based our items on the idea that being in the same large group is not sufficient to trust someone in collectivistic cultures²⁷. If being in the same group is sufficient for connection in collectivistic cultures, they should be connected to unfamiliar group members more than people in individualistic cultures. But if our theory of responsibility is correct, people in responsibility cultures should be less connected to unfamiliar group members. Paradoxically, individualistic cultures should feel connected to unfamiliar people in large groups more than people in collectivistic cultures do.

One scenario tested this idea by asking about sharing information with an unfamiliar colleague²⁸:

You are working in a company for two years and one day you meet a coworker from a different department that you’ve never met before. You’ve been working on a sales account that could be a big accomplishment. The coworker asks about the account.

I would feel comfortable telling this coworker about the account.

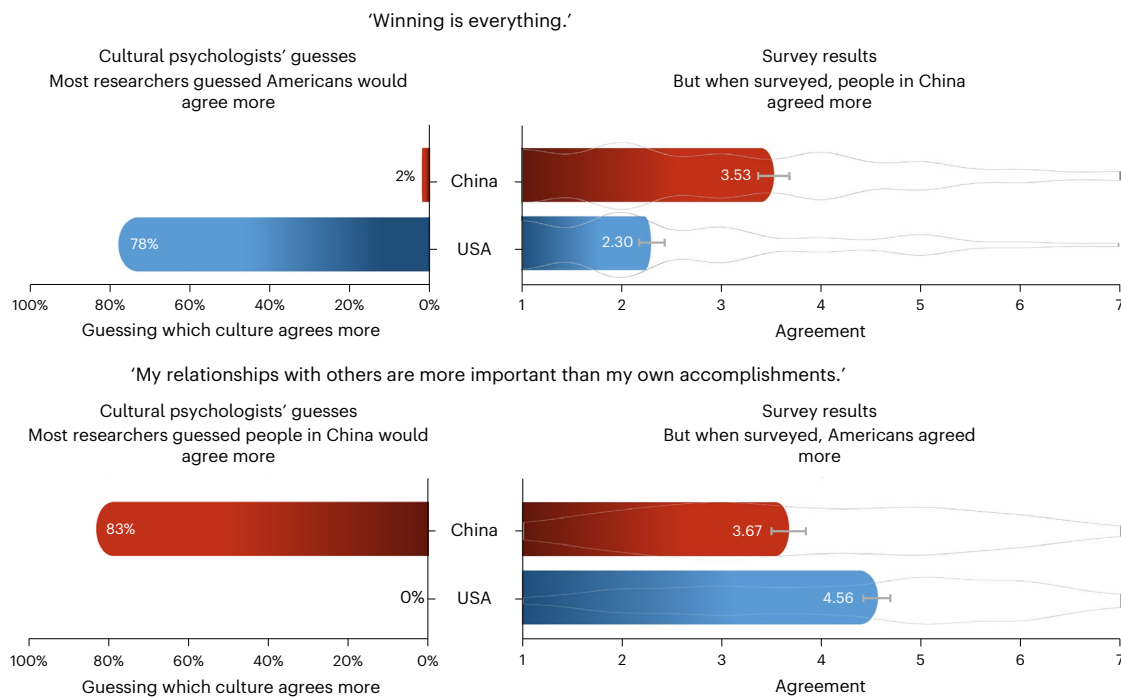


Fig. 1 | Cultural psychologists guessed that people in East Asia would agree more with warm fuzzy collectivism survey items than people in the USA. The left side of the graph shows the guesses of 40 cultural psychologists about which culture would agree more with survey items from classic collectivism scales³. The right side shows actual responses from 195 participants in China and the

USA, with distribution plots overlaid. For both items, about 20% of researchers guessed 'about equal'. Participants rated agreement from 1 (strongly disagree) to 7 (strongly agree). Bars, 1 s.e.m. Supplementary Fig. 11 shows that there were only 2 out of 14 warm fuzzy items where the most popular guess matched the actual data.

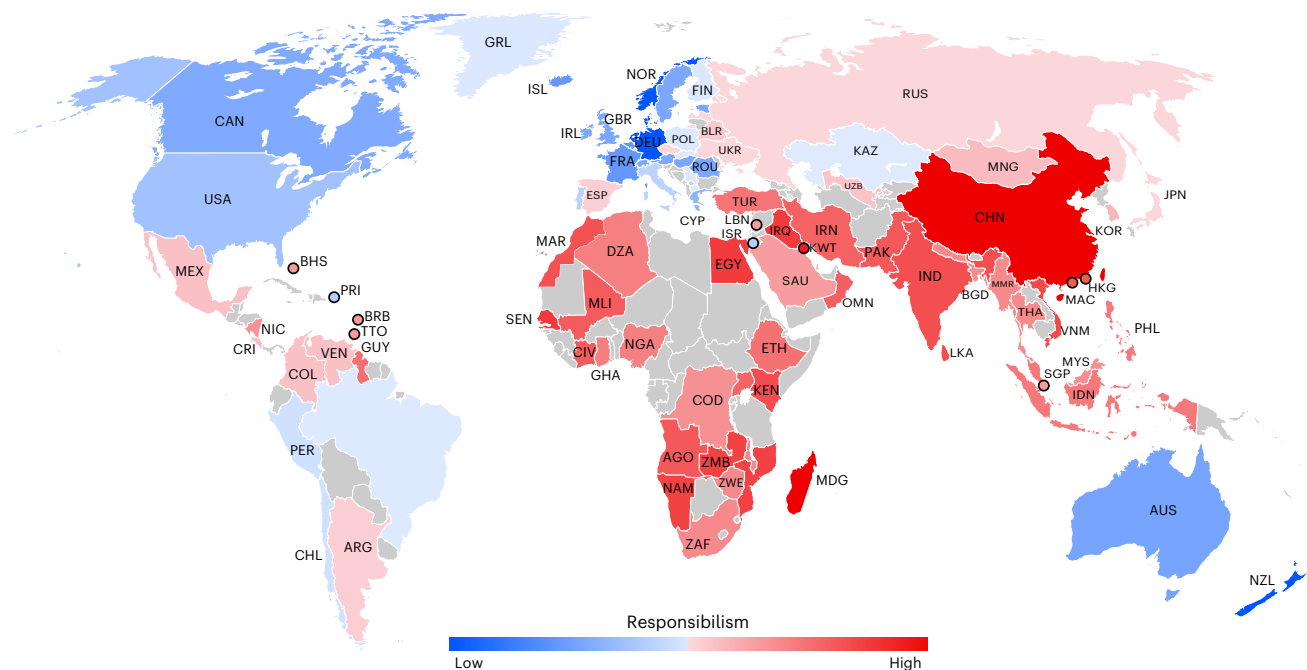


Fig. 2 | Responsibilism scores across 100 cultures. The responsibilism scale was translated into 45 languages and given to 12,247 people in 100 cultures around the world covering 90% of the world's population. Country abbreviations can be found at <https://eapis.cbpp.dhs.gov/eapis-enroll/countryCodes.do>.

We expected that people in responsibilistic cultures would agree less with telling the coworker because the relationship is not close and because being in the same large group is not sufficient for trust.

Another scenario described receiving harsh feedback from a friend:

You get a 60% on a midterm and you might fail the class if you don't do better on the final exam. You're in a bad mood. Your good friend criticizes you. 'It's your fault. You need to study harder'. This makes you feel worse.

I would try to make friends who are more supportive.

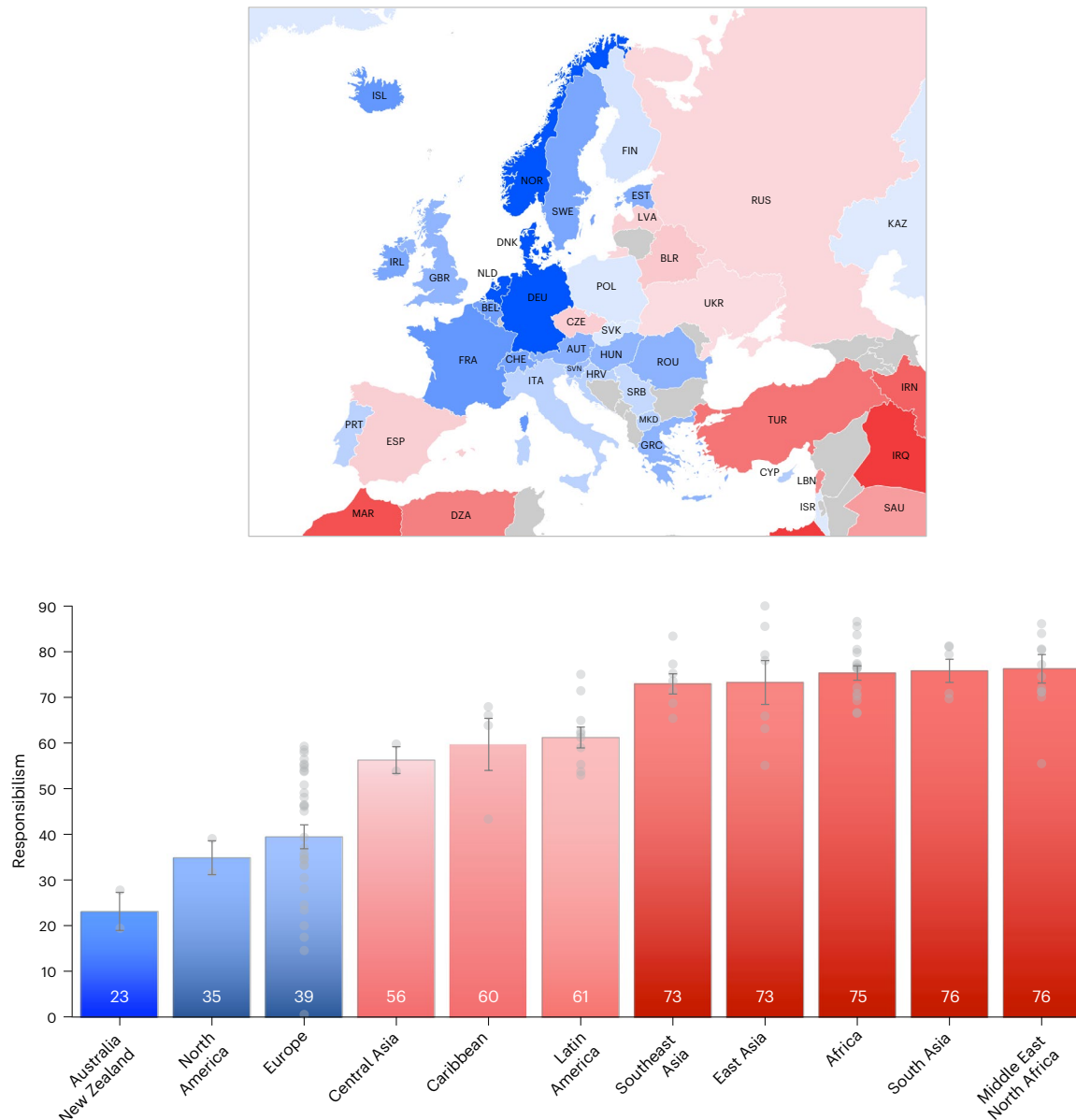


Fig. 3 | Europe inset (left) and responsibilism averages across world regions (right). Circles show the scores of each culture. Bars, 1 s.e.m. The sample is 12,247 participants across 100 cultures. Country abbreviations can be found at <https://eapis.cbph.dhs.gov/eapis-enroll/countryCodes.do>.

We expected people in responsibilistic cultures to disagree with the idea of leaving the friend because close relationships are long-lasting and binding, even in the face of negative feelings. In contrast, we expected people in cultures low on responsibilism to agree because they feel less tied to relationships and more free to choose connections on the basis of their feelings.

We translated the **responsibilism scale** into 45 languages and gave it to 12,247 people in 100 cultures around the world (Fig. 2). The sampled countries cover 90% of the world's population.

Because it was not feasible to get random representative samples in 100 cultures, we focused on sampling college students. This has the upside of making the samples comparable across cultures, but it has the downside that students are only a slice of the population. For example, there is some evidence that cultural differences are smaller among people with higher education²⁹.

One way to test whether student samples produce useful estimates of cultural differences is to compare the results to other sources of data, such as census statistics. We ran tests across a range of different

data sources in the section on external markers of collectivism. We also tested the psychometric properties of the scale across cultures, including factor analyses, reliability, item-total correlations and measurement invariance (Supplementary Tables 15–20). This resulted in a statistically validated scale with 14 questions (Supplementary Table 4).

Responsibilism reliably detects East–West differences. The responsibilism scale revealed large differences that the earlier scales failed to find (Fig. 2). For example, the responsibilism scale found large differences between East Asian and Western cultures, $t(22) = 8.87, P < 0.001$, Cohen's $d = 3.98$, 95% CI [2.50, 5.43] (Fig. 3). This result is consistent with the idea that we can use self-report to reliably measure differences in collectivism if we define the concept more precisely. Supplementary Information Section 6 reports the results in more detail.

Responsibilism differences around the world. Looking at world regions, Africa, the Middle East and different regions in Asia averaged scores in the 70s (Fig. 3). Central and South America had average

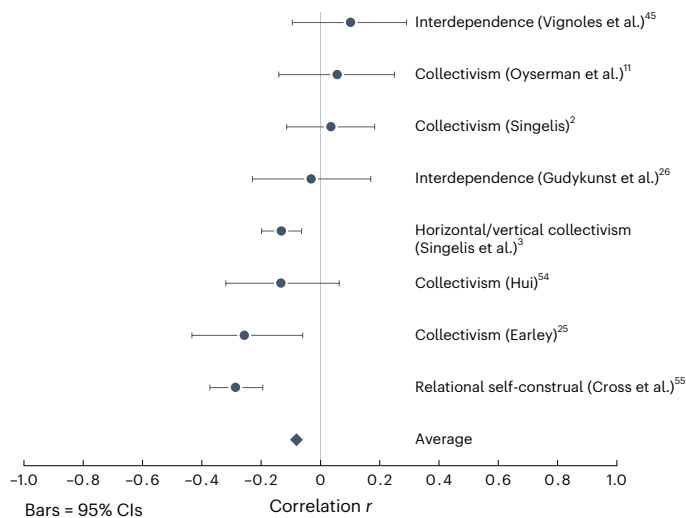


Fig. 4 | Correlations of previous collectivism scales with the responsibility scale. The diamond at the bottom shows a small negative average correlation between collectivism scales and the responsibility scale. Samples for most scales are approximately 100 participants. Supplementary Table 27 lists sample sources. For scales that had different components, this graph uses collectivism components. For the Vignoles scale, there is no interdependence component, so we created an overall sum score, although Vignoles does not advocate this. For the horizontal/vertical scale, we combined horizontal and vertical collectivism. Supplementary Tables 9 and 10 show the correlations for all components.

scores in the 60s and North America, Europe and Australia averaged in the 20s and 30s.

Responsibilism is different from other scales. We tested whether responsibilism is different from previous scales by giving subsamples of participants eight of the most-cited collectivism scales. As a benchmark, some researchers suggested that correlations above $r = 0.80$ are signs that two measures are redundant³⁰. The correlations between the earlier scales and responsibilism were far below redundancy (Fig. 4; r ranging from 0.10 to -0.29). The average correlation was slightly negative. This suggests that responsibilism is measuring a different concept from the previous scales.

In Supplementary Tables 9 and 10, we break out the results for the previous scales that have subdimensions. Among the highest correlations was with a subscale measuring ‘vertical collectivism’ ($r(821) = 0.41$, $P < 0.001$, 95% CI [0.35, 0.47]). This correlation makes sense with the fact that we identified three items from this subscale as tapping into tight ties in close relationships and incorporated them into our responsibilism scale.

Responsibilism predicts real-world differences. It is one thing to find East–West differences that researchers have been trying to measure for decades. But that does not prove that responsibilism is measuring responsibilities in close relationships. Thus, we tested whether responsibilism predicts behavioural differences that tap into responsibilities in close relationships, as opposed to strangers and weak ties (Fig. 5). We gathered this list of indicators from a recent study on differences across cultures¹⁶. Extended Data Tables 1 and 2 report the sources and rationales for each marker, as well as the results.

Responsibilism predicted scores on the Global Collectivism Index (GCI), which uses census statistics to estimate collectivism across cultures¹⁵. For example, collectivistic cultures tend to have more multi-generational families, fewer people living alone and lower divorce rates (Extended Data Fig. 1). Responsibilism also predicted the ‘kinship intensity index’, which measures the importance of extended family and practices such as family clans³¹.

We argue that the responsibilistic concept of collectivism is not about generalized positivity, but rather responsibilities in close relationships. Thus, we looked for behavioural markers of helping close others (responsibilistic) versus strangers (paradoxically individualistic). Responsibilistic cultures tended to donate more blood to family members, but less blood to strangers. Responsibilistic cultures were less likely to return a wallet to a stranger (Extended Data Fig. 2).

We analysed data on New York City parking tickets from United Nations diplomats, who did not have to pay the tickets because of diplomatic immunity³². We looked at parking tickets because breaking parking rules comes mostly at the cost of strangers or the impersonal system, rather than family or friends. In line with this idea, diplomats from responsibilistic cultures accumulated more parking tickets. In sum, responsibilism scores predicted actual behaviours across cultures.

Responsibilism predicts external markers of collectivism more strongly than the most-cited collectivism scales. Next, we compared the predictive power of responsibilism with the five most-cited collectivism scales from an earlier meta-analysis¹¹. Supplementary Table 9 lists citation counts. We found published data from 39 cultures with the most-cited scale³³. We supplemented that data by giving the next four most-cited scales to 3,330 people in 50 cultures.

Then we compared the predictive power of these five scales to responsibilism. We calculated the average correlation of each scale with seven external markers of collectivism that had data for at least 40 cultures (Extended Data Tables 1 and 2). Responsibilism predicted external markers of collectivism strongly ($r = 0.71$), but the five most-cited scales predicted external markers in the wrong direction on average, $r = -0.10$ (range $r = -0.56$ to 0.37 ; Fig. 6).

For example, cultures that scored higher on some of the previous collectivism scales had weaker kinship practices such as family clan systems and living with extended family. These negative correlations are consistent with the idea that some of the scale items were based on a concept that does not map onto collectivistic behaviours.

Culture scores on the previous scales correlated weakly or in the wrong direction with responsibilism (r ranging from -0.67 to 0.39 ; Supplementary Table 9b). On average, the previous scales correlated in the opposite direction from responsibilism $r = -0.10$.

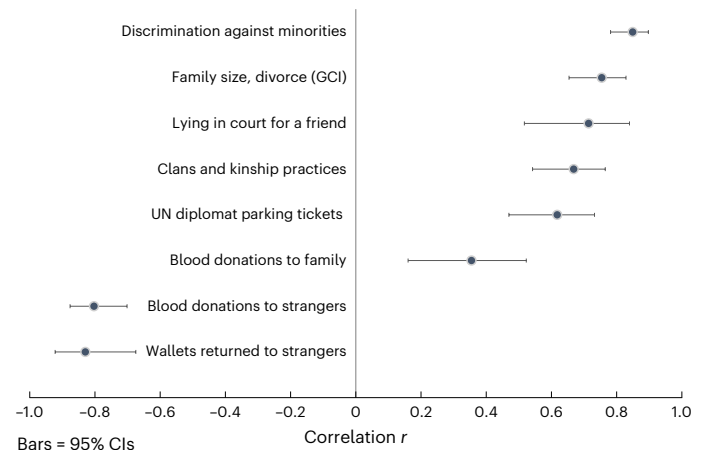


Fig. 5 | Responsibilism culture scores ($n = 100$) predict external markers of collectivism. Dots are correlations between responsibilism and external markers of tight ties with family and friends (such as living with extended family members and lying for a friend in court) and weak ties to strangers (such as returning a wallet to strangers and unpaid parking tickets for UN diplomats protected under diplomatic immunity). Extended Data Tables 1 and 2 list data sources and rationales. Bars are 95% CIs.

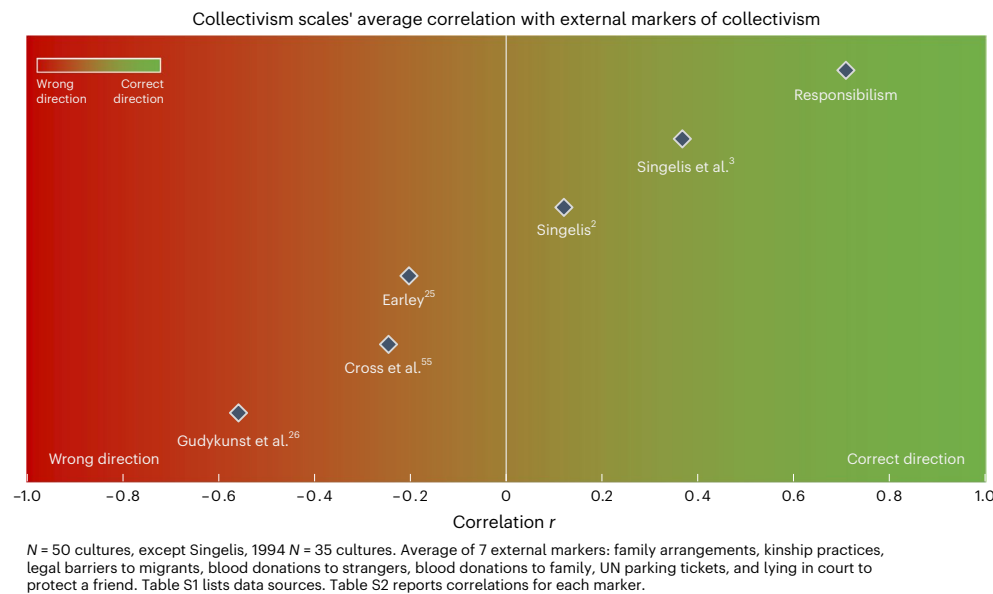


Fig. 6 | The most-cited collectivism scales predict external markers of collectivism weakly or in the wrong direction. Responsibilism culture scores predict external markers of collectivism more strongly than the five most-cited collectivism scales. The correlation is the average directional correlation with

seven cultural markers of collectivism (such as living with extended family) that have data for at least 40 cultures. Correlations in the wrong theoretical direction are negative (such as collectivism predicting fewer people living with extended family). Extended Data Tables 1 and 2 list data sources.

Responsibilism linked to societal differences across fields. Collectivism is a widely used concept across fields. Thus, we looked at whether the responsibilism scale is linked to societal differences across fields. Extended Data Table 3 presents data sources and analyses before and after accounting for economic development.

- (1) Political science. Responsibilistic cultures scored lower on *The Economist's* democracy index, which measures practices such as civil liberties and individual rights. Responsibilistic cultures also scored higher on the Transparency International index of corruption in government. Corruption fits with responsibilism because corruption is often based on social connections that get priority over the interests of strangers and impersonal public systems.
- (2) Economics. Previous research has found that innovation tends to be lower in collectivistic cultures, particularly in cultures that emphasize family ties^{34,35}. In line with this idea, responsibilistic cultures scored lower on the Global Innovation Index, which measures indicators such as patents, sales of creative goods and scientific research (even after controlling for economic development). Responsibilism was negatively related to scores on the Economic Freedom Index, which researchers have used as a marker of neoliberalism.
- (3) Cognition. Many studies have linked collectivism to a cognitive style called 'holistic thought'. Holistic thought emphasizes the relationships between objects, contextual sensitivity and intuition^{9,16,31,36}. People in responsibilistic cultures thought more holistically.
- (4) Law. Responsibilistic cultures scored lower on the Migrant Integration Policy Index³⁷, which measures policies such as the right to work and family reunification. These differences in integration policies are consistent with the focus of responsibilism on close ties at the expense of outsiders.
- (5) Public Health. Responsibilistic cultures had fewer deaths per capita from COVID-19, even accounting for under-reporting. We also looked at rates of drug abuse because a central part of the debate around drug policy is individual freedom³⁸. In line with this, responsibilistic cultures have lower rates of deaths from drug abuse.

Responsibilism is linked to ecological and institutional differences. We explored whether aspects of the environment and history are associated with differences in responsibilism across cultures (Extended Data Figs. 3 and 4 and Extended Data Tables 4 and 5). Responsibilistic cultures tended to have more threatening environments in the present day and through history, which fits with the idea that humans respond to ecological threat by relying on close relationships, conformity and tight social norms^{18,20}. For example, responsibilism was higher in cultures where infectious diseases were more common historically.

Poverty presents threats. Wealthier cultures tended to be less responsibilistic, $r(96) = -0.63$, $P < 0.001$, 95% CI $[-0.74, -0.50]$. However, responsibilism continued to predict societal differences even after controlling for wealth (Extended Data Tables 1–3). These data suggest that responsibilism is picking up on cultural differences beyond economic development.

We also looked at the history of subsistence styles for different cultures because there is evidence that how cultures made a living historically influences culture^{20,36}. For example, research has found that rice-farming cultures tend to be more collectivistic because paddy rice required more coordination with extended family and neighbours than do dryland crops such as wheat³⁶. In our data, cultures with more land devoted to rice farming tended to be more responsibilistic.

In contrast, herding is a more independent activity and there is evidence that herding cultures are less collectivistic^{20,39}. In line with this idea, we found that cultures with a history of herding tended to be less responsibilistic. These differences are only scratching the surface. Future studies can use these large-scale data to explore causes of cultural differences around the world in more detail.

Responsibilism taps into differences within countries. The responsibilism scale has the potential to contribute to measuring collectivism because it can measure individual differences, as opposed to the more recent scales that ask people to rate their cultures rather than themselves^{18,20}. Thus, we looked for differences between people in the same nation. We tested for differences between the south and north of USA because an earlier study using census data found that the south is more collectivistic⁴⁰. Southerners scored higher on responsibilism than did northerners, $t(574) = 2.15$, $P = 0.032$, $d = 0.24$, 95% CI $[0.45, 0.02]$.

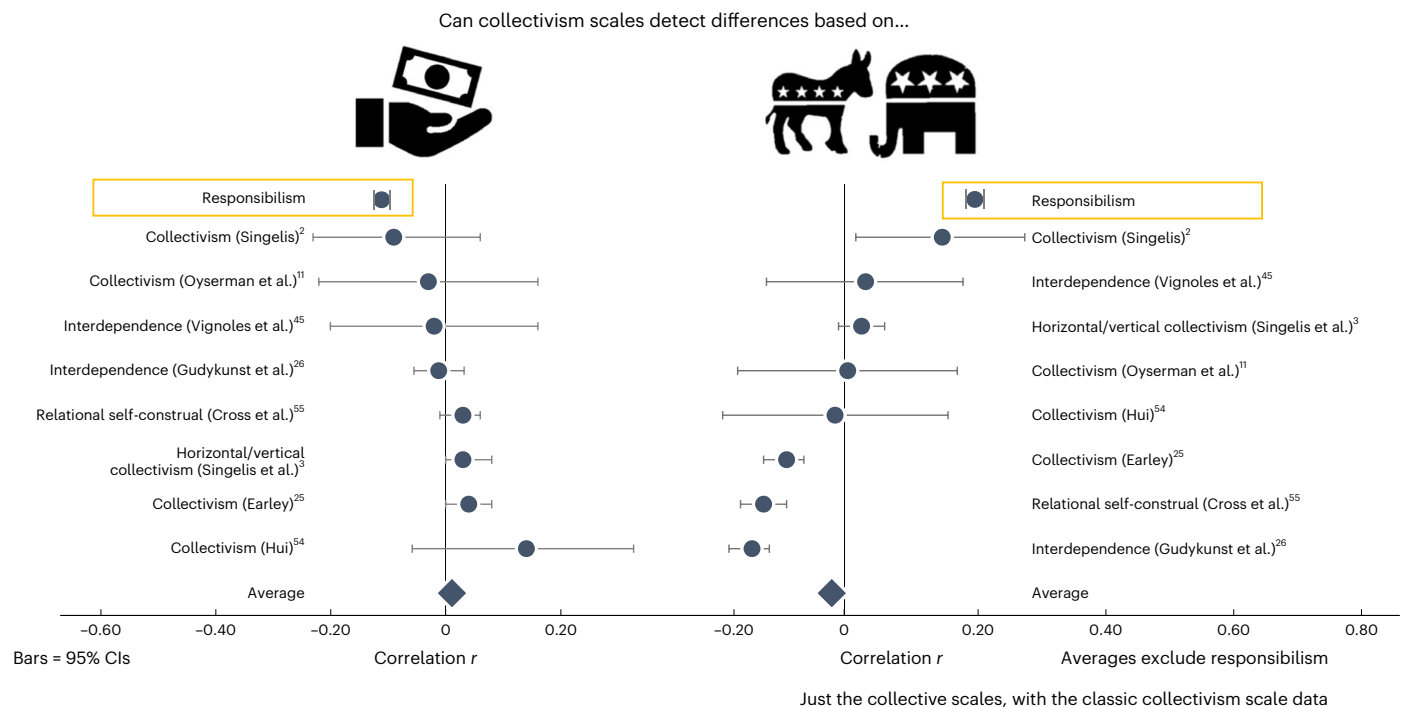


Fig. 7 | Responsibilism picks up on differences by social class and politics that earlier collectivism scales fail to find on average. Social class is negatively correlated with responsibilism (top left), but previous collectivism scales show an average correlation near zero. Political conservatism is positively correlated with responsibilism (top right) but slightly negatively correlated with other collectivism scales on average. The two diamonds on the bottom of the chart are

the average correlation of the earlier collectivism scales. Samples for four scales come from the 50-culture data collection of 3,330 people. Samples for four of the previous collectivism scales come from smaller subsamples of approximately 100 participants. Supplementary Table 27 lists sample sources for each scale. Supplementary Table 12 breaks out results for individualism subfacets and difference scores (such as collectivism minus individualism) of these scales.

Responsibilism also picked up on differences between people with different cultural heritages in the same country. For example, compared with European Americans, responsibilism was higher among Americans with Asian heritage, $t(404) = 4.86, P < 0.001, d = 0.59, 95\% \text{ CI } [0.35, 0.83]$ and Americans with Latin American heritage, $t(336) = 2.88, P = 0.004, d = 0.70, 95\% \text{ CI } [0.22, 1.18]$. In South Africa, people with Black and Indian heritage were more responsibilistic than South Africans of European heritage, $t(115) = 3.02, P = 0.003, d = 0.77, 95\% \text{ CI } [1.28, 0.26]$.

Responsibilism detects social class differences that previous scales do not. We explored social class because studies measuring people's behaviour and using non-self-report tests have found that people of higher social class are less collectivistic^{41–43}. For example, people in the USA from lower social class backgrounds report spending more time helping people close to them, whereas people from higher social class backgrounds report spending more time volunteering to help distant others⁴³. To test for social class differences, we compared our US samples from highly selective universities (such as the University of Southern California) with the University of Illinois Chicago, which has more economic diversity and a majority of first-generation college students in its first-year classes. Students from this more economically diverse university scored higher on responsibilism, $t(651) = 4.06, P < 0.001, d = 0.71, 95\% \text{ CI } [0.36, 1.05]$.

In addition, we asked people around the world to rate their social class on a ladder from 0 (bottom) to 10 (top). In our data, people of higher social class were less responsibilistic, $r(13,689) = -0.11, P < 0.001, 95\% \text{ CI } [-0.13, -0.09]$. By contrast, the classic collectivism scales correlated with social class near zero on average ($r = 0.01$; Fig. 7).

Responsibilism detects political differences where previous scales find no average difference. We tested for political differences because previous research found that social conservatives think more

holistically, which is more common in collectivistic cultures⁴⁴. Another reason to think that responsibilism might be related to political orientation between individuals is that responsibilism culture scores were correlated with policy differences between societies reported above, such as individual rights and immigration policies.

We asked participants to report their social politics on a scale from 1 (very liberal) to 7 (very conservative). On average, the eight previous collectivism scales found close to zero relationship between collectivism and politics, $r = -0.02$ (Fig. 7). Three scales found significant political differences, but they were all negative, with conservatives less collectivistic. By contrast, responsibilism found a positive relationship. Conservatives scored significantly more for being responsibilistic, $r(13,702) = 0.23, P < 0.001, 95\% \text{ CI } [0.21, 0.24]$.

Discussion

Limitations and unanswered questions

One limitation of this study is that we used student samples. Sampling students helps to reduce demographic differences between cultures, but students are a thin slice of the population.

Another limitation is that there are probably still other components that we did not include in our scale. As just one example, there is some evidence that people in collectivistic cultures more often change their behaviour to fit different relationships and situations, whereas people in individualistic cultures try to be consistent across situations⁴⁵. Future studies can build a more complete picture by testing other facets and determining which should be added or ruled out.

Researchers debate whether individualism and collectivism are two ends of a continuum or two independent dimensions. Some researchers believe it is possible to be collectivistic and individualistic at the same time¹¹. Others think that is a contradiction⁴⁶. We did not design our study to address this debate.

Where does individualism fit?

We see responsibilism as a continuum. On the high end, cultures have strong duties in close relationships and weak duties in distant relationships. On the low end, people have weaker duties in close relationships, with more trust and warm feelings towards distant relationships than do people in responsibilistic cultures. In our data, cultures that agree with responsibilities in close relationships tend to disagree with warm fuzzy items (Supplementary Fig. 16 and Supplementary Information Section 36).

If people in the West tend to agree more with warm fuzzy items, is warm fuzzy collectivism the same as individualism? We think it would be confusing to call warm fuzzy collectivism ‘individualism’. Instead, we think it makes more sense to think of these as opposing concepts of collectivism—one that focuses on behavioural duties in close relationships (responsibilism) and one that focuses on warmth and prosociality towards broad ties (warm fuzzy).

The commonality is that these concepts of collectivism focus on relationships between people. This contrasts with many definitions of individualism, which explicitly reject relationships of any kind and any expectation of prosociality. For example, researchers have described individualism as when the individual is ‘separate from the social context’² and where ‘everyone is expected to look after him/herself’⁴⁷. Warm fuzzy collectivism and responsibilism are different ways of prioritizing social relationships, not a walling off from relationships.

Although warm fuzzy collectivism is not the same concept as individualism, it is paradoxically more common in individualistic cultures (Fig. 1, Supplementary Table 13 and Supplementary Information Section 36). When relationships are not centred around commitment and responsibilities, people may have the freedom to prioritize enjoying their relationships and leave unsatisfying relationships⁴⁸. For example, researchers have found that people in cultures with more flexible relationships tend to report feeling more ‘close to’ and ‘warm’ towards their friends and romantic partners²⁰.

Conclusion

Years of research may have missed the reasons why scales produced puzzling results because people diagnosed the problem in our microscopes rather than in our minds—in our basic conceptualization of collectivism. By defining and measuring the concept of collectivism we call ‘responsibilism’, we are spared from the implausible conclusion that the USA is more collectivistic than Japan^{11,13}. And we are spared from having to abandon self-report surveys^{12,18,20}. This tool predicts differences across cultures, social classes and political divides. Clarifying this concept might help to resolve a decades-long puzzle and push forward research on societal differences across the social sciences.

Methods

This research complies with ethical regulations and received approval from the University of Chicago Institutional Review Board (IRB00000333). All participants provided informed consent. Supplementary Table 6 details the compensation by site. This study was not preregistered, except for the Pipeline Project Two replication. All statistical tests are two-tailed.

Ethics and inclusion statement

This study took into account local research in understanding the region by including researchers from the local culture to translate the survey, adapt the questions to the local culture, plan the process of data collection and interpret the results. The authors discussed roles and authorship ahead of the research project.

Samples

Our goal was to sample at least 100 participants per culture, with a minimum goal of 50 participants where data collection was difficult. Given the long history of research on differences across cultures in

collectivism, we anticipated large effect sizes. For example, with an effect size of $d = 0.80$, a sample size of 100 participants per group would allow for 99% statistical power. Many of the actual differences across cultural regions were larger than $d = 0.80$ (such as between Western and non-Western cultures).

In Supplementary Information Section 34, we report analyses that test the robustness of the findings to random subsamples of different sizes. These analyses also address a limitation of our sampling, which is that our sample sizes differ across cultures. The random subsamples equalize sample sizes across cultures, finding similar results compared with the full samples.

One limitation is that we could not get nationally representative samples in 100 cultures. Instead, we focused on getting comparable samples in each culture. To do that, we surveyed college students wherever possible. We supplemented with adult samples when collaborators could not access student samples. Although students are not representative, they allow us to minimize differences in education level, occupation and stage of life across cultures. Furthermore, we validate the results from our samples against real-world behaviours in nationally representative census data (Extended Data Tables 1 and 2).

Although student samples are mostly comparable, there is some variation in age because education systems differ across cultures. For example, many university graduates are 22 years old in the USA, but the average graduate is 28 years old in Denmark and Austria⁴⁹. To deal with sample differences, we ran tests of cultural differences controlling for age, gender and socioeconomic status. We also tested cultural differences limiting the samples to participants under 24 years old. Cultural differences were nearly identical before and after accounting for demographics, $r(97) = 0.99$, $P < 0.001$, 95% CI [0.990, 0.996] (Supplementary Information Section 3).

Cultural heritage and data-quality checks

We calculated cultural differences on the basis of participants who were born and grew up in the local culture. We also used data-quality checks to screen for participants who had IP addresses outside the culture, spent too little time on the survey or responded carelessly (Supplementary Information Sections 15–17). These quality checks reduced the sample from 16,237 to 12,247 participants, although the results were highly similar with all participants. For example, responsibilism culture scores were nearly identical with and without data-quality checks $r(98) = 0.99$, $P < 0.001$, 95% CI [0.985, 0.993] (Supplementary Information Section 17).

Five-item responsibilism scale

We tested whether shorter versions of the responsibilism scale could still produce reasonably accurate results. This would be similar to how shorter versions of the Big Five personality scale can measure personality with reasonable accuracy⁵⁰. If so, the shorter scale would be useful because researchers do not always have the space to include full versions of scales in their studies.

The five-item version of the scale produced scores that correlated highly with cultural differences on the full scale for cultures $r(98) = 0.94$, $P < 0.001$, 95% CI [0.91, 0.96] and individuals $r(12,247) = 0.77$, $P < 0.001$, 95% CI [0.76, 0.78]. The size of these correlations is similar to the correlations of short personality scales with the full scales, $r = 0.83$ (ref. 50). We put the full and short versions of the responsibilism scale [online](#) for other researchers to use.

Of course, there are costs to shortening scales. The five-item version has less ability to detect cultural differences in response styles. Shorter scales also tend to produce lower reliability estimates.

Scale validity tests

To check whether people across cultures and languages understood the scale similarly, we tested cross-cultural measurement invariance. Across cultures, the scale had similar factor structures and loadings

(Supplementary Information Section 10). In other words, the results suggest that people across cultures understood the scale similarly.

We also tested whether the scale structure applies to both individuals and groups. The factor structure showed acceptable fit for both individuals and cultures (Supplementary Information Section 9). This suggests that researchers can use the scale to measure both differences between individuals and between cultures as a whole.

Avoiding English-language bias

One shortcoming of some scales is that researchers often write scales in English and the scales get established in that form. Later on, researchers in other cultures have to translate them as is. This creates problems because phrases and sentence structures that are natural in English sometimes sound unnatural in other languages. For example, one collectivism scale used the item, ‘I often do ‘my own thing’³. The problem is that ‘my own thing’ is a colloquial phrase that is hard to translate.

To avoid this problem, we created the scale in two very different languages at the same time: English and Chinese. If a phrase sounded unnatural in Chinese, we changed the English until it sounded natural and equivalent in both languages. This often resulted in using simple, concrete language. However, these are only two languages. Future versions of the scale can refine it further by developing items simultaneously in more languages, such as languages that use grammatical gender (which is not a part of English or Chinese).

Responsibilistic items in previous research

In addition to creating our own items, we scanned previous scales for items that tapped into responsibilism and fulfilled the four criteria above. We searched previous scale items because our argument is that previous scales contained a mix of items, some based on the warm fuzzy concept of collectivism and some based on the responsibilistic concept of collectivism. On the basis of our criteria, we added three items from a 1995 scale³.

Testing cultural differences without potential translation confounds

One potential issue with using surveys to measure cultural differences is translation. If translation introduces subtle changes to meaning, cultural differences could be a confound of translation rather than a true difference in attitudes. To test this possibility, we gave the English scale to participants in Hong Kong, where English is a common language of education. Differences between the USA and Hong Kong were significant, $t(814) = 19.11, P < 0.001, d = 1.38, 95\% \text{ CI } [1.23, 1.54]$. This suggests that cultural differences persist, even when translation is not a factor.

Replication

Partway through this project, we received an invitation to submit our study to other researchers to replicate, as a part of the Pipeline Project Two⁵¹. The goal of the Pipeline Project is to run replication studies. But rather than replicate published studies, the Pipeline Project replicates studies that have not been published yet.

We agreed to join the Pipeline Project and provided our hypothesis, materials and analysis code to independent researchers from the Pipeline Project. They collected data in Australia, Scotland, Singapore and six sites in the USA. We preregistered the hypothesis that non-Western cultures would score higher on responsibilism than do Western cultures. The results replicated the finding that Singapore scored higher on responsibilism than did Western cultures (https://www.dropbox.com/s/jbph8Inhu093spw/Study12_Results.docx?dl=0).

Interdependence and collectivism

Some scales use the term ‘collectivism’ and others use the term ‘interdependence’. In many cases, researchers use the terms interchangeably. But in some cases, researchers use ‘interdependence’ and ‘self-construal’ to describe only how people think about the self.

For example, the interdependent self is connected to other people, whereas the independent self is separate from other people. We tested collectivism and interdependence scales because both concepts lead to the same predictions for East and West and because researchers often use the terms interchangeably⁵².

Reporting summary

Further information on research design is available in the Nature Portfolio Reporting Summary linked to this article.

Data availability

All data and materials are available on the OSF (<https://osf.io/3jxws/overview>).

Code availability

Analysis scripts are provided with this paper on the OSF (<https://osf.io/3jxws/overview>) and on request from the first author.

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The authors declare no competing interests.

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Extended Data Table 1 | Responsibilism predicts behavioral differences that tap into tight ties and responsibilities in close relationships

Marker	<i>r</i>	<i>P</i>	<i>P</i>	<i>r</i> _{partial} ^a	<i>P</i> _{partial}	<i>P</i> _{partial}	Cultures	Measure	Source
	[95% CI]		Adjusted ^b	[95% CI]		Adjusted ^b			
	Correlation			Controlling GNI					
Pro-Sociality with Strangers									
Blood Donations Strangers	−0.77 [−0.84, −0.67]	<0.001	<0.001	−0.49 [−0.63, −0.31]	<0.001	<0.001	89	Voluntary not-for-pay blood donations per 1,000 (2011–2013)	WHO: Schulz et al., 2019
Wallet Return Rate to Strangers	−0.80 [−0.89, −0.64]	<0.001	<0.001	−0.45 [−0.69, −0.14]	0.005	0.009	39	Percentage of recipients contacting the owner to return a lost wallets in field experiments in 355 cities in 40 countries	Cohn et al., 2019
Contributions in Anon. Economic Game	−0.49 [−0.80, 0.03]	0.063	0.069	−0.26 [−0.78, −0.44]	0.376	0.409	15	Average percent contributed in anonymous public goods game (with punishment) across 10 rounds	Herrmann et al., 2008
Contributions in Anon. Econ. Game (1 st Round)	−0.46 [−0.79, 0.07]	0.087	0.087	−0.44 [−0.85, 0.12]	0.114	0.152	15	Average percent contributed in anonymous public goods game (with punishment) in the first round	Herrmann et al., 2008
Basing Life Satisfaction on Internal Feelings (as Opposed to Social Roles or Status)									
Life Satisfaction Correlation w/ Emotion	−0.54 [−0.74, −0.25]	0.001	0.001	−0.09 [−0.47, 0.25]	0.627	0.629	35	Life satisfaction correlates more with people's emotions less in collectivistic cultures. People in responsibilistic cultures may derive more satisfaction from fulfilling social roles than emotion.	Suh et al., 1998

Note: This table reports the correlations between societal responsibilism scores and markers of external validity. These measure responsibilities in close relationships (such as lying for a friend in court) versus favorable treatment of strangers (such as returning a wallet to a stranger). ^aPartial correlation controlling for 2019 log GNI per capita. ^bThis column reports *P* values adjusted for multiple comparisons using the Benjamini-Hochberg method.

Extended Data Table 2 | Responsibilism predicts behavioral differences that tap into tight ties and responsibilities in close relationships

Marker	<i>r</i>	<i>P</i>	<i>P</i>	<i>r</i> _{partial} ^a	<i>P</i> _{partial}	<i>P</i> _{partial}	Cultures	Measure	Source
	[95% CI]		Adjusted ^b	[95% CI]		Adjusted ^b			
	Correlation			Controlling GNI					
Tight Ties in Close Relationships									
Global Collectivism Index	0.75 [0.65, 0.83]	<0.001	<0.001	0.56 [0.41, 0.68]	<0.001	<0.001	99	Index of household size, marriage to divorce ratio, fertility rates, religiosity, motor vehicles per capita, and ingroup favoritism	Pelham et al., 2022
Kinship Intensity Index	0.67 [0.54, 0.76]	<0.001	<0.001	0.51 [0.37, 0.63]	<0.001	<0.001	99	Index of cousin marriage preference, polygamy, extended family living together, lineage organization, community organizations	Schulz et al., 2019
Blood Donations Family	0.35 [0.16, 0.52]	0.001	0.001	0.15 [0.001, 0.28]	0.168	0.204	91	Family blood donations times per 1,000 inhabitants (2011–2013)	WHO: Schulz et al., 2019
Lying for Friend in Court	0.71 [0.52, 0.84]	<0.001	<0.001	0.55 [0.29, 0.73]	<0.001	<0.001	40	Percent of people agreeing that a friend has the right to expect them to lie in court to protect them (the passenger dilemma)	Trompenaars & Hampden-Turner, 1998
Weak Responsibilities to Strangers and Anonymous Systems									
UN Diplomat Parking Tickets	0.62 [0.47, 0.73]	<0.001	<0.001	0.38 [0.09, 0.61]	<0.001	<0.001	89	Number of unpaid New York City parking tickets of United Nations representatives protected by diplomatic immunity (log)	Fisman & Miguel, 2007
Dishonest Claims in Private Dice Game	0.79 [0.53, 0.92]	<0.001	<0.001	0.50 [0.07, 0.81]	0.035	0.053	19	Percent reporting high numbers (which pay more) to a researcher they don't know after rolling a die in private	Gächter & Schulz, 2016
Societal Discrimination Against Outgroups	0.85 [0.78, 0.90]	<0.001	<0.001	0.71 [0.59, 0.80]	<0.001	<0.001	96	Index of legal discrimination against outgroups, gender inequality, power distance, autocracy, ingroup/outgroup, and collectivism markers	Van de Vliert, 2020

Note: This table reports the correlations between societal responsibilism scores and markers of external validity. These measure responsibilities in close relationships (such as lying for a friend in court) versus favorable treatment of strangers (such as returning a wallet to a stranger). ^aPartial correlation controlling for 2019 log GNI per capita. ^bThis column reports *P* values adjusted for multiple comparisons using the Benjamini-Hochberg method.

Extended Data Table 3 | Responsibilism is linked to societal differences across fields

Marker	<i>r</i>	<i>P</i>	<i>P</i>	<i>r</i> _{partial} ^a	<i>P</i> _{partial}	<i>P</i> _{partial}	Cultures	Measure	Source
	[95% CI]		Adjusted ^b	[95% CI]		Adjusted ^b			
	Correlation			Controlling GNI					
Political Science									
Democracy Index 2021	−0.65 [−0.76, −0.52]	<0.001	<0.001	−0.43 [−0.62, −0.27]	<0.001	<0.001	95	Index of electoral process, pluralism, civil liberties, gov. functions, political participation	<i>The Economist</i> , 2021
Corruption Index 2019	0.68 [0.56, 0.77]	<0.001	<0.001	0.38 [0.17, 0.57]	<0.001	<0.001	97	Index of 13 surveys and assessments of corruption, measuring a country's experts and business executives perceive how corrupt their country's public sector	T
Economics									
Global Innovation Index	−0.68 [−0.78, −0.55]	<0.001	<0.001	−0.26 [−0.51, 0.04]	0.017	0.030	86	Index of innovation input (for example, institutions, human capital and research, infrastructure) and output (knowledge and technology outputs and creative outputs)	W
Neoliberalism: Economic Freedom Index 2021	−0.59 [−0.70, −0.43]	<0.001	<0.001	−0.24 [−0.45, −0.05]	0.023	0.031	95	Index of 12 factors in four categories: rule of law, government size, regulatory efficiency, and open markets. Some have argued that neoliberalism influences social relationships. ⁵⁴	Miller et al., 2020
Cognition									
Holistic Thought	0.63 [0.32, 0.82]	<0.001	0.001	0.38 [−0.25, 0.73]	0.062	0.115	26	Participants choose two of three items to categorize together, such as pairing monkey with panda (analytic) or with banana (relational/holistic).	Talhelm et al., 2018
Law									
Migrant Integration Policy Index	−0.51 [−0.70, −0.27]	<0.001	<0.001	−0.31 [−0.56, 0.08]	0.033	0.063	48	Index of migrant basic rights, equal opportunities, and secure future	S
Public Health									
Covid-19 Deaths per Capita	−0.44 [−0.59, −0.26]	<0.001	<0.001	−0.26 [−0.46, −0.01]	0.014	0.030	94	COVID-19 deaths per capita (log) through Jan. 1, 2021, corrected for under-reporting by the Institute for Health Metrics and Evaluation.	Talhelm et al., 2023
Death Rate from Drug Use Disorders	−0.41 [−0.56, −0.23]	<0.001	<0.001	−0.25 [−0.46, −0.12]	0.016	0.030	98	Deaths per capita in 2019 from drug use disorders, such as opioids and amphetamines.	R

Note: **Bolded** correlations are statistically significant. ^aThis column reports partial correlations controlling 2019 log GNI per capita. ^bThis column reports *P* values adjusted for multiple comparisons using the Benjamini-Hochberg method of reducing the false discovery rate.

Extended Data Table 4 | Responsibilism is linked to ecological and institutional conditions

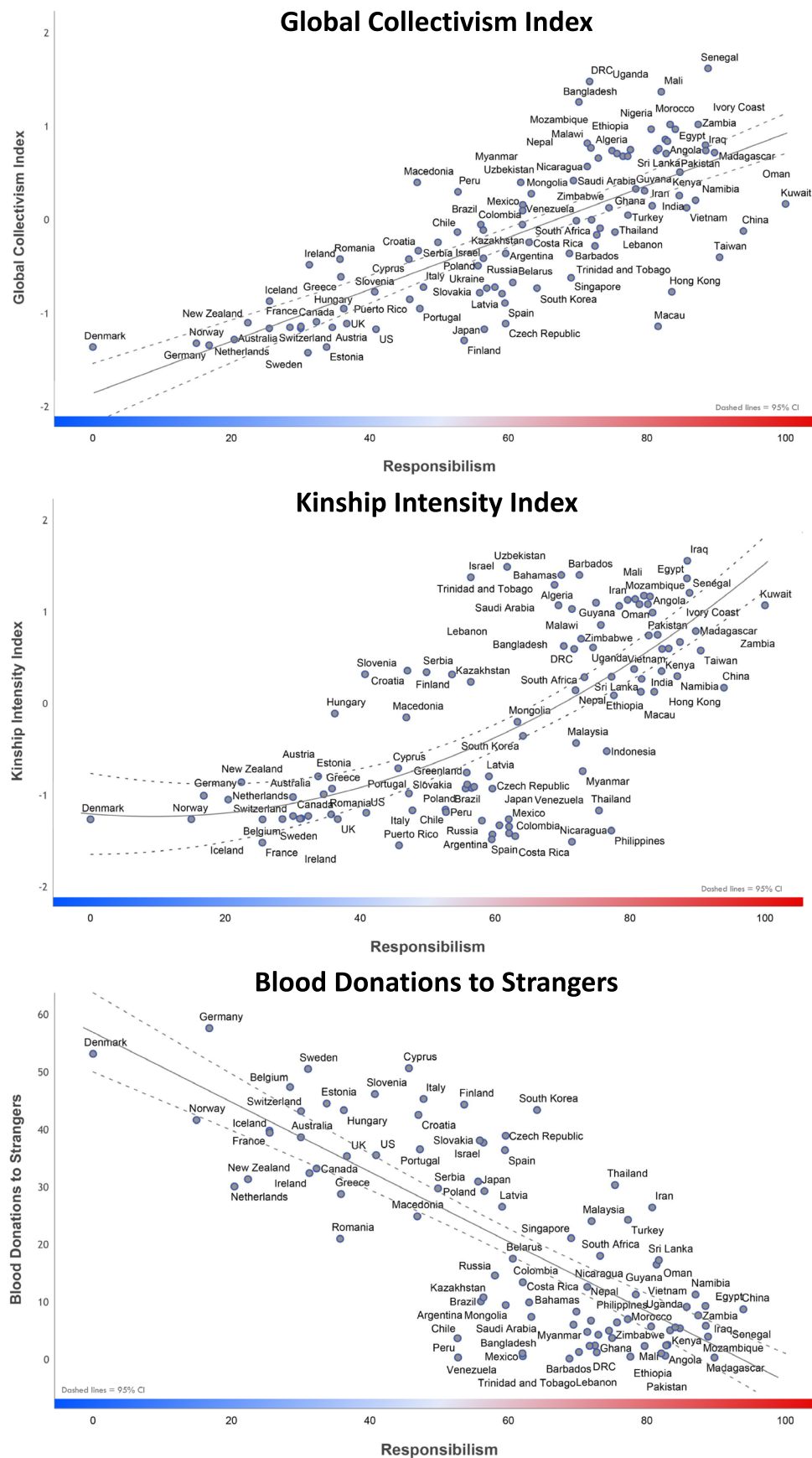
Characteristic	<i>r</i>	<i>P</i>	<i>P</i> ^a Adjusted	95% CI	Cultures	Source
Development and Health						
GDP per Capita 1918 Log	−0.75	<0.001	<0.001	[−0.87, −0.55]	33	M
GDP per Capita 1950 Log	−0.64	<0.001	<0.001	[−0.75, −0.48]	79	M
GDP per Capita 1970 Log	−0.67	<0.001	<0.001	[−0.78, −0.53]	79	M
GDP per Capita 1990 Log	−0.71	<0.001	<0.001	[−0.80, −0.59]	91	M
GNI per Capita 2019 Log	−0.63	<0.001	<0.001	[−0.74, −0.50]	98	T
% Urban Population 2013	−0.50	<0.001	<0.001	[−0.64, −0.34]	98	T
Historical Disease Prevalence	0.69	<0.001	<0.001	[0.57, 0.78]	100	Murray & Schaller, 2010
Religion						
% Catholic 2000	−0.26	0.012	0.015	[−0.44, −0.06]	95	Barro & McCleary, 2003
% Protestant 2000	−0.39	<0.001	<0.001	[−0.55, −0.20]	95	Barro & McCleary, 2003
% Muslim 2000	0.43	<0.001	<0.001	[0.25, 0.58]	95	Barro & McCleary, 2003
Western Church Exposure	−0.75	<0.001	<0.001	[−0.83, −0.65]	94	Schulz et al., 2019
Eastern Church Exposure	−0.21	0.048	0.056	[−0.39, −0.002]	94	Schulz et al., 2019
Ecology						
Absolute Latitude	−0.69	<0.001	<0.001	[−0.78, −0.56]	97	Van de Vliert, 2020
Longitude*	0.20	0.051	0.057	[−0.001, 0.38]	97	Van de Vliert, 2020
Population Density in 1CE	−0.21	0.057	0.060	[−0.41, 0.01]	82	Ashraf & Galor, 2013
Population Density in 1500CE	−0.31	0.002	0.003	[−0.48, −0.11]	95	Ashraf & Galor, 2013
% Rice Harvested Area 2000	0.33	0.001	0.001	[0.14, 0.49]	100	UNFAO; Talhelm & English, 2020
Historical Herding	−0.44	<0.001	<0.001	[−0.59, −0.27]	98	Stephens et al., 2019
Climatic Demands	−0.51	<0.001	<0.001	[−0.64, −0.35]	99	Van de Vliert, 2013
Historical War	0.12	0.293	0.293	[−0.11, 0.34]	74	Brecher et al., 2016

Note: **Bolded** correlations are statistically significant. *Longitude is centered on London. Longitude increases toward Asia and decreases toward America.

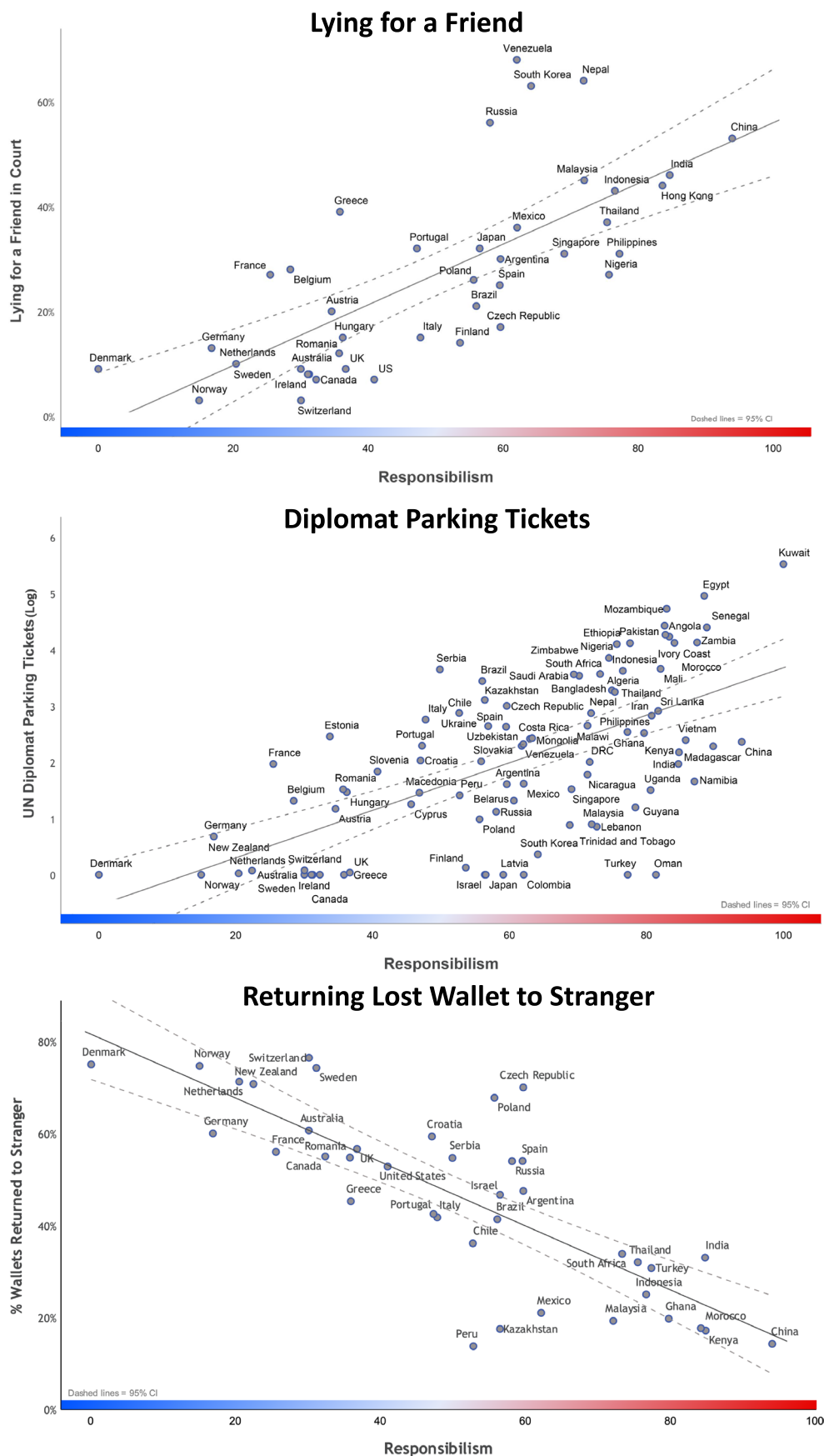
Extended Data Table 5 | Societal correlates of responsibility

Characteristic	<i>r</i>	<i>P</i>	<i>P</i> ^a Adjusted	95% CI	Cultures	Source
Attitudes and Other Cultural Dimensions						
Relational Mobility	−0.53	<0.001	<0.001	[−0.70, −0.31]	55	Thomson et al., 2018; Talhelm et al., 2022
Norm Tightness	0.55	<0.001	<0.001	[0.32, 0.72]	51	Eriksson et al., 2021
Zero-Sum Belief	0.43	0.014	0.018	[0.10, 0.68]	32	Rózycka-Tran et al., 2015
Divorce is Justifiable	−0.76	<0.001	<0.001	[−0.84, −0.64]	70	WVS Waves 5–7
Most People Can be Trusted	−0.41	<0.001	<0.001	[−0.59, −0.19]	70	WVS Waves 5–7
Trust in Strangers	−0.33	0.006	0.008	[−0.52, −0.10]	70	WVS Waves 5–7
Language Has Future Marker	−0.39	0.006	0.008	[−0.60, −0.12]	50	Chen, 2013
Uncertainty Avoidance	−0.09	0.441	0.473	[−0.30, 0.13]	83	Hofstede, 2001
Long-Term Orientation	−0.20	0.096	0.112	[−0.41, 0.04]	73	Hofstede, 2001
Power Distance	0.56	<0.001	<0.001	[0.38, 0.69]	79	Hofstede, 2001
Masculinity	0.08	0.473	0.473	[−0.14, 0.30]	79	Hofstede, 2001
Indulgence	−0.33	0.005	0.008	[−0.53, −0.10]	70	Hofstede, 2001
Development and Health						
Gini Index 2013	0.62	<0.001	<0.001	[0.47, 0.73]	89	SWIID; Solt, 2020
Life Expectancy 2020	−0.57	<0.001	<0.001	[−0.69, −0.42]	96	T

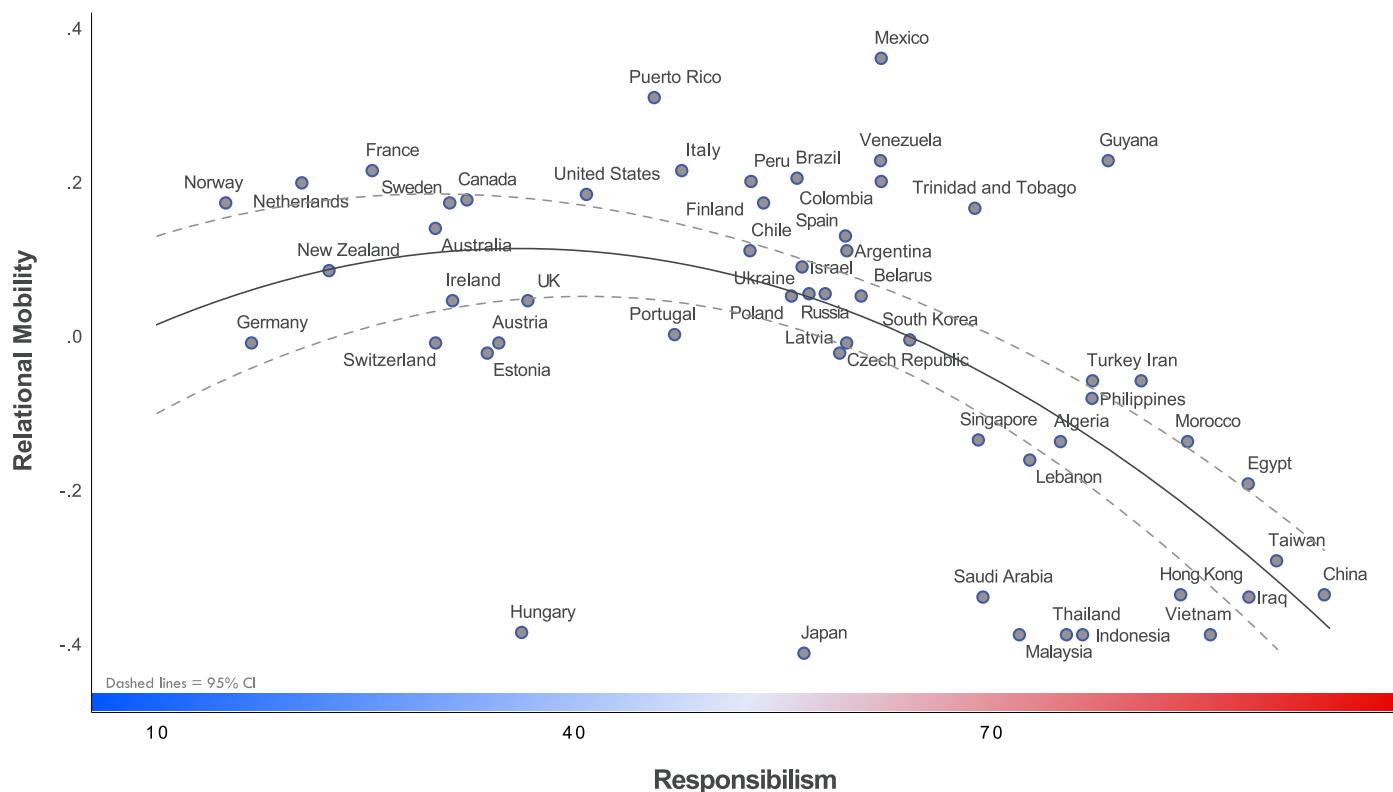
Note: **Bolded** correlations are statistically significant. ^aThis column reports *P* values adjusted for multiple comparisons using the Benjamini–Hochberg method of reducing the false discovery rate.



Extended Data Fig. 1 | Correlations of responsibilism and external markers of collectivism. Extended Data Tables 1, 2 explain measures and sources. $N = 99$ cultures, except donations $N = 89$.



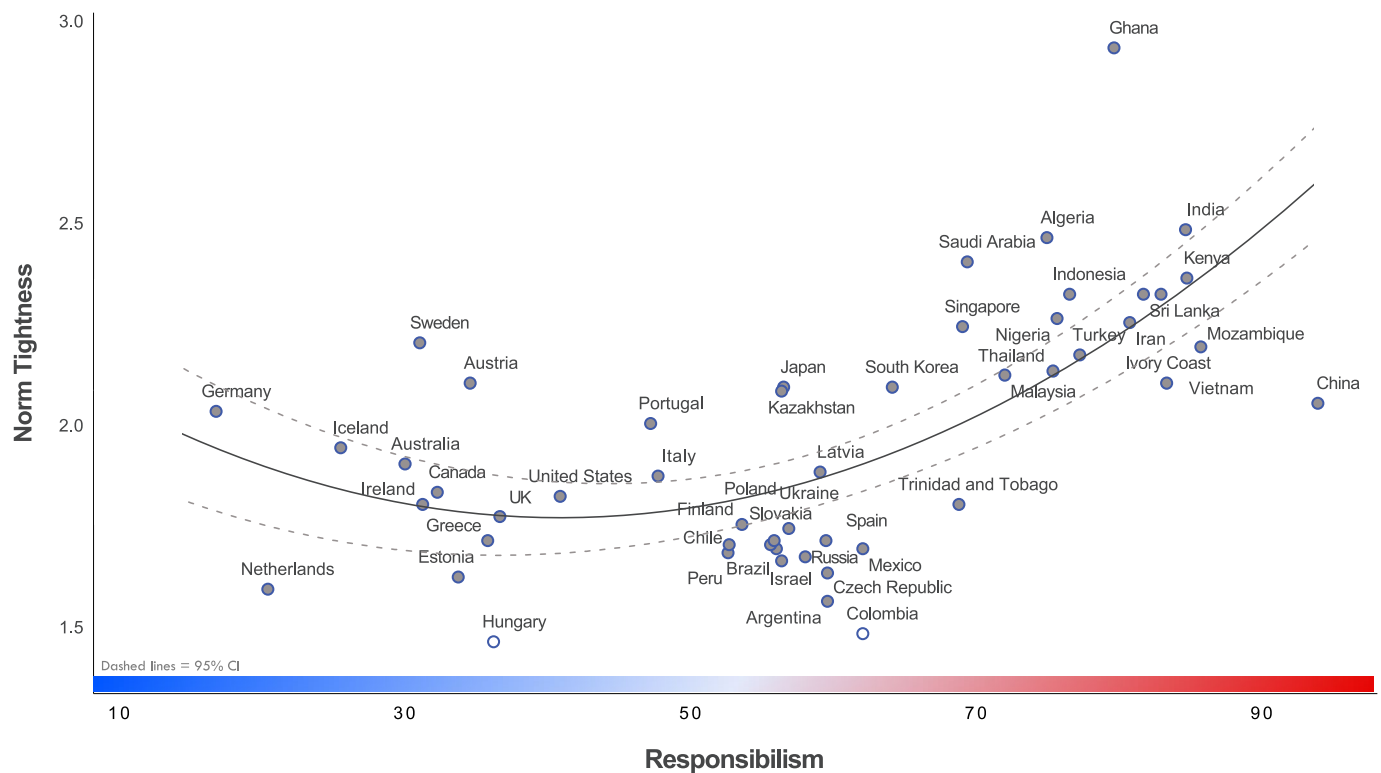
Extended Data Fig. 2 | Correlations of responsibilism and external markers of collectivism. Extended Data Tables 1, 2 explain measures and sources. $N = 40$ (top), 89 (mid), 39 (bottom).



Extended Data Fig. 3 | Responsibilistic cultures have lower relational mobility.

Cultures with strong responsibilities in close relationships tend to have less freedom and turnover in their relationships $r(53) = -0.53, P < 0.001, 95\% \text{ CI } [-0.70, -0.31]$. The graph uses a quadratic fit line because the fit improved from

an R squared of 0.28 for a linear fit to 0.37 for a quadratic fit. Relational mobility data comes from a 2018 study²⁰ with additional neighboring cultures imputed and validated from a later study⁵². $N = 55$ cultures.



Extended Data Fig. 4 | Responsibilistic cultures have tighter social norms. Cultures that emphasize duties in close relationships tend to have more binding social norms, $r(49) = 0.55$, $P < 0.001$, 95% CI [0.32, 0.72]. The graph uses a

quadratic fit line because the fit improved from an R squared of 0.30 for a linear fit to 0.44 for a quadratic fit. Tightness values come from a 2021 study⁵³. $N = 51$ cultures.

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- ☐ ☒ A description of all covariates tested
- ☐ ☒ A description of any assumptions or corrections, such as tests of normality and adjustment for multiple comparisons
- ☐ ☒ A full description of the statistical parameters including central tendency (e.g. means) or other basic estimates (e.g. regression coefficient) AND variation (e.g. standard deviation) or associated estimates of uncertainty (e.g. confidence intervals)
- ☐ ☒ For null hypothesis testing, the test statistic (e.g. F , t , r) with confidence intervals, effect sizes, degrees of freedom and P value noted
Give P values as exact values whenever suitable.
- ☒ ☐ For Bayesian analysis, information on the choice of priors and Markov chain Monte Carlo settings
- ☐ ☒ For hierarchical and complex designs, identification of the appropriate level for tests and full reporting of outcomes
- ☐ ☒ Estimates of effect sizes (e.g. Cohen's d , Pearson's r), indicating how they were calculated

Our web collection on [statistics for biologists](#) contains articles on many of the points above.

Software and code

Policy information about [availability of computer code](#)

Data collection No specialized software was used.

Data analysis Analyses were conducted in R (version 4.3.2), MPlus (version 1.8.8), and SPSS (version 29)

For manuscripts utilizing custom algorithms or software that are central to the research but not yet described in published literature, software must be made available to editors and reviewers. We strongly encourage code deposition in a community repository (e.g. GitHub). See the Nature Portfolio [guidelines for submitting code & software](#) for further information.

Data

Policy information about [availability of data](#)

All manuscripts must include a [data availability statement](#). This statement should provide the following information, where applicable:

- Accession codes, unique identifiers, or web links for publicly available datasets
- A description of any restrictions on data availability
- For clinical datasets or third party data, please ensure that the statement adheres to our [policy](#)

Data Availability. All data, code, and materials used in the analysis are available on the OSF: <https://osf.io/3jxws/overview>

Research involving human participants, their data, or biological material

Policy information about studies with [human participants or human data](#). See also policy information about [sex, gender \(identity/presentation\), and sexual orientation](#) and [race, ethnicity and racism](#).

Reporting on sex and gender	We report analyses based on gender. Gender was self-reported by participants. We did not ask about biological sex, only self-reported gender.
Reporting on race, ethnicity, or other socially relevant groupings	We asked participants about their cultural backgrounds. The wording was "What is your cultural background?" We chose cultural background questions for each culture in consultation with local researchers. We allowed participants to select any cultural background or multiple cultural backgrounds. We also allowed participants to write in their own preferred term or background if desired. We used this data to understand whether the cultural differences we were measuring could differ based on people's personal cultural background.
Population characteristics	Participants were 16,237 adults, 63.7% female, 14.3% married, 78.5% current students, average age 24.36 (SD = 7.56). Participants for the classic collectivism scales were 3,330 participants, 48.0% female, 100% current students, average age 25.43 (SD = 7.74), 10% married. After cultural heritage and data-quality exclusions, the sample size for the analyses was 12,247 people.
Recruitment	Participants were recruited through (1) university participant pools, (2) online crowdwork platforms such as Prolific and MTurk, and (3) through survey company samples through Cint. Our goal was to minimize cultural differences in demographics by recruiting college students.
Ethics oversight	The University of Chicago Institutional Review Board for the Social and Behavioral Sciences

Note that full information on the approval of the study protocol must also be provided in the manuscript.

Field-specific reporting

Please select the one below that is the best fit for your research. If you are not sure, read the appropriate sections before making your selection.

☐ Life sciences ☒ Behavioural & social sciences ☐ Ecological, evolutionary & environmental sciences

For a reference copy of the document with all sections, see nature.com/documents/nr-reporting-summary-flat.pdf

Behavioural & social sciences study design

All studies must disclose on these points even when the disclosure is negative.

Study description	The study uses a quantitative design to test for cultural differences.
Research sample	The participants in the main sample were 16,237 adults, 63.7% female, 14.3% married, 78.5% current students, average age 24.36 (SD = 7.56). After cultural heritage and data-quality exclusions, the sample size for the analyses was 12,247 people. Because it was not feasible to collect random samples from 100 cultures, we endeavored to compare similar samples across cultures by limiting the potential for extraneous demographic differences between samples. To do this, we recruited college students across cultures. Although college students are not a broad sample of the population, these samples allow more comparability because participants are similar in age, education, career, and social status across cultures. This gives more comparability than, for example, sampling working adults in one culture, college students in another culture, and retirees in another culture. To test the utility of this sampling method, we compared our results to objective measures of cultural differences using full population samples (such as Census data) or representative samples (such as World Values Survey data). We also statistically test for differences based on demographics and report results controlling for demographic differences that are highly similar with or without these controls. Because our samples are not random, there is potential for self-selection, such as researchers tending to come from elite universities and from backgrounds that are better off than average. Because participants were not required to complete the survey (they could opt out), it is possible that some participants chose to quit the survey and that this was not random.
Sampling strategy	We used convenience sampling constrained by the goal of finding comparable samples across cultures. For each culture, we set a minimum goal of 50 participants who were born and raised in the culture. Fifty participants is a small sample. We aimed to collect larger samples in many cultures. However, we identified 50 as a minimally feasible goal in cultures where it is not common to run psychology studies. Also, with the large effect size between Western and non-Western cultures (culture level: $d = 4.58$, individual level: $d = 1.35$), a sample of 50 people in two groups still gives 99% statistical power. Thus, we judged that 50 people would be a feasible minimum sample size where it was not feasible to collect larger samples.
Data collection	Most participants took the survey online through the Qualtrics survey platform. The original survey wordings are available on the OSF.
Timing	This was a large-scale project conducted over the length of years. Collecting data from 100 cultures is a large undertaking, so it was not feasible to complete it in one year. Most responsibility data was collected between Jan 6 2021 and July 7 2023. The data collection for classic collectivism scales was collected between October 2023 and February 2024. We tested for whether dates of data collection mattered by testing sub-samples longitudinally. We found cultural differences were similar at both time periods. See supplemental section 22 for more details.

Data exclusions

We ran the main analyses using several checks for data quality and restrictions for people with non-local cultural backgrounds: latitude and longitude in the sampled country; born and grew up in the country; current student; intra-individual response variability; and survey duration under 400 seconds. The sample size was 16,237 before data-quality checks and 12,247 after. The specific criteria were not pre-registered. For that reason, we thought it was reasonable to give readers a sense of whether these data exclusions influenced the conclusions of the analyses. Thus, we re-ran the main analyses with all participants, reported in detail in supplemental sections 15-17. The analyses found that culture scores were highly correlated with and without these exclusions $r(98) = 0.99$, $P < 0.001$. However, analyses also showed that the data-quality exclusions also improved markers of external/criterion validity, which suggests that the exclusions were appropriate. Data exclusions were similar for the classic collectivism scale data collection.

Non-participation

Participants could choose not to participate by not clicking on the link to participate in the study. Thus, we are unable to estimate the recruitment percentage rate.

Randomization

The main comparisons in this study are cultures, which are not randomizable.

Reporting for specific materials, systems and methods

We require information from authors about some types of materials, experimental systems and methods used in many studies. Here, indicate whether each material, system or method listed is relevant to your study. If you are not sure if a list item applies to your research, read the appropriate section before selecting a response.

Materials & experimental systems

n/a	Involved in the study
☒	☐ Antibodies
☒	☐ Eukaryotic cell lines
☒	☐ Palaeontology and archaeology
☒	☐ Animals and other organisms
☒	☐ Clinical data
☒	☐ Dual use research of concern
☒	☐ Plants

Methods

n/a	Involved in the study
☒	☐ ChIP-seq
☒	☐ Flow cytometry
☒	☐ MRI-based neuroimaging

Plants

Seed stocks

Report on the source of all seed stocks or other plant material used. If applicable, state the seed stock centre and catalogue number. If plant specimens were collected from the field, describe the collection location, date and sampling procedures.

Novel plant genotypes

Describe the methods by which all novel plant genotypes were produced. This includes those generated by transgenic approaches, gene editing, chemical/radiation-based mutagenesis and hybridization. For transgenic lines, describe the transformation method, the number of independent lines analyzed and the generation upon which experiments were performed. For gene-edited lines, describe the editor used, the endogenous sequence targeted for editing, the targeting guide RNA sequence (if applicable) and how the editor was applied.

Authentication

Describe any authentication procedures for each seed stock used or novel genotype generated. Describe any experiments used to assess the effect of a mutation and, where applicable, how potential secondary effects (e.g. second site T-DNA insertions, mosaicism, off-target gene editing) were examined.