

Supplementary Materials

Morality Beyond the WEIRD: How the Nomological Network of Morality Varies Across Cultures

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Author Note

All data, materials, and code are publicly available at <https://osf.io/srtxn/>.

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Study 1a

To create the item pool, we first conducted a thorough literature review. We then developed a set of items that covered each of the six moral foundations. The resulting item pool can be seen in Table S1. All participants first completed the item pool, then they completed the MFQ-1 (Graham et al., 2011), and finally reported their demographic details.

To assess the factor structure of the item pool in Study 1a, we conducted exploratory factor analysis (EFA) using a large sample of participants recruited from the U.S. and India ($N = 840$). The data were analyzed using the principal axis factoring with “oblimin” rotation. We specified the number of factors in each foundation-level EFA to 1. The goal of the EFA was to identify nature of underlying factors, as well as to examine the relationships between items and factors. To achieve simple structure in this EFA, oblique rotations can be used. *Oblimin* rotation is a type of oblique rotation that is used to transform vectors related to EFA (or principal component analysis) (Jackson, 2005).

Table S1

The Initial Item Pool (Study 1a)

Label	Item
care1	It pains me when I see someone ignoring the needs of another human being.
care2	I try very hard not to hurt anyone’s feelings.
care3	I am empathetic toward those people who have suffered in their lives.
care4	It bothers me to see someone get hurt.

Table S1

The Initial Item Pool (Study 1a)

Label	Item
care5	It is not my problem that someone else has suffered in their life.
care6	When I see someone get hurt, I feel the urge to do something about it.
care7	I believe it is ok to use violence in some circumstances.
care8	I admire people who strive to relieve human suffering.
care9	I try to be kind toward others when they are in pain.
care10	I am kind toward others when they are in need.
care11	I believe that compassion for those who are suffering is one of the most crucial virtues.
care12	Caring for people who have suffered is an important virtue.
care13	We should all care for people who are in emotional pain.
care14	Everyone should try to comfort people who are going through something hard.
care15	I admire people whose occupations relieve human suffering, for example nurses.
fairness1	I feel good when I see cheaters get caught and punished.
fairness2	I feel a moral obligation to help people who have helped me before.

Table S1

The Initial Item Pool (Study 1a)

Label	Item
fairness3	I think people should be rewarded in proportion to what they contribute.
fairness4	I get mad when in a project, lazy members of the group are rewarded equally to hard-working ones.
fairness5	It upsets me when I see someone not doing their fair share of a collaborative project.
fairness6	I believe it would be ideal if everyone in society wound up with roughly the same amount of money.
fairness7	I believe everyone in a fair society should end up with roughly the same amount of money regardle...
fairness8	When dividing up a bonus, I think the people who contributed the most to success should get the m...
fairness9	In a fair society, I want people who work harder than others to end up richer than others.
fairness10	When people work together toward a common goal, they should share the rewards equally, even if so...
fairness11	When dividing up a bonus, I think fairness means equality: people should all get the same amount...
equality1	I engage in activities that promote social equality.
equality2	I believe that everyone should be given the same quantity of resources in life.
equality3	I think a group prize should be divided among the group members in the same amounts.

Table S1

The Initial Item Pool (Study 1a)

Label	Item
equality4	The world would be a better place if everyone made the same amount of money.
equality5	I feel good when I see children share their toys equally.
equality6	I get upset when some people have a lot more money than others in my country.
equality7	It upsets me when someone gives preferential treatment to one of their children.
equality8	I get upset when I see inequalities in income among citizens.
equality9	If I were to divide a reward between children, I would try to divide rewards completely equally.
equality10	Our society would have fewer problems if people had the same income.
equality11	I think those who are well-off have a duty to help those who are less fortunate.
equality12	In a fair society, basic services such as health care should be provided for everyone free of cha...
equality13	When serving food to several adults, I take extra time to ensure every plate has perfectly equal...
equality14	I believe everyone should have equal opportunities in life.
proportionality1	I try to make sure everyone gets what they deserve.
proportionality2	I believe that everyone should be given resources based on their needs.

Table S1

The Initial Item Pool (Study 1a)

Label	Item
proportionality3	I think officials should allocate resources to different areas according to which areas have the...
proportionality4	I believe that national resources should be divided to different areas according to their need.
proportionality5	I think people who are more hard-working should end up with more money.
proportionality6	The government should aid unfortunate families more than well-off ones.
proportionality7	I get upset when somebody obtains something without effort.
proportionality8	I feel that it is unfair to give some people more than others just so they end up equal.
proportionality9	It makes me happy when people are recognized on their merits.
proportionality10	I believe a hard-working person deserves to succeed in life.
proportionality11	I feel uneasy when people get a large reward without trying hard enough.
proportionality12	In a fair society, those who work hard should live with higher standards of living.
proportionality13	I think that children who help their parents more, are deserving of more inheritance.
proportionality14	I think highly skilled individuals deserve to make more money than less skilled people.

Table S1

The Initial Item Pool (Study 1a)

Label	Item
proportionality15	I feel good when people who do their job well rise to the top.
proportionality16	I believe people ought to get what they deserve.
proportionality17	The effort a worker puts into a job ought to be reflected in the size of a raise they receive.
proportionality18	I believe that the world would be a better place if we let lazy people suffer the consequences.
loyalty1	It is more important to be a team player than to express oneself.
loyalty2	People should be loyal to their close friends, even when they have done something wrong.
loyalty3	I believe that one of the most important values to teach children is to be loyal to their families.
loyalty4	I think it is important that people remain loyal to their families.
loyalty5	I think children should be taught to be loyal to their country.
loyalty6	I believe the strength of a family comes from the loyalty of its members to each other.
loyalty7	In a dispute I tend to take my friend's side even before I learn exactly what happened.
loyalty8	I feel angry when someone insults my country.
loyalty9	It bothers me when someone criticizes my country.

Table S1

The Initial Item Pool (Study 1a)

Label	Item
loyalty10	People should remain loyal to their family even when some family members are doing something wrong.
loyalty11	People who betray their group should get kicked out of the group.
loyalty12	Everyone should love their own country.
loyalty13	Everyone should defend their country, if called upon.
loyalty14	Everyone should feel proud when a person in their country wins in an international competition.
loyalty15	I admire people who stick by their group even if it would serve them better to leave.
loyalty16	It upsets me when people have no loyalty to their country.
loyalty17	I wish the world did not have nations or borders and we were all part of one big group.
loyalty18	I identify more closely with the people of the world at large than with the people in my own coun...
loyalty19	It bothers me when someone quits a company that's been good to them for years, to go work for a c...
authority1	I believe social order should be prioritized to keep a society safe.
authority2	I generally like people who don't feel much respect for authority.
authority3	Children should never disrespect their parents.

Table S1

The Initial Item Pool (Study 1a)

Label	Item
authority4	I think everyone should trust the judgment of the proper authorities.
authority5	In general, I think the best way to do things is the traditional way.
authority6	I feel that most traditions serve a valuable function in keeping society orderly.
authority7	I believe that employees should do what their bosses tell them to do (as long as it is legal) eve...
authority8	I think having a strong, determined leader is good for society.
authority9	I like it when rebels in society face the consequences of their actions.
authority10	It makes me angry when students disrespect their teachers.
authority11	I think it is important for societies to cherish their traditional values.
authority12	I think it is sometimes justified to rebel against authorities.
authority13	I think it can be ok to insult your parents if they insult you first.
authority14	I believe that one of the most important values to teach children is to have respect for authority.
authority15	I fear that society would tumble into chaos if everyone started doing as they pleased.

Table S1

The Initial Item Pool (Study 1a)

Label	Item
authority16	Authorities should care for those beneath them at all costs.
authority17	I believe it is important for us to honor our ancestors.
authority18	I think obedience to parents is an important virtue.
authority19	It angers me when authorities fail to resolve disputes.
authority20	We all need to learn from our elders.
purity1	It bothers me when people do something disgusting, even if no one is harmed.
purity2	I believe chastity is an important virtue.
purity3	I think the human body should be treated like a temple, housing something sacred within.
purity4	I look down on people who don't treat their body with the respect it deserves.
purity5	It bothers me when people think nothing is sacred in this world.
purity6	I admire people who keep their virginity until marriage.
purity7	I would call some acts wrong on the grounds that they are unnatural.
purity8	I think that keeping one's impulses in check is an important virtue.
purity9	People should try to use natural medicines rather than chemically identical human-made ones.
purity10	I believe that drinking alcohol pollutes your soul.

Table S1

The Initial Item Pool (Study 1a)

Label	Item
purity11	Promiscuity is one of the worst qualities a human can have.
purity12	Nature is sacred and should not be desecrated.
purity13	If I found out that an acquaintance had an unusual but harmless sexual fetish I would feel uneasy...
purity14	Consuming foods with many artificial ingredients dirties the body even if they are not physically...
purity15	If somebody touched a corpse at a funeral, out of curiosity rather than love, I would say that is...
purity16	I believe there is nothing sacred about human body.
purity17	It upsets me when people use foul language like it is nothing.
purity18	I think having sex with many people is disgusting.
purity19	I think that sexual promiscuity (“sleeping around”) is disgusting.

Next, for each foundation, we examined descriptive statistics in the U.S. and India. We also examined the correlation between each item and the corresponding foundation in MFQ-1, because we aimed to examine the magnitude of the correlation between new items and the relevant foundation, quantified via the MFQ-1. We also quantified cross-cultural differences using a Welch-corrected t-test, and a measure of effect size (i.e., Cohen’s *d*). Table S2 shows these descriptive statistics, correlations, and group differences for Care.

Table S3 shows the descriptive statistics, correlations with MFQ-1 scores, and cross-cultural differences for items that were not categorized as either Proportionality or

Table S2

Study 1a: Care-MFQ

	MEAN_US	SD_US	r_MFQ1_US	MEAN_INDIA	SD_INDIA	r_MFQ1_INDIA	t_test	p_value	coehn_d
care1	3.99	1.07	0.47	4.14	0.98	0.28	-2.09	0.04	-0.14
care2	4.03	1.07	0.35	4.26	0.99	0.29	-3.19	0.00	-0.22
care3	4.12	1.00	0.46	4.00	1.03	0.34	1.63	0.10	0.12
care4	4.34	0.92	0.51	4.21	0.95	0.32	2.04	0.04	0.14
care5	2.12	1.21	-0.35	2.55	1.35	-0.05	-4.74	0.00	-0.34
care6	3.87	1.06	0.43	4.10	1.00	0.35	-3.20	0.00	-0.22
care7	2.60	1.26	-0.16	2.79	1.36	-0.01	-1.98	0.05	-0.14
care8	4.31	0.94	0.52	4.14	0.98	0.34	2.63	0.01	0.19
care9	4.39	0.82	0.43	4.32	0.85	0.27	1.14	0.25	0.08
care10	4.18	0.89	0.44	4.23	0.92	0.36	-0.80	0.42	-0.06
care11	4.08	1.09	0.52	3.87	1.12	0.41	2.66	0.01	0.19
care12	4.21	0.93	0.52	4.22	0.94	0.38	-0.15	0.88	-0.01
care13	4.03	1.05	0.45	4.17	0.97	0.38	-1.92	0.06	-0.13
care14	3.96	1.02	0.44	4.07	0.97	0.31	-1.51	0.13	-0.10
care15	4.28	0.95	0.48	4.17	1.02	0.31	1.62	0.11	0.12
MFQ1_CARE_AVG	3.70	0.79	1.00	3.56	0.77	1.00	2.62	0.01	0.18

Equality in Study 1. These are labeled as “Fairness” items in the initial item pool in Study 1a.

Table S4 shows the descriptive statistics, correlations with MFQ-1 scores, and cross-cultural differences for Equality items in the initial item pool in Study 1a.

Table S8 shows the descriptive statistics, correlations with MFQ-1 scores, and cross-cultural differences for Proportionality items in the initial item pool in Study 1a.

Table S6 shows the descriptive statistics, correlations with MFQ-1 scores, and cross-cultural differences for Loyalty items in the initial item pool in Study 1a.

Table S7 shows the descriptive statistics, correlations with MFQ-1 scores, and cross-cultural differences for Authority items in the initial item pool in Study 1a.

Table S8 shows the descriptive statistics, correlations with MFQ-1 scores, and cross-cultural differences for Purity items in the initial item pool in Study 1a.

Table S3

Study 1a: Fairness-MFQ

	MEAN_US	SD_US	r_MFQ1_US	MEAN_INDIA	SD_INDIA	r_MFQ1_INDIA	t_test	p_value	coehn_d
fairness1	3.62	1.22	0.02	4.18	1.04	0.25	-7.22	0.00	-0.49
fairness2	4.19	0.91	0.37	4.29	0.93	0.27	-1.58	0.11	-0.11
fairness3	3.69	1.12	0.02	4.03	1.02	0.13	-4.60	0.00	-0.32
fairness4	3.82	1.16	0.09	3.83	1.15	0.19	-0.11	0.92	-0.01
fairness5	3.99	1.01	0.17	3.91	1.06	0.30	1.16	0.25	0.08
fairness6	2.58	1.42	0.33	3.25	1.25	0.08	-7.32	0.00	-0.50
fairness7	2.40	1.33	0.33	3.27	1.23	0.07	-9.74	0.00	-0.67
fairness8	3.73	1.11	-0.01	3.96	1.13	0.14	-2.94	0.00	-0.21
fairness9	3.35	1.20	-0.08	3.84	1.11	0.17	-6.10	0.00	-0.42
fairness10	2.56	1.26	0.12	3.30	1.29	0.04	-8.31	0.00	-0.58
fairness11	2.11	1.22	0.12	3.02	1.39	-0.11	-9.91	0.00	-0.71
MFQ1_FAIRNESS_AVG	3.59	0.76	1.00	3.56	0.74	1.00	0.73	0.47	0.05

Study 1b

In Study 1b, we administered all 90 items. After removing participants who failed any of our four attention checks, 971 participants remained for statistical analyses (India: $n = 380$; U.S.: $n = 491$; Iran: $n = 100$). We examined the descriptive statistics in these remaining items in all three cultures to make sure that best-performing items are chosen in terms of not showing ceiling or floor effects. Tables S9, S10, S11, S12, S13, S14 show this information for each foundation.

At this stage, based on the descriptive statistics, phrasing of each item, avoiding redundancy, and agreement among co-authors in the author team, we discarded a number of items. For Care, two items (care6, care10) were dropped. For Equality, items “equality12”, “equality14”, “equality13”, and “equality9” were dropped. For Proportionality, five items were dropped (proportionality7, proportionality8, proportionality18, proportionality11, proportionality13). For Loyalty, two items were dropped (loyalty11, loyalty19). For authority, two items were dropped (authority9, authority15). Finally, for Purity, two items were dropped at this stage (purity8, purity11). Then we proceeded to a factor analysis using the same specifications as in Study 1a.

Table S4

Study 1a: Equality-MFQ

	MEAN_US	SD_US	r_MFQ1_US	MEAN_INDIA	SD_INDIA	r_MFQ1_INDIA	t_test	p_value	coehn_d
equality1	3.16	1.33	0.39	3.82	1.13	0.15	-7.78	0.00	-0.53
equality2	3.16	1.39	0.37	3.74	1.17	0.14	-6.55	0.00	-0.45
equality3	3.38	1.28	0.23	3.91	1.10	0.21	-6.50	0.00	-0.45
equality4	2.43	1.37	0.34	3.40	1.33	0.14	-10.25	0.00	-0.72
equality5	4.11	0.99	0.30	4.37	0.87	0.20	-4.09	0.00	-0.28
equality6	2.78	1.42	0.36	2.99	1.40	0.12	-2.07	0.04	-0.15
equality7	3.58	1.27	0.26	3.78	1.17	0.17	-2.36	0.02	-0.16
equality8	3.19	1.36	0.47	3.62	1.23	0.17	-4.78	0.00	-0.33
equality9	4.14	1.06	0.35	4.29	1.00	0.24	-2.20	0.03	-0.15
equality10	2.53	1.40	0.34	3.29	1.31	0.11	-8.09	0.00	-0.56
equality11	3.67	1.22	0.41	3.89	1.03	0.34	-2.87	0.00	-0.20
equality12	3.90	1.36	0.46	4.19	1.01	0.25	-3.49	0.00	-0.23
equality13	3.12	1.32	0.23	3.79	1.22	0.13	-7.62	0.00	-0.53
equality14	4.30	0.96	0.42	4.26	0.96	0.23	0.58	0.56	0.04
MFQ1_FAIRNESS_AVG	3.59	0.76	1.00	3.56	0.74	1.00	0.73	0.47	0.05

We then proceeded to conduct EFAs for each foundation in each country. The number of factors was fixed to 1 for each EFA (for each foundation). Figures S1, S2, S3, S4, S5, S6 visualize the results of these EFA for Care, Equality, Proportionality, Loyalty, Authority, and Purity, respectively. In these plots, the thick black dashed line represents a loading of zero, the inner gray dashed line represents a loading of -0.4 , the outer gray dashed line represents a loading of $+0.4$, and the blue dashed line represents a loading of 1.00.

Table S15 shows the results of an EFA on 73 items in Study 1b. We first conducted a number of parallel analyses with different specifications to identify the number of underlying factors. Parallel analyses suggested between 5 and 7 factors depending on specifications (see Figure S7). We specified a 6-dimensional solution in our EFA. h^2 represents the amount of variance in the item explained by the retained factors. It is the sum of the squared loadings, also referred to as “communality.” U represents uniqueness. And, “Comp” indicates how much each item belongs to a single construct. Based on item complexity, substantial cross-loadings, and h^2 , we decided to drop two items at this stage:

Table S5

Study 1a: Proportionality-MFQ

	MEAN_US	SD_US	r_MFQ1_US	MEAN_INDIA	SD_INDIA	r_MFQ1_INDIA	t_test	p_value	coehn_d
proportionality1	3.35	1.22	0.24	4.06	0.97	0.24	-9.37	0.00	-0.63
proportionality2	3.66	1.23	0.43	3.99	1.03	0.20	-4.27	0.00	-0.29
proportionality3	3.87	1.11	0.37	4.07	0.95	0.26	-2.73	0.01	-0.19
proportionality4	3.65	1.17	0.39	4.00	0.98	0.28	-4.69	0.00	-0.32
proportionality5	3.78	1.11	0.00	4.08	1.04	0.12	-4.04	0.00	-0.28
proportionality6	3.89	1.22	0.45	3.97	1.10	0.32	-0.90	0.37	-0.06
proportionality7	3.01	1.30	0.04	3.48	1.28	0.01	-5.13	0.00	-0.36
proportionality8	2.87	1.50	-0.27	3.35	1.22	0.12	-5.14	0.00	-0.35
proportionality9	4.35	0.85	0.18	4.26	0.95	0.24	1.49	0.14	0.11
proportionality10	4.42	0.83	0.26	4.40	0.89	0.24	0.20	0.84	0.01
proportionality11	3.23	1.23	0.06	3.58	1.24	0.15	-4.06	0.00	-0.29
proportionality12	3.37	1.21	-0.08	3.81	1.09	0.13	-5.50	0.00	-0.38
proportionality13	3.03	1.33	0.04	3.73	1.19	0.08	-7.95	0.00	-0.55
proportionality14	3.59	1.19	-0.12	3.80	1.15	0.09	-2.64	0.01	-0.18
proportionality15	4.15	0.98	0.04	4.41	0.81	0.27	-4.20	0.00	-0.28
proportionality16	3.56	1.17	0.07	3.99	0.98	0.22	-5.81	0.00	-0.39
proportionality17	3.99	1.01	0.18	3.94	1.02	0.23	0.68	0.50	0.05
proportionality18	2.54	1.35	-0.24	3.12	1.33	0.06	-6.22	0.00	-0.44
MFQ1_FAIRNESS_AVG	3.59	0.76	1.00	3.56	0.74	1.00	0.73	0.47	0.05

authority10, loyalty1.

Table S15

Study 1b: EFA on 73 items

no	item	MR2	MR1	MR4	MR5	MR3	MR6	h ²	U	Comp
1	care3	0.73	0	-0.02	-0.03	0.02	-0.06	0.53	0.45	1.04
2	care11	0.73	-0.13	0.02	0.09	-0.06	-0.02	0.52	0.54	1.05
3	care12	0.7	0.02	0.02	0	0.06	0.07	0.55	0.50	1.17
4	care4	0.68	0.02	-0.03	0.05	-0.04	-0.06	0.44	0.56	1.04
5	care13	0.67	0.02	-0.04	0.04	0.11	0.05	0.51	0.52	1.15
6	care8	0.67	-0.05	0.07	0.04	-0.05	-0.04	0.46	0.49	1.08
7	care1	0.66	0.11	-0.05	0	0.14	-0.04	0.50	0.47	1.02
8	care14	0.63	0	0.02	-0.03	0.09	0.14	0.48	0.57	1.20

9	care15	0.61	0.08	0.13	-0.09	-0.05	0.05	0.43	0.71	1.11
10	care2	0.48	0.08	0.01	0.03	0.06	0.04	0.29	0.48	1.11
11	equality11	0.46	-0.05	0.02	0.08	0.26	-0.09	0.36	0.61	1.34
12	loyalty8	0	0.93	-0.02	0.04	0.02	-0.1	0.80	0.69	1.41
13	loyalty16	0.03	0.84	0.02	0.05	-0.06	-0.02	0.74	0.52	3.68
14	loyalty9	-0.03	0.82	0.02	0	0.05	0.03	0.73	0.55	2.14
15	loyalty5	0.01	0.78	0.02	0.04	-0.05	0.16	0.81	0.56	1.39
16	loyalty12	-0.05	0.73	0.04	-0.02	0.05	0.18	0.74	0.58	3.07
17	loyalty13	0.03	0.68	0.08	0.09	-0.09	0.05	0.66	0.63	2.83
18	loyalty14	0.08	0.55	0.14	-0.01	0	0.17	0.56	0.61	4.25
19	proportionality5	-0.07	-0.03	0.8	0	0.02	0.03	0.60	0.55	1.78
20	fairness9	-0.13	0.02	0.68	0.1	0.01	-0.06	0.48	0.26	1.15
21	proportionality12	-0.03	0.01	0.65	0.18	0.04	-0.05	0.52	0.67	1.21
22	fairness3	-0.02	0.13	0.61	0.01	-0.06	-0.01	0.47	0.20	1.03
23	proportionality15	0.23	-0.03	0.6	-0.1	-0.02	0.12	0.49	0.68	1.53
24	fairness8	-0.04	0.11	0.6	0.06	-0.04	-0.08	0.43	0.19	1.10
25	proportionality17	0.19	-0.07	0.57	-0.05	-0.07	0.06	0.39	0.41	1.10
26	proportionality10	0.29	-0.1	0.54	-0.07	0.03	0.12	0.45	0.70	1.37
27	proportionality14	-0.14	0.11	0.53	-0.04	-0.01	0.01	0.31	0.63	1.93
28	fairness4	0.02	0.09	0.51	0.06	-0.09	-0.16	0.30	0.26	1.02
29	proportionality16	-0.04	0.06	0.5	0.04	0.14	0.03	0.33	0.47	1.10
30	proportionality9	0.3	-0.03	0.47	-0.1	-0.07	0.07	0.37	0.69	1.24
31	fairness1	0.03	0.2	0.4	0.05	0.03	0.01	0.32	0.64	1.80
32	purity19	0.07	-0.06	0.1	0.75	-0.09	-0.03	0.53	0.72	3.84
33	purity2	0.03	0.03	0.04	0.66	0	0.14	0.59	0.47	1.80
34	purity13	-0.07	0.06	0.04	0.66	0.09	-0.09	0.50	0.54	3.30
35	purity17	0.14	0.21	-0.04	0.63	-0.05	-0.08	0.54	0.63	4.44

36	purity6	-0.01	-0.02	-0.06	0.59	0.07	0.28	0.54	0.37	2.33
37	purity10	-0.04	0.1	-0.08	0.52	0.2	0.08	0.47	0.51	2.90
38	purity7	-0.05	0.02	0.04	0.5	0.04	0.21	0.44	0.51	2.81
39	purity4	-0.1	0.17	0.18	0.49	0.2	-0.18	0.49	0.45	2.00
40	purity1	0.16	0.07	0.05	0.43	-0.03	0.07	0.31	0.46	2.21
41	purity3	0.17	0.02	0.03	0.42	0.08	0.26	0.45	0.42	1.94
42	purity5	0.17	0.06	-0.04	0.31	-0.07	0.28	0.30	0.40	2.29
43	loyalty10	-0.08	0.11	0.08	0.3	0.14	0.28	0.42	0.70	2.77
44	loyalty15	0	0.2	0.1	0.3	0.18	0.05	0.37	0.72	2.80
45	loyalty1	-0.12	0.19	0.17	0.27	0.17	0.11	0.39	0.50	1.13
46	purity14	-0.01	0.18	0.06	0.26	0.19	0.03	0.28	0.71	3.48
47	authority1	-0.03	0.25	0.22	0.26	0.09	0.12	0.48	0.32	1.02
48	equality4	-0.07	0.01	0.02	0.03	0.83	0.01	0.68	0.48	1.17
49	fairness6	0.01	-0.1	-0.04	0.05	0.79	0.05	0.65	0.27	1.01
50	equality10	-0.01	-0.06	0.02	0.02	0.78	0	0.60	0.57	1.15
51	equality2	0.17	-0.04	-0.01	-0.07	0.6	0.14	0.45	0.40	1.02
52	equality6	0.1	0.08	0.02	0	0.56	-0.34	0.41	0.53	1.11
53	equality8	0.31	0.01	0.02	0.03	0.55	-0.23	0.51	0.51	1.44
54	fairness10	0.03	0.08	-0.16	-0.02	0.48	0.26	0.36	0.34	1.12
55	equality1	0.25	0.19	0	-0.07	0.48	-0.09	0.37	0.44	1.38
56	equality3	0.22	0.07	0	-0.06	0.39	0.16	0.30	0.52	1.13
57	authority14	-0.02	0.22	0.02	0.04	0	0.6	0.61	0.39	1.27
58	authority20	0.11	0.06	0.07	0.03	0	0.6	0.49	0.36	1.89
59	authority18	0.01	0.16	0.07	0.21	-0.01	0.58	0.70	0.30	1.44
60	authority11	-0.02	0.31	0.06	0.11	0.05	0.48	0.64	0.69	2.07
61	authority5	-0.18	0.19	0	0.16	0.15	0.46	0.54	0.55	1.30
62	authority17	0.11	0.25	0.09	0.05	0.02	0.46	0.53	0.51	1.13

63	authority6	-0.01	0.25	0.05	0.18	0.01	0.45	0.58	0.59	1.79
64	authority3	0.08	0.18	0.08	0.21	-0.06	0.45	0.55	0.35	1.05
65	loyalty4	0.08	0.2	0.15	0.18	0.06	0.42	0.60	0.53	1.49
66	loyalty3	0.03	0.26	0.12	0.17	0.03	0.42	0.63	0.46	1.47
67	loyalty6	0.13	0.16	0.21	0.12	0.06	0.35	0.49	0.51	2.33
68	purity9	-0.03	0.12	0.03	0.13	0.27	0.34	0.39	0.61	2.57
69	authority4	-0.05	0.28	0.03	0.13	0.17	0.34	0.49	0.40	1.02
70	authority8	0.13	0.27	0.25	-0.06	0.02	0.33	0.46	0.64	1.90
71	authority7	-0.03	0.13	0.18	0.17	0	0.23	0.29	0.49	2.00
72	authority10	0.22	0.21	0.15	0.12	-0.07	0.23	0.37	0.63	2.00
73	loyalty2	0.03	0.13	0.08	0.15	0.19	0.21	0.28	0.46	1.40

Study 1c

We first conducted one-dimensional factor analyses in each country and examined items that fared poorly in one or more countries. Since we aimed for the final questionnaire to have 6 items per foundation, in this study we selected between 7 to 9 items per foundation for the final cross-cultural data collection effort in Study 2. Foundation-level factor analyses for Care, Equality, Proportionality, Loyalty, Authority, and Purity are visually presented in Figures S8, S9, S10, S11, S12, and S13, respectively. All specifications were similar to Study 1b.

To visually present the psychometric network of these items we used graphical lasso (GLASSO) (Friedman, Hastie, & Tibshirani, 2008) and Triangulated Maximally Filtered Graph (TMFG) (Massara, Di Matteo, & Aste, 2017). The networks are shown in Figures S14 and S15. As can be seen, overall, the network is clean and sub-networks are meaningful; however, in this exploratory graph analysis (EGA), Loyalty and Authority

Table S6

Study 1a: Loyalty-MFQ

	MEAN_US	SD_US	r_MFQ1_US	MEAN_INDIA	SD_INDIA	r_MFQ1_INDIA	t_test	p_value	coehn_d
loyalty1	2.74	1.24	0.51	3.85	1.11	0.36	-13.51	0.00	-0.93
loyalty2	2.70	1.25	0.39	3.29	1.30	0.22	-6.64	0.00	-0.47
loyalty3	3.08	1.36	0.61	4.24	0.95	0.41	-14.51	0.00	-0.96
loyalty4	3.25	1.31	0.62	4.30	0.91	0.41	-13.70	0.00	-0.90
loyalty5	2.76	1.46	0.66	4.23	1.08	0.37	-16.84	0.00	-1.12
loyalty6	3.37	1.28	0.57	4.27	0.91	0.35	-11.93	0.00	-0.79
loyalty7	2.45	1.12	0.19	2.91	1.32	0.10	-5.28	0.00	-0.38
loyalty8	2.48	1.46	0.64	4.19	1.10	0.33	-19.34	0.00	-1.29
loyalty9	2.49	1.44	0.63	4.11	1.14	0.38	-18.10	0.00	-1.22
loyalty10	2.34	1.29	0.51	3.31	1.29	0.25	-10.66	0.00	-0.75
loyalty11	3.03	1.31	0.30	3.84	1.24	0.27	-9.10	0.00	-0.63
loyalty12	2.87	1.49	0.63	4.30	1.05	0.34	-16.31	0.00	-1.08
loyalty13	2.65	1.50	0.60	4.10	1.07	0.41	-16.28	0.00	-1.08
loyalty14	3.28	1.38	0.52	4.30	1.03	0.34	-12.29	0.00	-0.82
loyalty15	2.41	1.30	0.43	3.64	1.09	0.34	-14.80	0.00	-1.01
loyalty16	2.57	1.45	0.64	3.93	1.20	0.39	-14.78	0.00	-1.00
loyalty17	2.62	1.49	-0.16	3.77	1.26	0.15	-12.08	0.00	-0.82
loyalty18	2.59	1.36	-0.14	3.24	1.30	-0.01	-6.97	0.00	-0.48
loyalty19	2.08	1.29	0.42	3.25	1.31	0.27	-12.75	0.00	-0.90
MFQ1_LOYALTY_AVG	2.38	1.05	1.00	3.43	0.75	1.00	-16.97	0.00	-1.12

items form a single sub-network instead of two. EGA estimates the number of dimensions (using GLASSO or TMFG).

The GLASSO technique estimates a model called Gaussian Graphical Model (GGM), which represents the partial correlation between two nodes in a network while considering all other nodes. The GLASSO method penalizes and reduces the coefficients, resulting in more concise and meaningful results, and also helps to minimize the possibility of spurious relationships (see Christensen & Golino, 2021). The TMFG method, on the other hand, is a technique that involves a structural constraint to limit the number of zero-order correlations between items in a network. This method starts by identifying four variables that have the largest total correlations to all other variables. It then adds variables to nodes already present in the network in an iterative process, with the addition of each variable based on the largest sum of three correlations. This process continues until

Table S7

Study 1a: Authority-MFQ

	MEAN_US	SD_US	r_MFQ1_US	MEAN_INDIA	SD_INDIA	r_MFQ1_INDIA	t_test	p_value	coehn_d
authority1	2.87	1.29	0.52	3.93	1.09	0.31	-12.76	0.00	-0.87
authority2	1.97	1.19	-0.41	2.53	1.41	-0.01	-6.06	0.00	-0.44
authority3	3.19	1.45	0.61	4.20	1.10	0.31	-11.51	0.00	-0.77
authority4	2.66	1.22	0.57	3.78	1.12	0.43	-13.77	0.00	-0.95
authority5	2.36	1.21	0.59	3.54	1.20	0.32	-13.98	0.00	-0.98
authority6	2.83	1.25	0.62	3.82	1.07	0.27	-12.30	0.00	-0.84
authority7	2.95	1.19	0.46	3.38	1.20	0.36	-5.03	0.00	-0.35
authority8	3.80	1.10	0.40	4.36	0.92	0.24	-8.01	0.00	-0.55
authority9	2.58	1.32	0.54	3.42	1.24	0.29	-9.44	0.00	-0.66
authority10	3.70	1.22	0.46	4.10	1.10	0.27	-4.92	0.00	-0.34
authority11	2.99	1.29	0.65	4.01	1.02	0.38	-12.70	0.00	-0.86
authority12	3.48	1.29	-0.50	3.42	1.20	0.03	0.72	0.47	0.05
authority13	2.25	1.36	-0.40	2.03	1.40	-0.06	2.29	0.02	0.16
authority14	3.07	1.37	0.72	3.98	1.03	0.33	-10.97	0.00	-0.73
authority15	3.57	1.35	0.57	3.75	1.15	0.24	-2.12	0.03	-0.14
authority16	3.89	1.10	-0.19	4.03	0.99	0.26	-1.85	0.06	-0.13
authority17	3.27	1.23	0.50	4.13	1.02	0.35	-10.95	0.00	-0.74
authority18	3.23	1.36	0.69	4.29	0.98	0.35	-13.12	0.00	-0.87
authority19	3.58	1.11	-0.01	4.01	1.01	0.22	-5.80	0.00	-0.40
authority20	3.57	1.17	0.51	4.12	1.00	0.34	-7.18	0.00	-0.49
MFQ1_AUTHORITY_AVG	2.67	1.04	1.00	3.42	0.76	1.00	-12.16	0.00	-0.81

all variables have been added to the network. The end result is a network comprising of 3- and 4-node cliques, which are sets of connected nodes forming the constituent elements of an emergent hierarchy in the network. The TMFG algorithm essentially creates a network of interconnected cliques that can reveal underlying hierarchical structures within the data (Christensen & Golino, 2021; Song, Di Matteo, & Aste, 2012).

Using subscales from these 49 items, we proceeded to examine cultural differences. These differences in Care, Equality, Proportionality, Loyalty, Authority, and Purity are visually presented in Figures S16, S17, S18,S19,S20,S21, respectively.

We then examined the relationship between MFQ-2 subscales and MFQ-1 subscales as well as relationships with political conservatism across cultures. The correlation plots are presented in Figures S22 (for the US), S23 (for Ecuador), and S24 (for China).

Table S8

Study 1a: Purity-MFQ

	MEAN_US	SD_US	r_MFQ1_US	MEAN_INDIA	SD_INDIA	r_MFQ1_INDIA	t_test	p_value	coehn_d
purity1	3.02	1.26	0.54	3.73	1.14	0.32	-8.45	0.00	-0.58
purity2	2.30	1.43	0.67	3.71	1.20	0.46	-15.37	0.00	-1.04
purity3	2.96	1.42	0.56	3.76	1.19	0.31	-8.82	0.00	-0.60
purity4	2.25	1.25	0.32	3.47	1.23	0.30	-14.00	0.00	-0.98
purity5	3.16	1.41	0.48	3.51	1.32	0.40	-3.72	0.00	-0.26
purity6	2.41	1.53	0.63	3.78	1.40	0.31	-13.48	0.00	-0.93
purity7	2.52	1.36	0.63	3.44	1.20	0.41	-10.36	0.00	-0.71
purity8	3.75	1.10	0.31	3.95	0.98	0.34	-2.68	0.01	-0.18
purity9	2.54	1.41	0.39	3.97	1.10	0.31	-16.46	0.00	-1.11
purity10	1.78	1.28	0.44	3.37	1.52	0.40	-15.94	0.00	-1.15
purity11	1.99	1.29	0.58	3.43	1.28	0.33	-16.04	0.00	-1.12
purity12	3.81	1.19	0.07	4.04	1.15	0.33	-2.79	0.01	-0.19
purity13	2.03	1.26	0.51	3.18	1.35	0.37	-12.53	0.00	-0.89
purity14	2.36	1.33	0.38	3.48	1.33	0.32	-12.01	0.00	-0.84
purity15	2.58	1.51	0.29	2.96	1.43	0.21	-3.67	0.00	-0.25
purity16	1.81	1.21	-0.29	2.75	1.50	0.06	-9.75	0.00	-0.71
purity17	2.24	1.39	0.56	3.78	1.27	0.42	-16.68	0.00	-1.15
purity18	2.36	1.53	0.62	3.60	1.52	0.33	-11.62	0.00	-0.81
purity19	2.35	1.49	0.61	3.34	1.42	0.35	-9.74	0.00	-0.68
MFQ1_PURITY_AVG	2.23	1.32	1.00	3.27	0.85	1.00	-13.90	0.00	-0.90

Study 2**Exploratory Structural Equations Modeling**

As we mentioned in the main text, we started the analysis by first conducting an ESEM (Marsh, Morin, Parker, & Kaur, 2014) on the entirety of the data (CFI = .958, TLI = .958, RMSEA = .029, SRMR = .027) and discarded 14 items for having cross-loadings. The results of this ESEM appear below. First, we show the specifications of our model for each of the six factors (to match items' labels, see Table S1):

$$\begin{aligned}
 F1 = & 0.665 * care1 + 0.698 * care3 + 0.606 * care4 + 0.699 * care8 + 0.723 * care11 + \\
 & 0.729 * care12 + 0.724 * care13 + 0.641 * care14 + 0.013 * equalFairness6 + 0.061 * \\
 & equalFairness10 + 0.238 * equality2 + -0.034 * equality4 + 0.077 * equality6 + -0.021 * \\
 & equality10 + 0.415 * equality11 + 0.111 * propFairness1 + 0.091 * propFairness3 + 0.043 *
 \end{aligned}$$

Table S9

Study 1b: Care-Descriptive

	MEAN_US	SD_US	MEAN_INDIA	SD_INDIA	MEAN_Iran	SD_Iran
care1	3.91	1.04	3.82	1.03	4.19	0.85
care2	3.90	1.07	4.07	1.03	4.27	0.84
care3	4.12	0.92	3.80	1.01	4.17	0.79
care4	4.24	0.89	3.96	1.02	4.49	0.69
care6	3.79	1.00	3.85	0.99	3.76	1.06
care8	4.28	0.89	4.00	1.01	4.59	0.59
care10	4.07	0.86	4.07	0.94	4.12	0.88
care11	4.13	0.93	3.68	1.01	4.20	0.91
care12	4.11	0.93	4.03	0.95	4.04	0.95
care13	3.99	1.00	4.05	0.92	4.03	0.97
care14	3.92	0.98	3.82	0.95	3.76	1.16
care15	4.26	0.91	4.06	1.00	4.30	0.88

$$\begin{aligned}
&propFairness8 + -0.058 * propFairness9 + 0.025 * proportionality5 + 0.368 * \\
&proportionality9 + -0.034 * proportionality12 + 0.183 * proportionality17 + 0.038 * \\
&loyalty3 + -0.015 * loyalty5 + 0.21 * loyalty6 + 0.043 * loyalty8 + 0.141 * loyalty12 + \\
&-0.029 * loyalty13 + 0.219 * loyalty14 + 0.02 * loyalty16 + 0.034 * loyalty_{new}1 + 0.071 * \\
&authority1 + -0.038 * authority4 + -0.035 * authority6 + 0.12 * authority8 + -0.027 * \\
&authority11 + -0.023 * authority14 + 0.031 * authority17 + 0.023 * authority18 + 0.096 * \\
&authority20 + 0.056 * purity2 + 0.17 * purity3 + 0.272 * purity4 + 0.016 * purity6 + \\
&-0.029 * purity7 + 0.053 * purity9 + -0.058 * purity13 + 0.137 * purity14 + 0.121 * purity17 \\
\\
&F2 = 0.098 * care1 + -0.008 * care3 + 0.019 * care4 + 0.002 * care8 + -0.006 * \\
&care11 + 0.011 * care12 + -0.004 * care13 + 0.046 * care14 + -0.012 * equalFairness6 + \\
&0.101 * equalFairness10 + -0.012 * equality2 + -0.028 * equality4 + 0.041 * equality6 +
\end{aligned}$$

Table S10

Study 1b: Equality-Descriptive

	MEAN_US	SD_US	MEAN_INDIA	SD_INDIA	MEAN_Iran	SD_Iran
equality1	3.09	1.30	3.75	1.06	3.46	1.14
equality2	3.23	1.28	3.69	1.11	2.92	1.33
equality3	3.34	1.19	3.83	1.13	3.36	1.36
equality4	2.43	1.29	3.45	1.27	2.83	1.46
equality6	2.63	1.35	3.03	1.21	3.17	1.37
equality8	3.23	1.30	3.51	1.10	3.81	1.10
equality9	4.06	1.06	4.08	1.08	4.18	1.10
equality10	2.54	1.31	3.23	1.19	2.92	1.34
equality11	3.58	1.21	3.67	1.01	3.76	1.22
equality12	3.84	1.37	4.12	0.96	4.40	1.01
equality13	3.08	1.27	3.63	1.10	3.59	1.20
equality14	4.19	0.99	4.11	0.99	4.02	1.02
fairness6	2.50	1.28	3.20	1.13	2.68	1.39
fairness10	2.63	1.12	3.33	1.16	2.24	1.20

$-0.036 * equality10 + 0.077 * equality11 + 0.19 * propFairness1 + 0.009 * propFairness3 +$
 $0.014 * propFairness8 + 0.023 * propFairness9 + -0.003 * proportionality5 + -0.008 *$
 $proportionality9 + 0.063 * proportionality12 + -0.036 * proportionality17 + 0.253 *$
 $loyalty3 + 0.773 * loyalty5 + 0.136 * loyalty6 + 0.806 * loyalty8 + 0.406 * loyalty12 + 0.718 *$
 $loyalty13 + 0.336 * loyalty14 + 0.843 * loyalty16 + 0.173 * loyalty_{new}1 + 0.144 *$
 $authority1 + 0.287 * authority4 + 0.299 * authority6 + 0.165 * authority8 + 0.3 *$
 $authority11 + 0.249 * authority14 + 0.373 * authority17 + 0.167 * authority18 + 0.192 *$
 $authority20 + 0.006 * purity2 + -0.019 * purity3 + -0.065 * purity4 + 0 * purity6 + 0.116 *$
 $purity7 + 0.036 * purity9 + 0.091 * purity13 + 0.045 * purity14 + 0.285 * purity17$

$F3 = 0.055 * care1 + 0.058 * care3 + -0.007 * care4 + -0.027 * care8 + 0.008 *$

Table S11

Study 1b: Proportionality-Descriptive

	MEAN_US	SD_US	MEAN_INDIA	SD_INDIA	MEAN_Iran	SD_Iran
proportionality5	3.61	1.10	3.87	1.02	4.25	0.85
proportionality7	2.90	1.26	3.29	1.19	3.81	1.29
proportionality8	2.71	1.35	3.29	1.10	3.64	1.23
proportionality9	4.17	0.88	4.06	0.97	4.58	0.62
proportionality10	4.31	0.79	4.20	0.99	4.65	0.59
proportionality11	3.09	1.24	3.53	1.13	4.04	1.08
proportionality12	3.35	1.08	3.81	0.99	4.38	0.75
proportionality13	3.02	1.22	3.77	1.11	2.95	1.41
proportionality14	3.43	1.16	3.67	1.12	3.57	1.22
proportionality15	4.16	0.90	4.21	0.90	4.65	0.59
proportionality16	3.38	1.11	3.83	1.00	3.92	1.12
proportionality17	3.90	0.96	3.77	0.97	4.29	0.82
proportionality18	2.29	1.23	3.13	1.19	3.79	1.22
fairness1	3.59	1.16	4.03	1.08	3.88	1.16
fairness3	3.54	1.06	3.87	0.98	4.28	0.94
fairness4	3.58	1.19	3.59	1.16	4.09	1.04
fairness8	3.50	1.13	3.93	0.94	4.16	0.88
fairness9	3.27	1.14	3.70	1.04	3.86	1.09

$care11 + 0.004 * care12 + 0.049 * care13 + 0.067 * care14 + 0.816 * equalFairness6 + 0.381 * equalFairness10 + 0.538 * equality2 + 0.881 * equality4 + 0.528 * equality6 + 0.861 * equality10 + 0.283 * equality11 + 0.012 * propFairness1 + -0.038 * propFairness3 + -0.048 * propFairness8 + 0.019 * propFairness9 + 0.021 * proportionality5 + -0.082 * proportionality9 + 0.044 * proportionality12 + 0.057 * proportionality17 + -0.01 * loyalty3 + -0.007 * loyalty5 + 0.025 * loyalty6 + -0.014 * loyalty8 + 0.053 * loyalty12 + -0.017 * loyalty13 + -0.039 * loyalty14 + 0.001 * loyalty16 + 0.157 * loyalty_{new1} + 0.081 *$

Table S12

Study 1b: loyalty-Descriptive

	MEAN_US	SD_US	MEAN_INDIA	SD_INDIA	MEAN_Iran	SD_Iran
loyalty1	2.62	1.16	3.69	1.08	3.56	1.20
loyalty2	2.60	1.13	3.44	1.21	3.19	1.20
loyalty3	3.09	1.20	4.13	0.96	3.73	1.30
loyalty4	3.21	1.22	4.11	0.96	3.86	1.15
loyalty5	2.79	1.38	4.18	1.00	3.38	1.41
loyalty6	3.33	1.19	4.04	1.00	3.94	1.10
loyalty8	2.48	1.42	4.12	1.09	3.39	1.26
loyalty9	2.47	1.38	3.94	1.15	2.69	1.26
loyalty10	2.32	1.17	3.37	1.21	3.22	1.27
loyalty11	2.88	1.19	3.86	1.09	3.73	1.14
loyalty12	2.85	1.35	4.30	1.01	3.04	1.46
loyalty13	2.74	1.37	3.97	1.07	3.42	1.34
loyalty14	3.13	1.28	4.14	1.06	3.46	1.37
loyalty15	2.47	1.16	3.41	1.04	3.38	1.28
loyalty16	2.65	1.40	3.89	1.17	3.19	1.34
loyalty19	1.97	1.16	3.28	1.13	2.96	1.26

$authority1 + 0.09 * authority4 + 0.068 * authority6 + -0.102 * authority8 + 0.042 * authority11 + -0.009 * authority14 + 0.095 * authority17 + -0.006 * authority18 + 0.067 * authority20 + -0.028 * purity2 + 0.047 * purity3 + -0.025 * purity4 + 0.006 * purity6 + 0.155 * purity7 + 0.236 * purity9 + 0.099 * purity13 + 0.107 * purity14 + -0.02 * purity17$
 $F4 = -0.046 * care1 + 0.034 * care3 + 0.011 * care4 + 0.031 * care8 + 0.012 * care11 + 0.035 * care12 + -0.008 * care13 + -0.006 * care14 + 0.015 * equalFairness6 + -0.172 * equalFairness10 + 0.003 * equality2 + 0.003 * equality4 + 0.135 * equality6 + -0.018 * equality10 + -0.001 * equality11 + 0.281 * propFairness1 + 0.534 * propFairness3 +$

Table S13

Study 1b: authority-Descriptive

	MEAN_US	SD_US	MEAN_INDIA	SD_INDIA	MEAN_Iran	SD_Iran
authority1	2.78	1.22	3.86	1.06	3.96	1.05
authority3	3.22	1.31	4.09	1.12	3.48	1.35
authority4	2.53	1.11	3.64	1.05	2.21	1.17
authority5	2.33	1.16	3.47	1.18	1.66	0.84
authority6	2.82	1.19	3.76	1.02	2.70	1.15
authority7	2.89	1.15	3.29	1.13	3.30	1.21
authority8	3.71	1.12	4.21	0.99	3.78	1.25
authority9	2.55	1.26	3.33	1.15	3.91	1.03
authority10	3.61	1.18	3.95	1.08	3.74	1.15
authority11	2.92	1.27	3.92	1.03	2.60	1.22
authority14	3.13	1.27	3.87	1.08	2.13	1.10
authority15	3.50	1.33	3.62	1.09	3.84	1.15
authority17	3.30	1.20	3.98	1.05	3.30	1.34
authority18	3.26	1.29	4.19	0.94	3.07	1.30
authority20	3.56	1.16	4.03	1.00	2.94	1.25

$$\begin{aligned}
& 0.581 * propFairness8 + 0.753 * propFairness9 + 0.727 * proportionality5 + 0.238 * \\
& proportionality9 + 0.723 * proportionality12 + 0.492 * proportionality17 + 0.044 * \\
& loyalty3 + -0.01 * loyalty5 + 0.1 * loyalty6 + -0.004 * loyalty8 + -0.002 * loyalty12 + \\
& 0.065 * loyalty13 + 0.055 * loyalty14 + -0.028 * loyalty16 + 0.03 * loyalty_{new}1 + 0.166 * \\
& authority1 + 0.055 * authority4 + 0.07 * authority6 + 0.134 * authority8 + 0.055 * \\
& authority11 + -0.044 * authority14 + 0.069 * authority17 + 0.01 * authority18 + -0.017 * \\
& authority20 + 0.027 * purity2 + -0.027 * purity3 + 0.053 * purity4 + -0.015 * purity6 + \\
& 0.09 * purity7 + 0.004 * purity9 + 0.048 * purity13 + 0.027 * purity14 + -0.033 * purity17 \\
& F5 = 0.021 * care1 + -0.006 * care3 + 0.096 * care4 + 0.047 * care8 + -0.04 *
\end{aligned}$$

Table S14

Study 1b: Purity-Descriptive

	MEAN_US	SD_US	MEAN_INDIA	SD_INDIA	MEAN_Iran	SD_Iran
purity1	3.01	1.23	3.56	1.12	3.25	1.31
purity2	2.31	1.38	3.65	1.16	3.60	1.34
purity3	2.92	1.25	3.71	1.11	3.19	1.38
purity4	2.04	1.11	3.34	1.17	3.44	1.26
purity5	3.17	1.32	3.33	1.17	2.66	1.52
purity6	2.44	1.51	3.77	1.31	2.55	1.55
purity7	2.45	1.25	3.28	1.13	2.79	1.35
purity8	3.59	1.02	3.56	0.97	3.59	1.27
purity9	2.46	1.31	3.76	1.17	2.02	1.14
purity10	1.71	1.18	3.39	1.41	2.34	1.54
purity11	1.96	1.20	3.32	1.14	3.43	1.34
purity13	1.90	1.16	3.09	1.19	3.05	1.42
purity14	2.38	1.29	3.44	1.23	2.82	1.39
purity17	2.20	1.38	3.58	1.14	3.70	1.36
purity19	2.26	1.36	3.19	1.33	3.68	1.41

$care11 + -0.016 * care12 + -0.002 * care13 + 0.053 * care14 + -0.035 * equalFairness6 +$
 $0.245 * equalFairness10 + 0.064 * equality2 + 0.005 * equality4 + -0.288 * equality6 +$
 $0.039 * equality10 + -0.117 * equality11 + 0.033 * propFairness1 + 0.092 * propFairness3 +$
 $0.002 * propFairness8 + -0.078 * propFairness9 + 0.027 * proportionality5 + 0.347 *$
 $proportionality9 + 0 * proportionality12 + 0.116 * proportionality17 + 0.419 * loyalty3 +$
 $0.122 * loyalty5 + 0.352 * loyalty6 + -0.109 * loyalty8 + 0.191 * loyalty12 + 0.016 *$
 $loyalty13 + 0.247 * loyalty14 + -0.02 * loyalty16 + 0.255 * loyalty_{new}1 + 0.217 *$
 $authority1 + 0.186 * authority4 + 0.356 * authority6 + 0.264 * authority8 + 0.417 *$
 $authority11 + 0.551 * authority14 + 0.186 * authority17 + 0.533 * authority18 + 0.437 *$

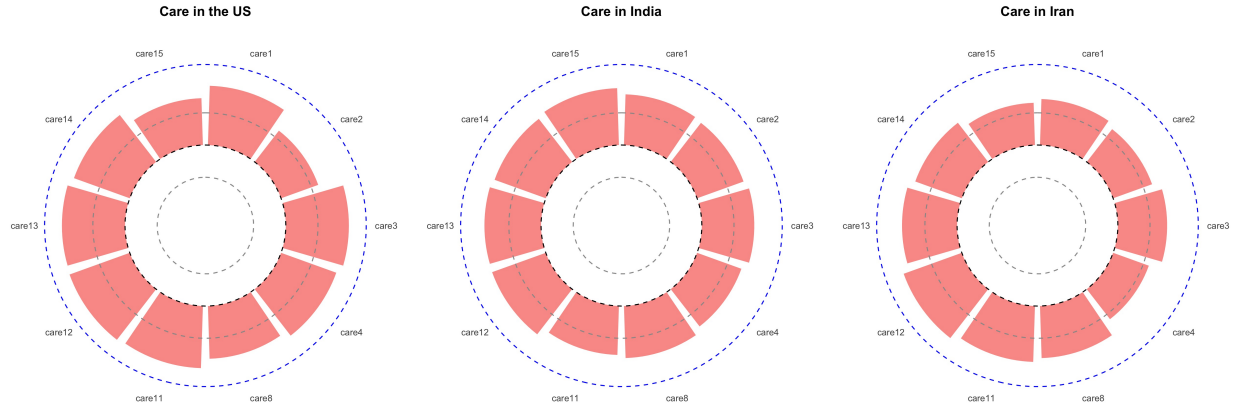


Figure S1. Exploratory Factor Analyses on Care Items in Study 1b

$$\begin{aligned}
 & authority20 + -0.004 * purity2 + 0.414 * purity3 + 0.362 * purity4 + 0.073 * purity6 + \\
 & 0.158 * purity7 + 0.138 * purity9 + -0.022 * purity13 + 0.239 * purity14 + 0.071 * purity17 \\
 F6 = & -0.018 * care1 + 0.023 * care3 + -0.144 * care4 + 0.001 * care8 + 0.09 * care11 + 0.052 * \\
 & care12 + 0.054 * care13 + 0.036 * care14 + -0.015 * equalFairness6 + -0.017 * equalFairness10 + \\
 & -0.034 * equality2 + 0.002 * equality4 + 0.091 * equality6 + -0.004 * equality10 + 0.07 * \\
 & equality11 + -0.008 * propFairness1 + 0.071 * propFairness3 + 0.062 * propFairness8 + \\
 & 0.043 * propFairness9 + 0.005 * proportionality5 + -0.129 * proportionality9 + -0.018 * \\
 & proportionality12 + -0.07 * proportionality17 + 0.046 * loyalty3 + 0.004 * loyalty5 + -0.053 * \\
 & loyalty6 + -0.004 * loyalty8 + 0.068 * loyalty12 + 0.082 * loyalty13 + -0.05 * loyalty14 + -0.026 * \\
 & loyalty16 + 0.083 * loyalty_{new}1 + 0.148 * authority1 + 0.169 * authority4 + 0.07 * authority6 + \\
 & 0.117 * authority8 + 0.027 * authority11 + 0.029 * authority14 + -0.017 * authority17 + 0.152 * \\
 & authority18 + 0.012 * authority20 + 0.826 * purity2 + 0.203 * purity3 + 0.146 * purity4 + 0.767 * \\
 & purity6 + 0.26 * purity7 + 0.249 * purity9 + 0.492 * purity13 + 0.071 * purity14 + 0.288 * purity17
 \end{aligned}$$

Next, we schematically show the ESEM model (without numerical estimates) in Figure S25.

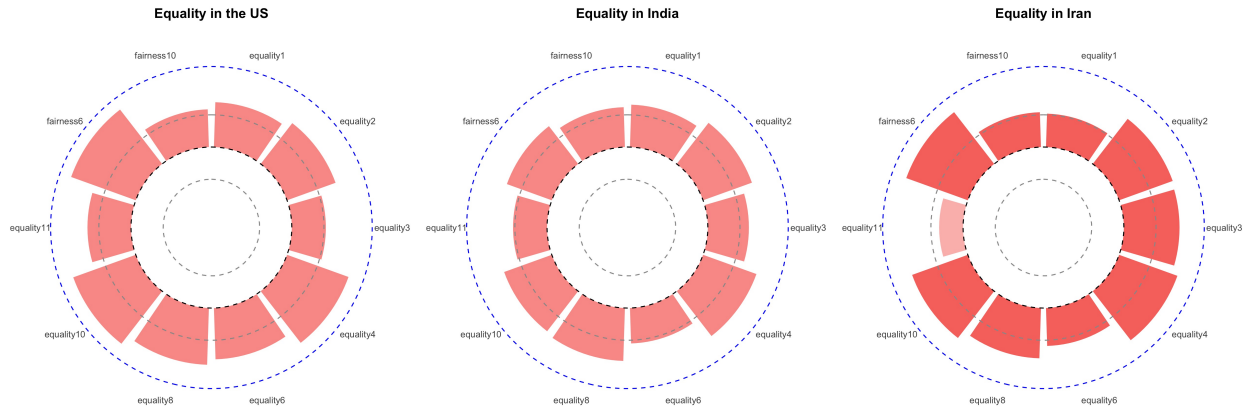


Figure S2. Exploratory Factor Analyses on Equality Items in Study 1b

CFAs across Countries

In addition to ESEM, we examined the six-dimensional factor structure of the MFQ-2 across all 19 countries separately. To do so, we first conducted a CFA, without any correction to error terms, in each country. The results of these analyses are presented in Table S16. For each model, we summarize multiple fit indices: χ^2 , df, the root mean square error of approximation (RMSEA), comparative fit index (CFI), Tucker–Lewis index (TLI), and the Standardized Root Mean Square Residual (SRMR). We also calculate the “relative χ^2 ” which is χ^2 divided by the degrees of freedom. Fit indices such as RMSEA and CFI are also most common in the factor-analysis literature, and were originally intended to function as effect sizes to supplement tests of fitness by quantifying the size of misspecification. Yet, these fit indices do not have an inherent null hypothesis, indicating that there is some degree of subjectivity in interpreting them and which values to consider “good”, “acceptable” or “poor” fit to the data. In their germinal study, Hu and Bentler (1999) examined which values of different fit indices could adequately distinguish between fit index distributions of a model that did (and did not) have certain misspecifications. According to Hu and Bentler (1999), the current cut-off values are considered good fit: $\text{SRMR} < .06$, $\text{RMSEA} < .06$, $\text{TLI} > .95$, and $\text{CFI} > .95$ (for a criticism of these fixed

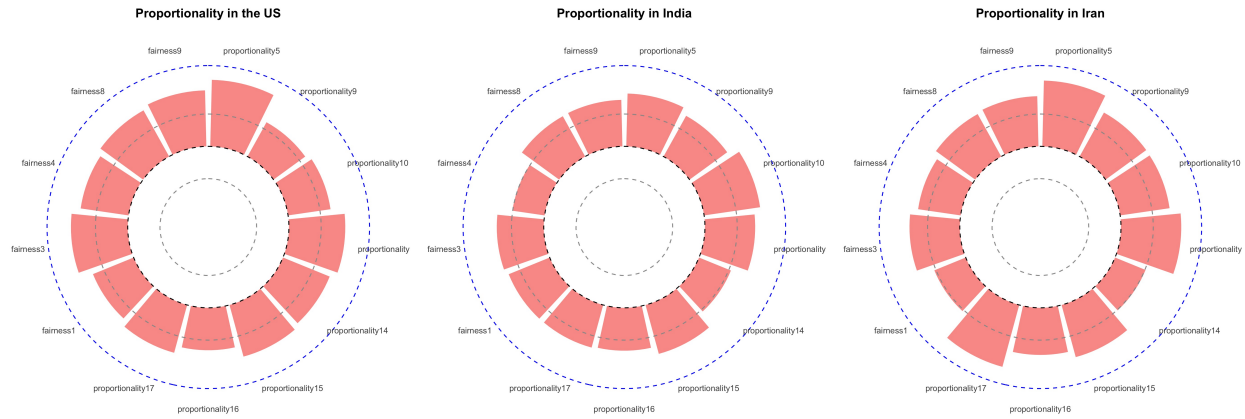


Figure S3. Exploratory Factor Analyses on Proportionality Items in Study 1b

cut-offs, see McNeish & Wolf, 2021). However, in most applied settings, researchers these values are considered acceptable especially with more complicated models: SRMR < .08, RMSEA < .08, TLI > .90, and CFI > .90. A relative χ^2 of 3 or smaller is considered good fit. As can be seen in Table S16, in most countries, we observed acceptable fit according to the majority of fit indices.

Then, we conducted a CFA on the entire data set. Based on this model, we examined “Modification Indices”. We followed these steps: 1. we listed 100 modification indices; 2. we filtered modification indices that suggested co-varying error terms of items; 3. we chose suggested co-variations for items that belonged to the same foundation (i.e., purity items together, loyalty items together, etc.). This procedure resulted in adding 21 modifications to the main model. Modification pairs were: purity2 and purity6; proportionality5 and proportionality12; authority6 and authority11; loyalty5 and loyalty16; purity2 and purity3; equality4 and equality10; proportionality5 and proportionality9; loyalty6 and loyalty14; proportionality9 and proportionality12; loyalty6 and loyalty16; authority14 and authority18; loyalty5 and loyalty13; purity3 and purity6; loyalty13 and loyalty16; loyalty5 and loyalty6; purity6 and purity17; purity2 and purity9; loyalty6 and loyalty13; authority6 and authority18; loyalty5 and loyalty14; loyalty14 and loyalty16. The

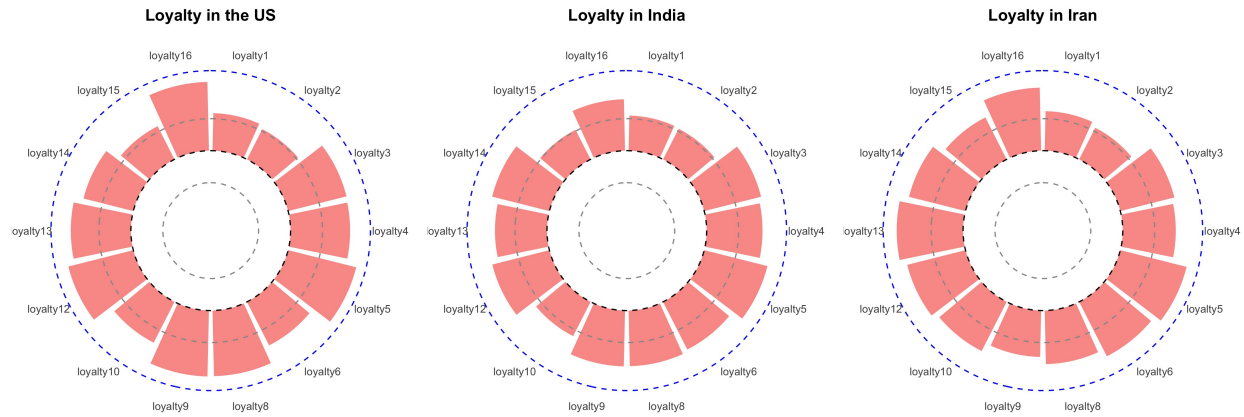


Figure S4. Exploratory Factor Analyses on Loyalty Items in Study 1b

corrected models' fit indices are presented in Table S17. Across countries, the average CFI, TLI, RMSEA, SRMR, and Relative χ^2 were .89, .87, .056, .071, and 1.65, respectively.

Measurement Invariance in Women and Men

We used Measurement Invariance (MI) analysis to examine the equivalence of the 6-dimensional structure of the MFQ-2 across gender groups (women and men) to make sure that the scores have the same meaning to women and men. Results of the MI analysis can be found in Table S18. As can be seen, at the very least, weak MI is evidenced, meaning that women and men interpret the items in the same way (similar loadings across gender groups) (for a review of MI in social and personality psychology, see Chen, 2008). While the results are mixed, Metric MI is evidenced.

Measurement Invariance across Religious Groups

Next, we examined MI across religious groups. As we mention in the main text, since we did not have enough data on individuals affiliating with Judaism ($n = 25$), Hinduism ($n = 14$), Buddhism ($n = 91$), and “other” religious affiliations ($n = 244$), we excluded these participants, leaving 3,527 individuals associating with Christianity ($n = 1803$), Islam ($n = 909$), and no religious affiliation ($n = 815$). One participant chose not to

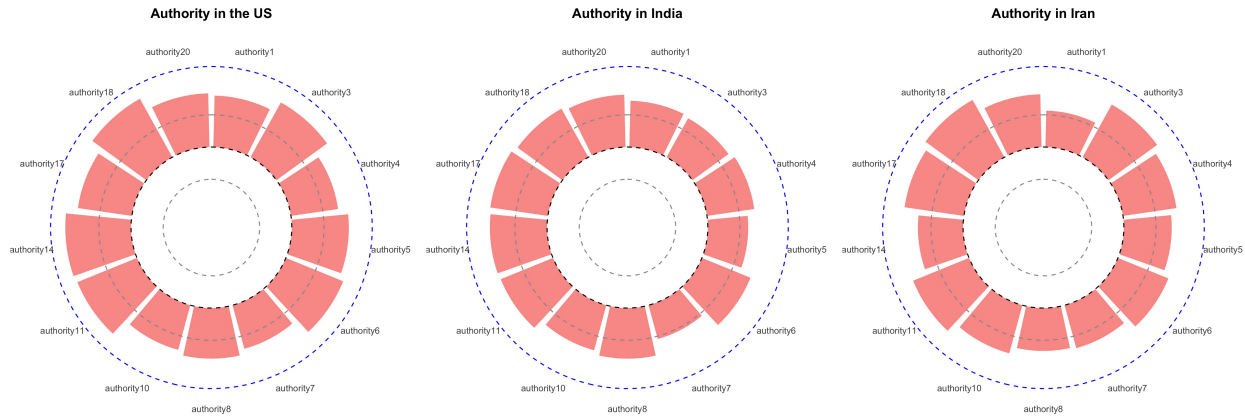


Figure S5. Exploratory Factor Analyses on Authority Items in Study 1b

report their religious affiliation, which was also excluded from the MI analysis. The results (Table S19) are mixed (i.e., different indices point to different directions), and while BIC, ΔCFI , and ΔRMSEA point to the direction that Metric MI is evidenced to some degree, religious differences should be interpreted with caution (for a review, see Chen, 2008)

Cronbach's α Coefficients across Cultures

Next, we examined Cronbach's α Coefficients across nations. These results can be seen in Table S20.

The Quadratic Relationship between Political Ideology and Morality

As mentioned in the main text, we examined the quadratic relationship between political ideology and moral foundations, and found Equality and Proportionality to have significant non-linear relationships with political ideology. Here, we visualize these U-shaped (for Equality) and inverse-U-shaped (for Proportionality) relationships across all 19 nations in Study 2. We also show these relationships for other foundations. Figures S26, S27, S28, S29, S30, S31, show these associations for Care, Equality, Proportionality, Loyalty, Authority, and Purity, respectively.

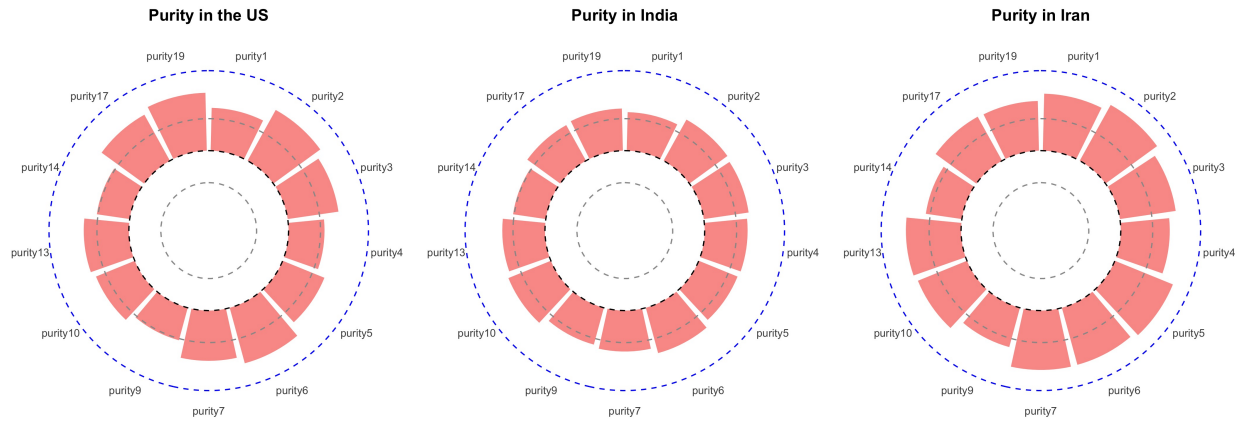


Figure S6. Exploratory Factor Analyses on Purity Items in Study 1b

Study 3

In the main text, we used both MFQ-1 (Graham et al., 2011) and MFQ-2 in predicting subscale-level scores of all external measures (subscales). As mentioned in the main text, we used 30 criterion scores: the SVS (Self-Transcendence, Conservation, Self-Enhancement, and Openness to Change), LWA (Anti-Hierarchical Aggression, Anti-Conventionalism, and Top-Down Censorship), Empathic Concern, Group Loyalty, LSRP (Primary Psychopathy and Secondary Psychopathy), BJW, DSR (Core Disgust, Animal Remainder, Contamination), Support for Redistribution, ICS (Horizontal Individualism, Vertical Individualism, Horizontal Collectivism, and Vertical Collectivism), SDO (Pro-Dominance, Con-Dominance, Pro-Antiegalitarianism, Con-Antiegalitarianism), Preference for the Merit Principle, RWA, DUREL (Organizational Religiosity, Non-Organizational Religiosity, and Intrinsic Religiosity), and Political Orientation. In the main text, we focused on adjusted R^2 values. Here, as a robustness check, we focus on non-adjusted R^2 values: Across 30 regressions, MFQ-2 explained, on average, 37% of the variance in outcome variables (Md = 39%); however, MFQ-1 predicted, on average, 30% of the variance in all outcomes (Md = 31%). The distribution of non-adjusted R^2 values and inferential statistics are presented in Figure S32. A paired t -test indicated that MFQ-2

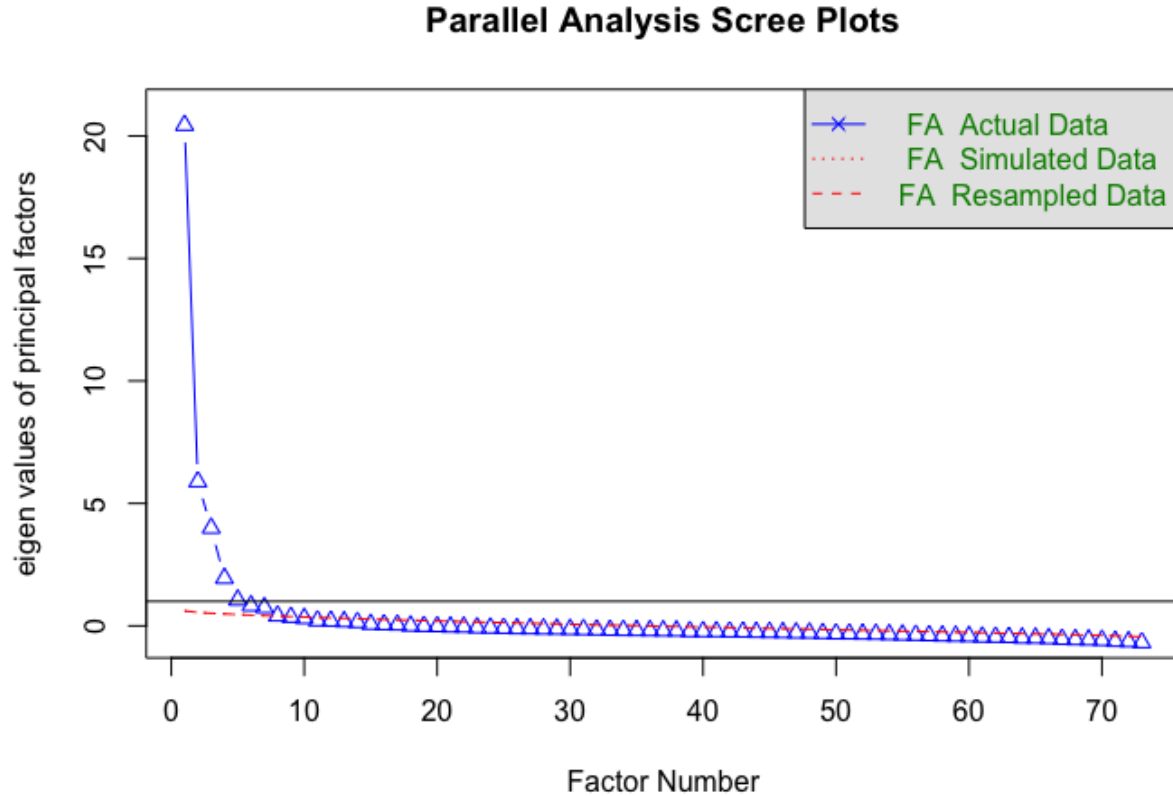


Figure S7. Parallel analysis on 73 items with 1000 simulations (Study 1b)

could explain significantly more variance in outcomes compared with MFQ-1 ($t = 3.42$, $p = .002$, $g_{Hedges} = 0.61$).

Convergent Validity Assessment: Standardized Regression Coefficients

In the main text, in Table 9, we present the zero-order correlations between MFQ-2 scores and criterion variables. In order to check the robustness of the associations between criterion variables and all six moral foundations, we conducted standardized linear regression models to predict each criterion variable based on the six foundations as predictors. The results of this analysis can be found in Table S21.

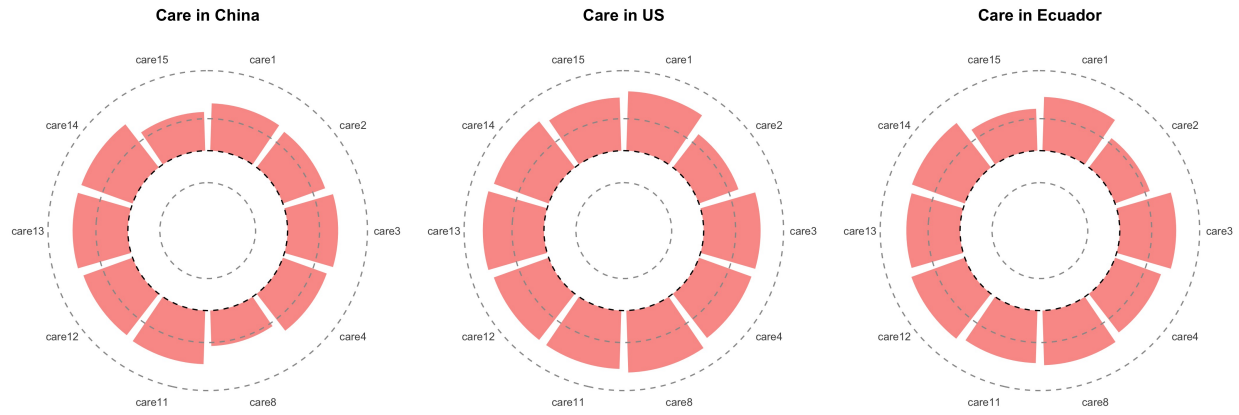


Figure S8. Exploratory Factor Analyses on Care Items in Study 1c

Correlations between MFQ-1 and MFQ-2

We also examined the correlations between the MFQ-1 scores and the finalized MFQ-2 scores in Study 3. These correlations can be found in Figure S33. Consistent with our previous findings (see Study 1), MFQ-1's Fairness scores were more strongly associated with MFQ-2's Equality ($r = .33$, $p < .001$), rather than MFQ-2's Proportionality ($r = .20$, $p < .001$). To test the significance of this difference, we used Fisher's Z -Test concerning difference of correlations, testing whether the correlation between two constructs (Fairness and Equality; r_{12}) is significantly different from the correlation between the MFQ-1's Fairness with a MFQ-2's Proportionality (r_{13}), given the inter-correlation of Equality and Proportionality ($r_{23} = .02$, $p = 0.3996$). Results suggested that MFQ-1's Fairness was significantly more related to MFQ-2's Equality than to MFQ-2's Proportionality ($Z = 3.697$, $p < .001$).

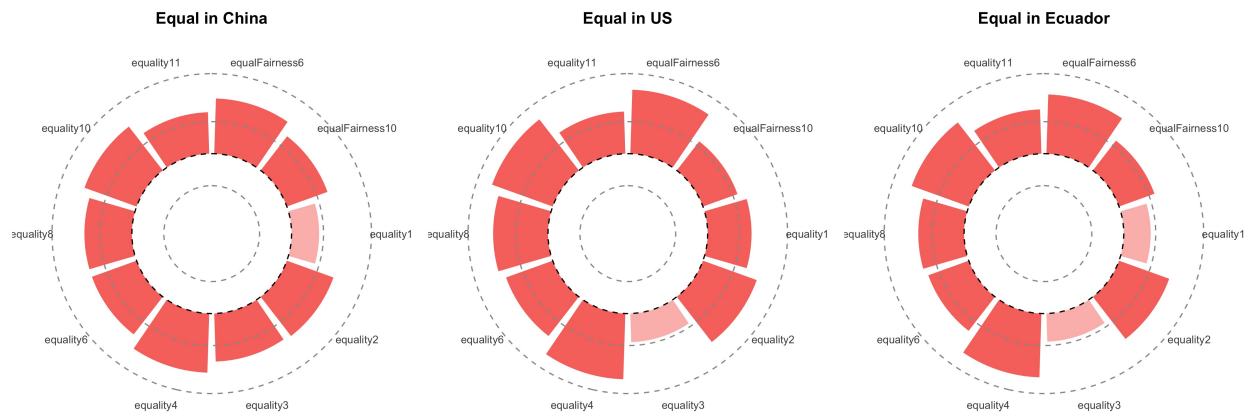


Figure S9. Exploratory Factor Analyses on Equality Items in Study 1c

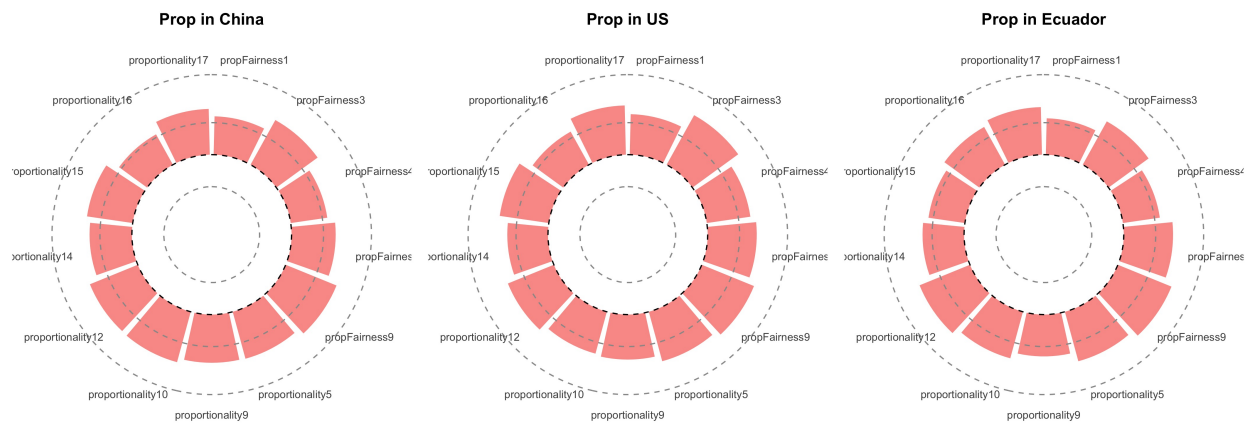


Figure S10. Exploratory Factor Analyses on Proportionality Items in Study 1c

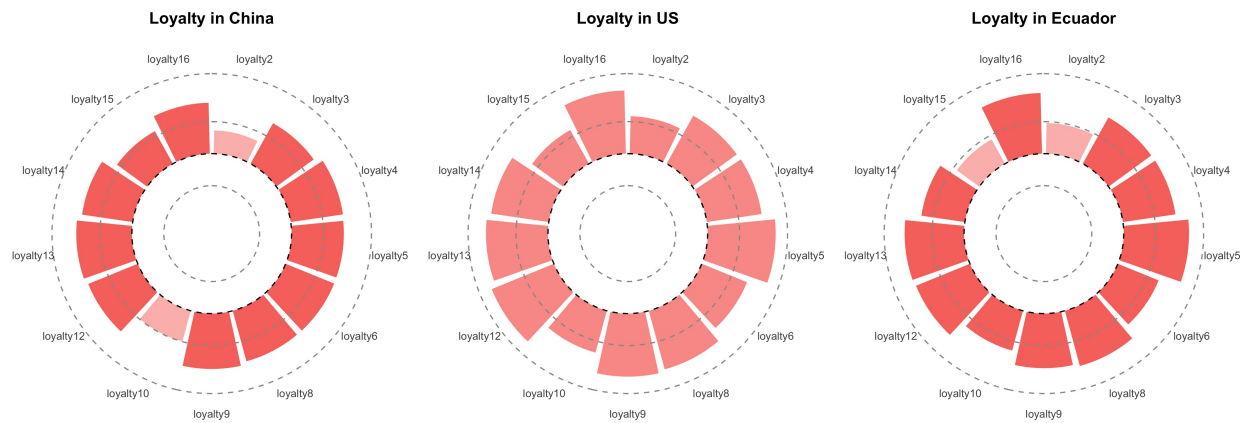


Figure S11. Exploratory Factor Analyses on Loyalty Items in Study 1c

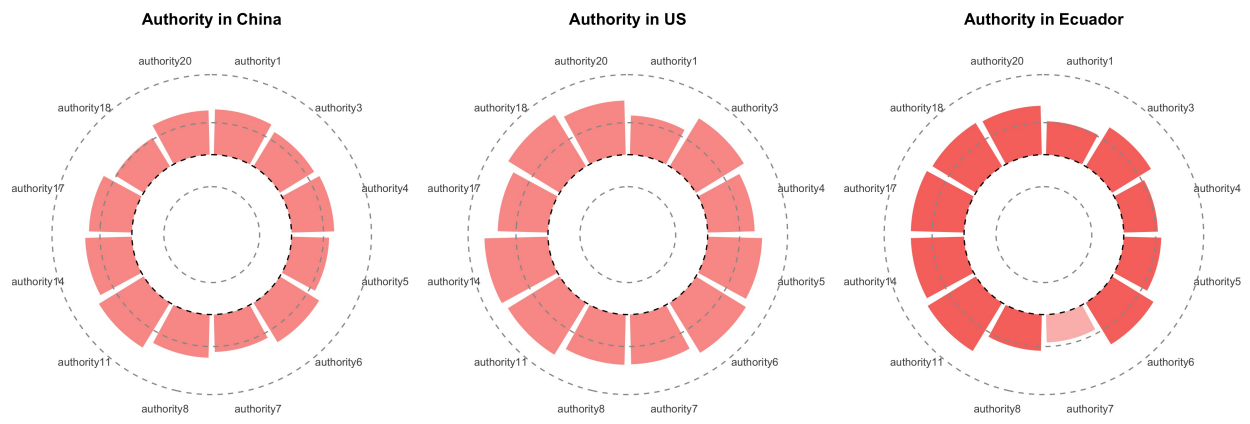


Figure S12. Exploratory Factor Analyses on Authority Items in Study 1c

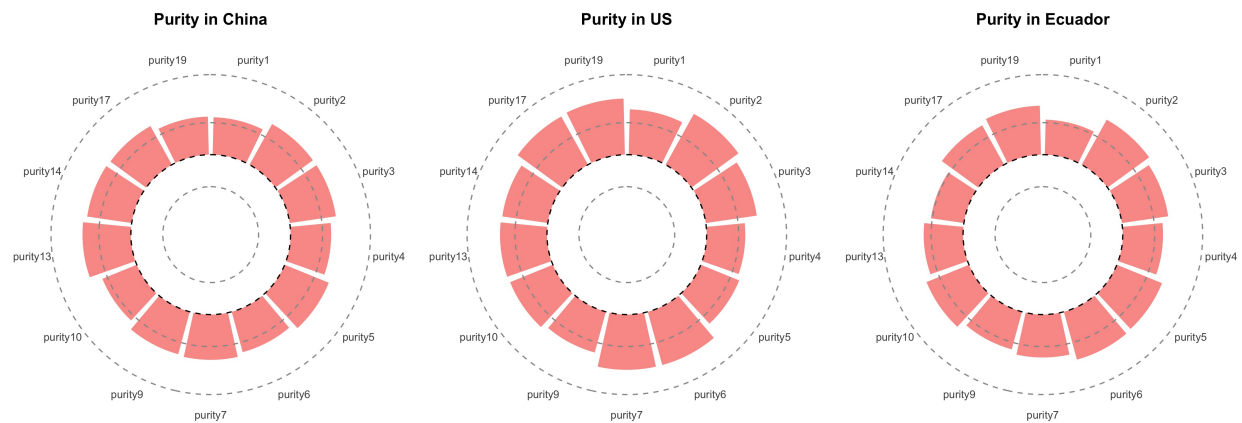


Figure S13. Exploratory Factor Analyses on Purity Items in Study 1c

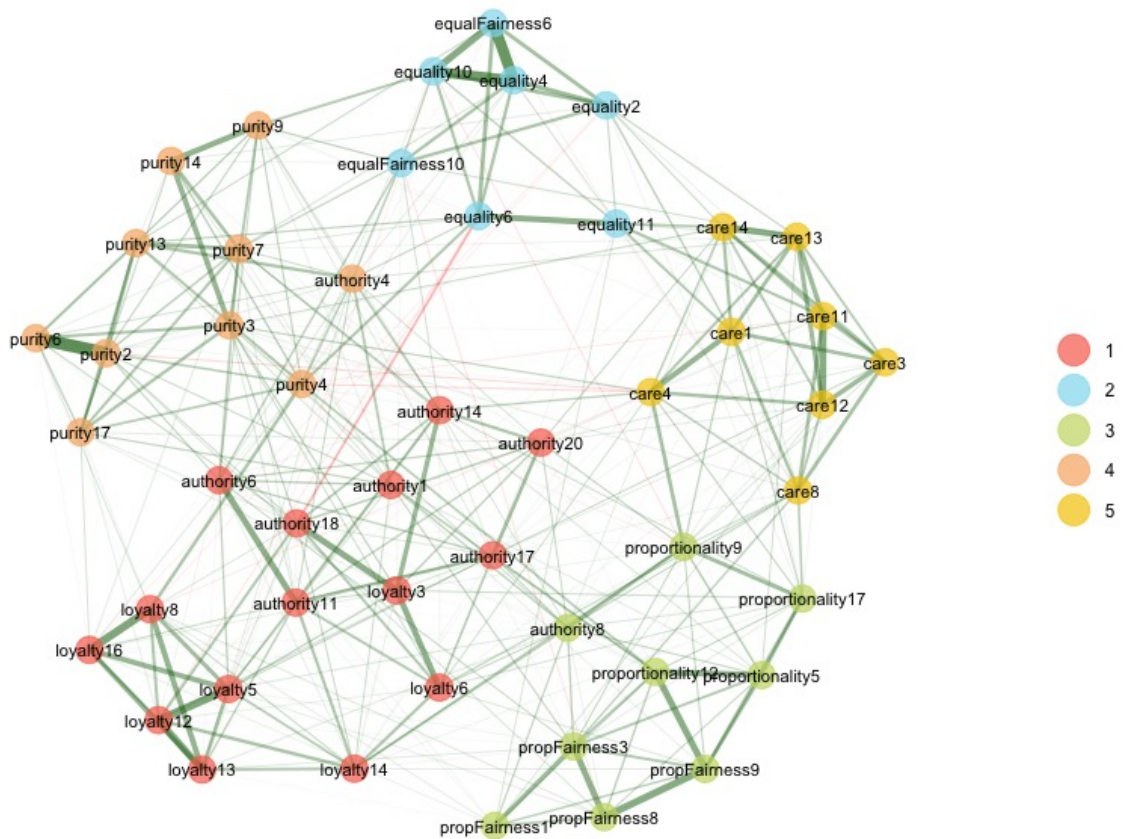


Figure S14. The GLASSO network of items in Study 1c

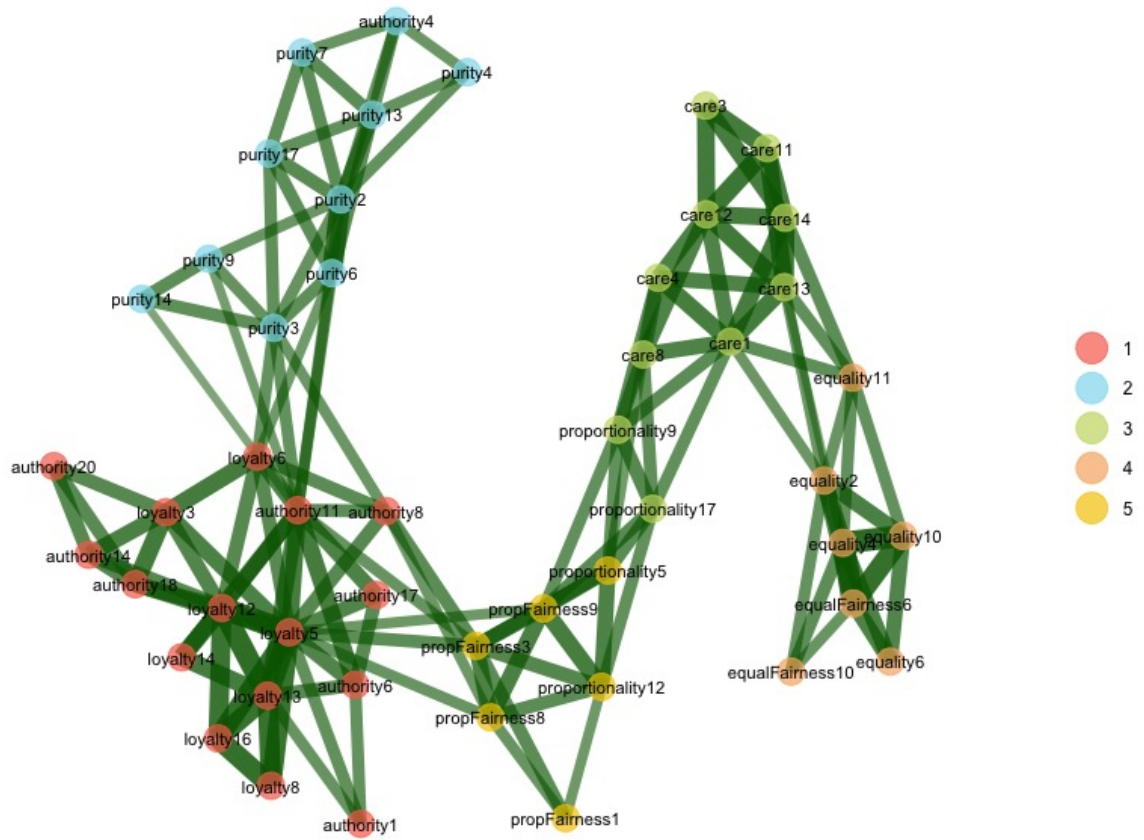


Figure S15. The TMFG network of items in Study 1c

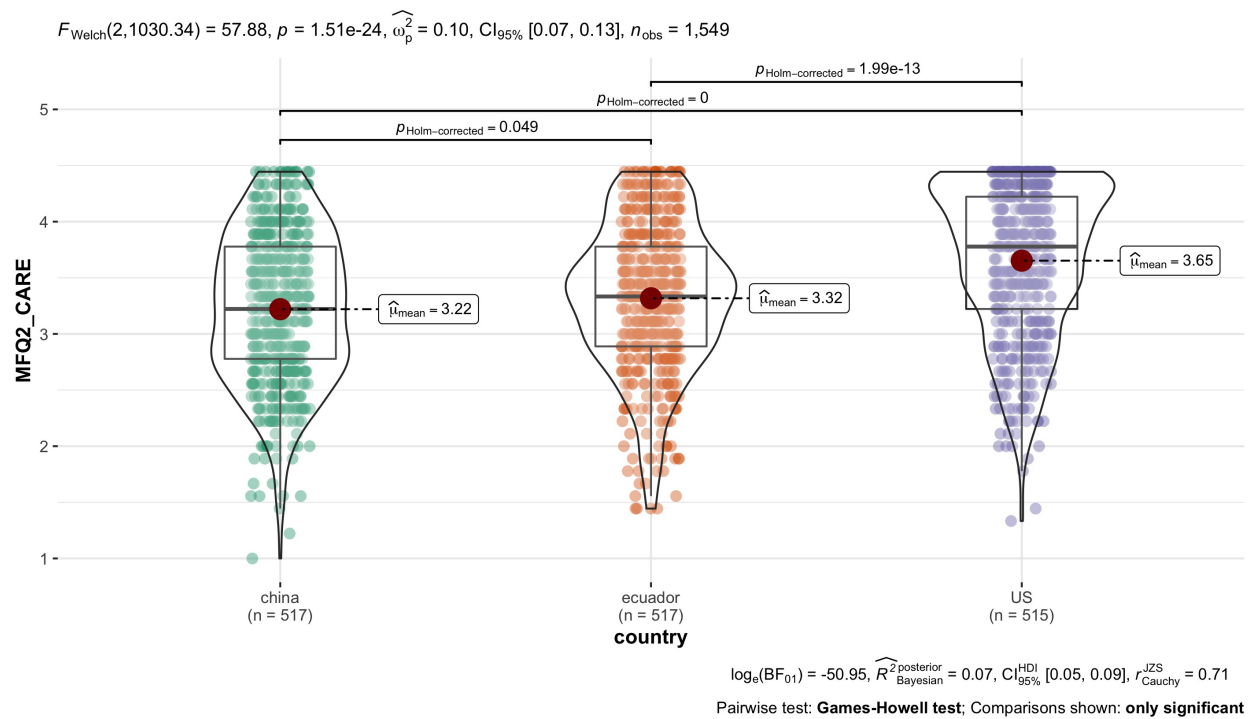


Figure S16. Cultural differences in Care in Study 1c

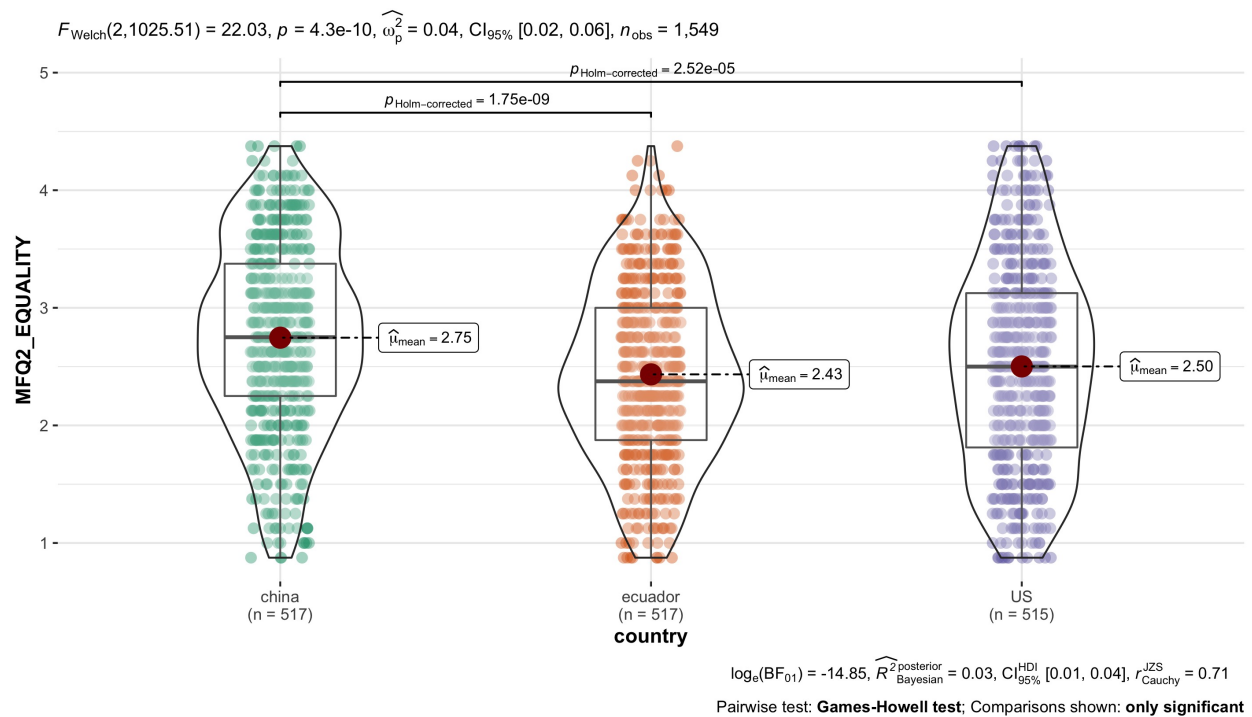


Figure S17. Cultural differences in Equality in Study 1c

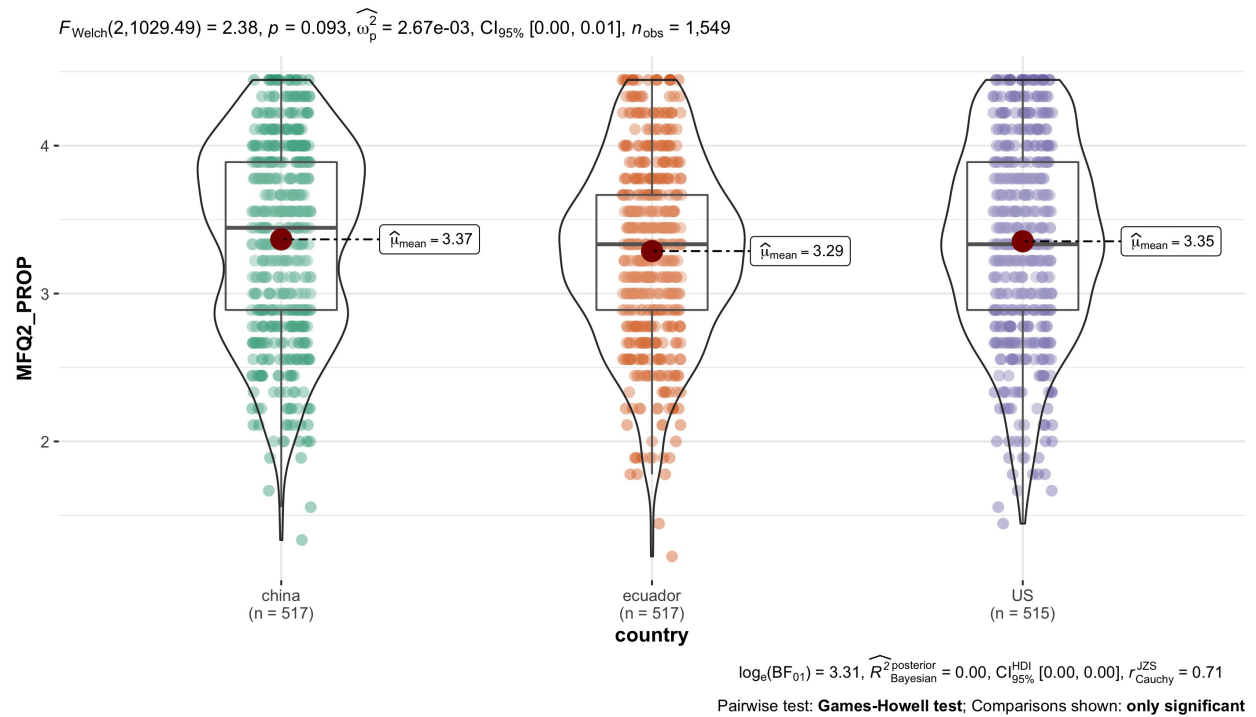


Figure S18. Cultural differences in Proportionality in Study 1c

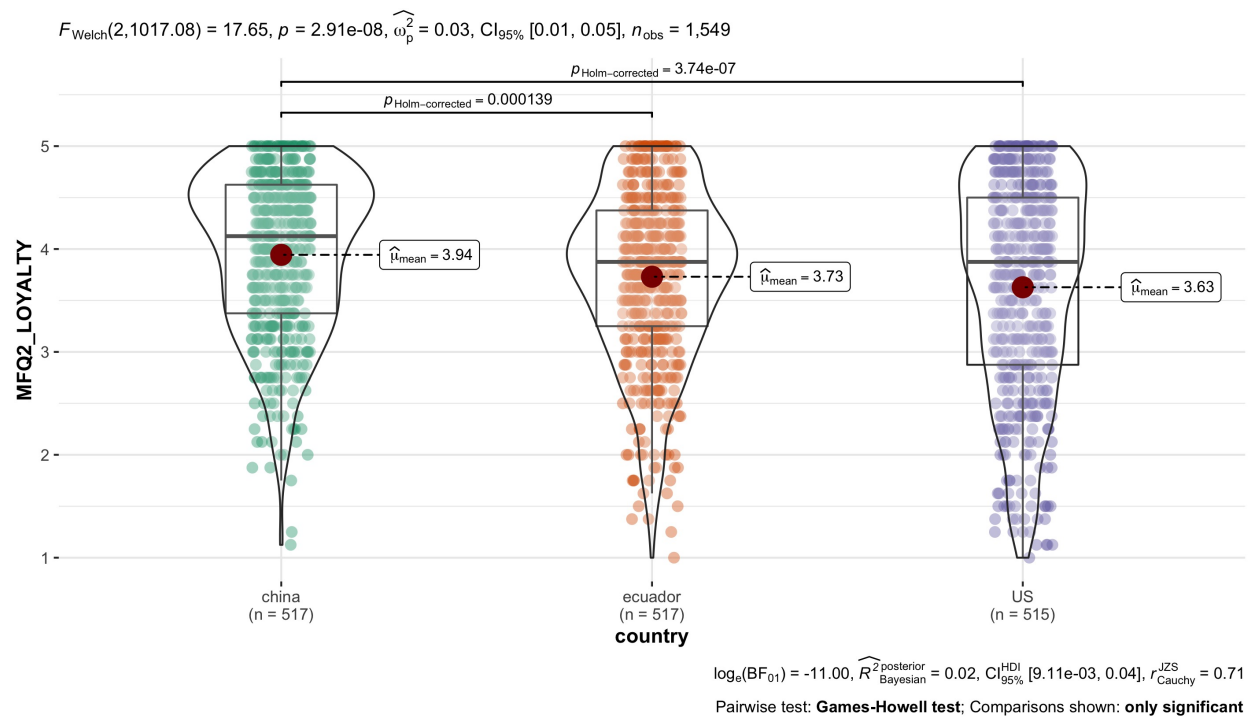


Figure S19. Cultural differences in Loyalty in Study 1c

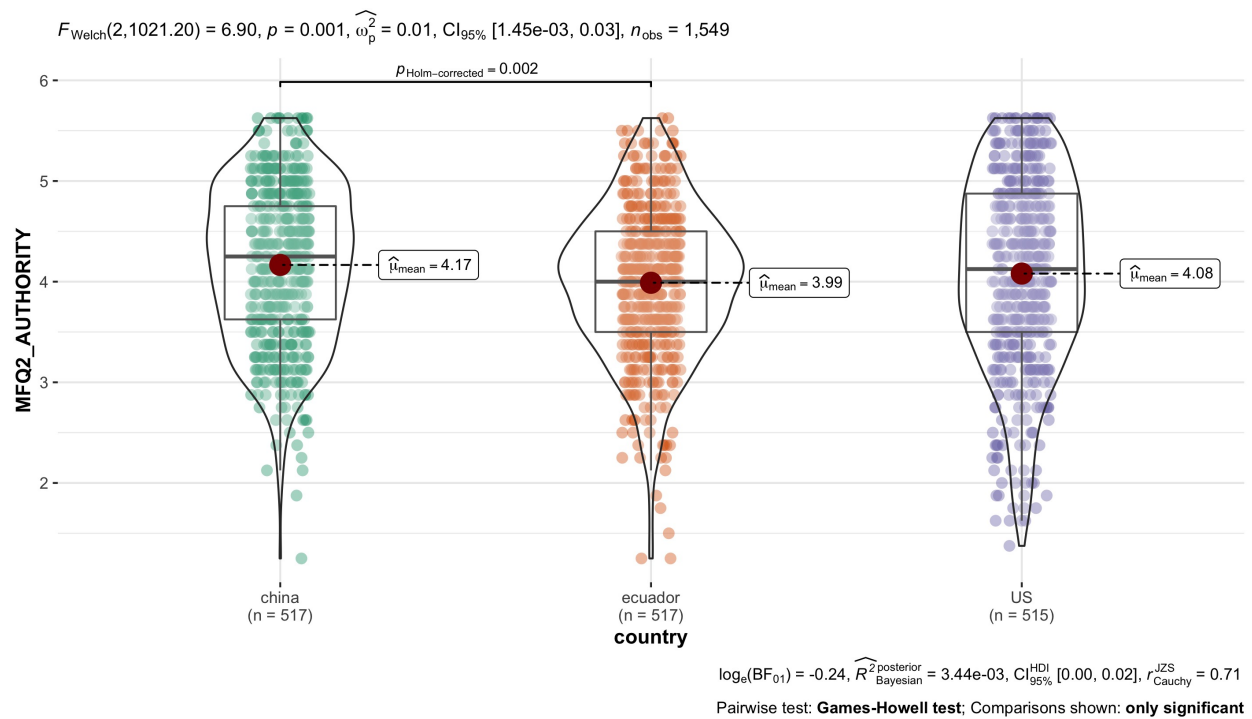


Figure S20. Cultural differences in Authority in Study 1c

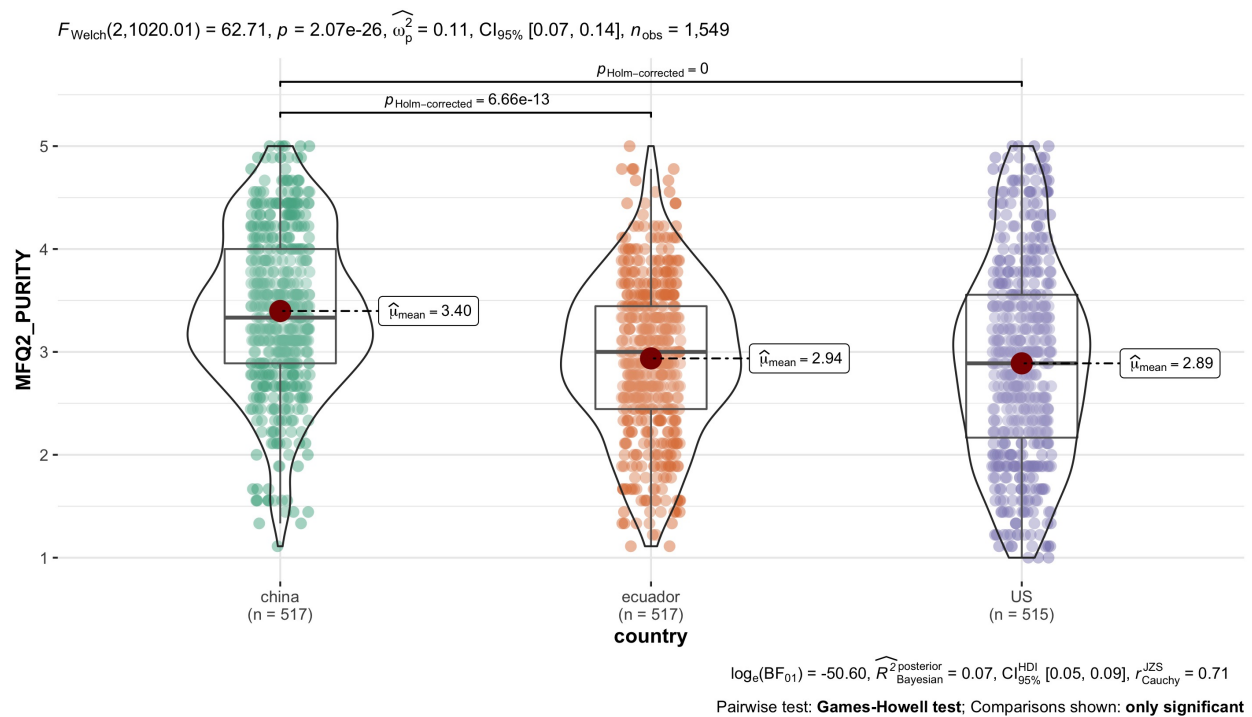


Figure S21. Cultural differences in Purity in Study 1c

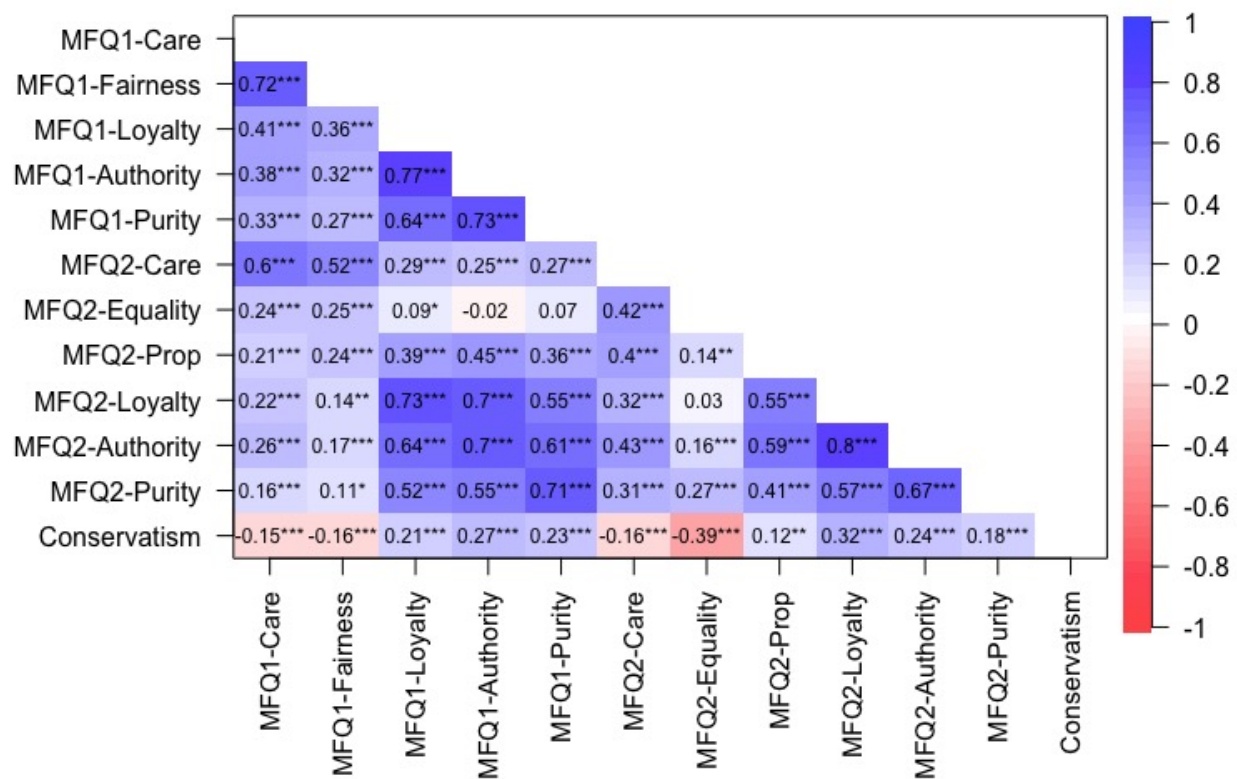


Figure S22. Correlation matrix between study variables in the US in Study 1c

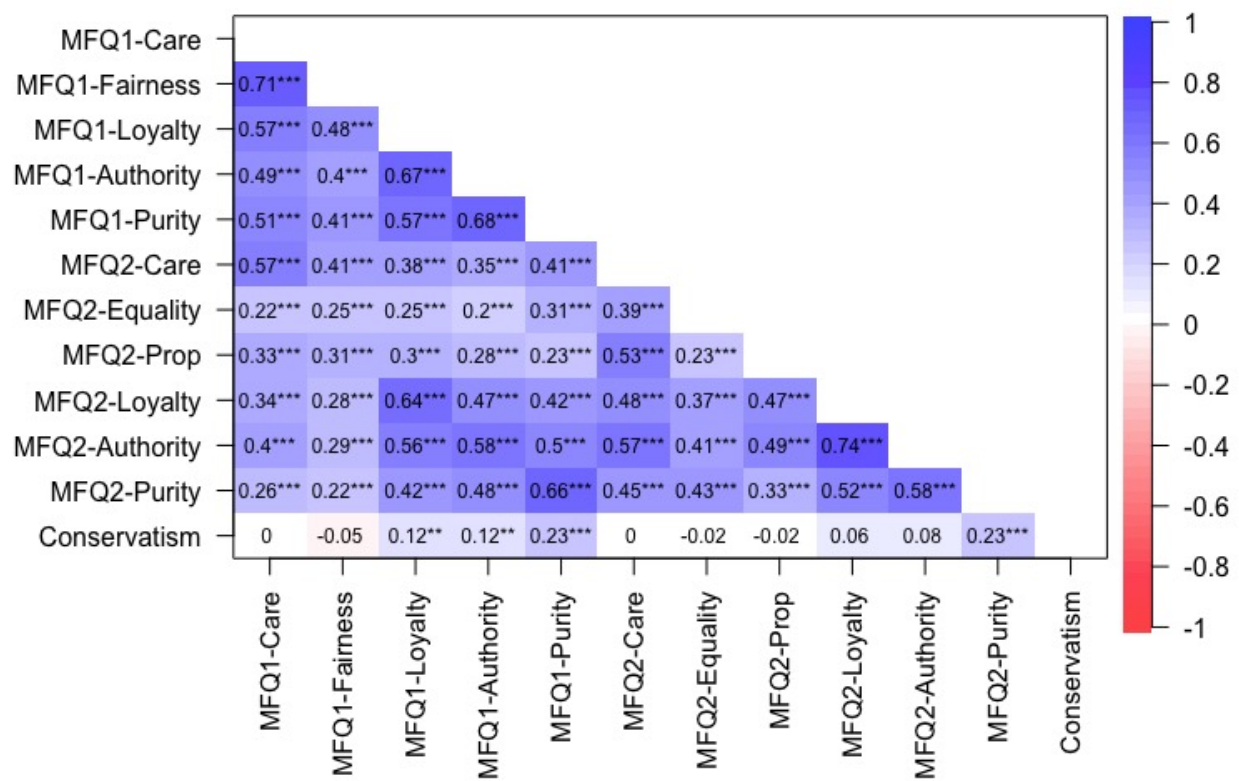


Figure S23. Correlation matrix between study variables in Ecuador in Study 1c

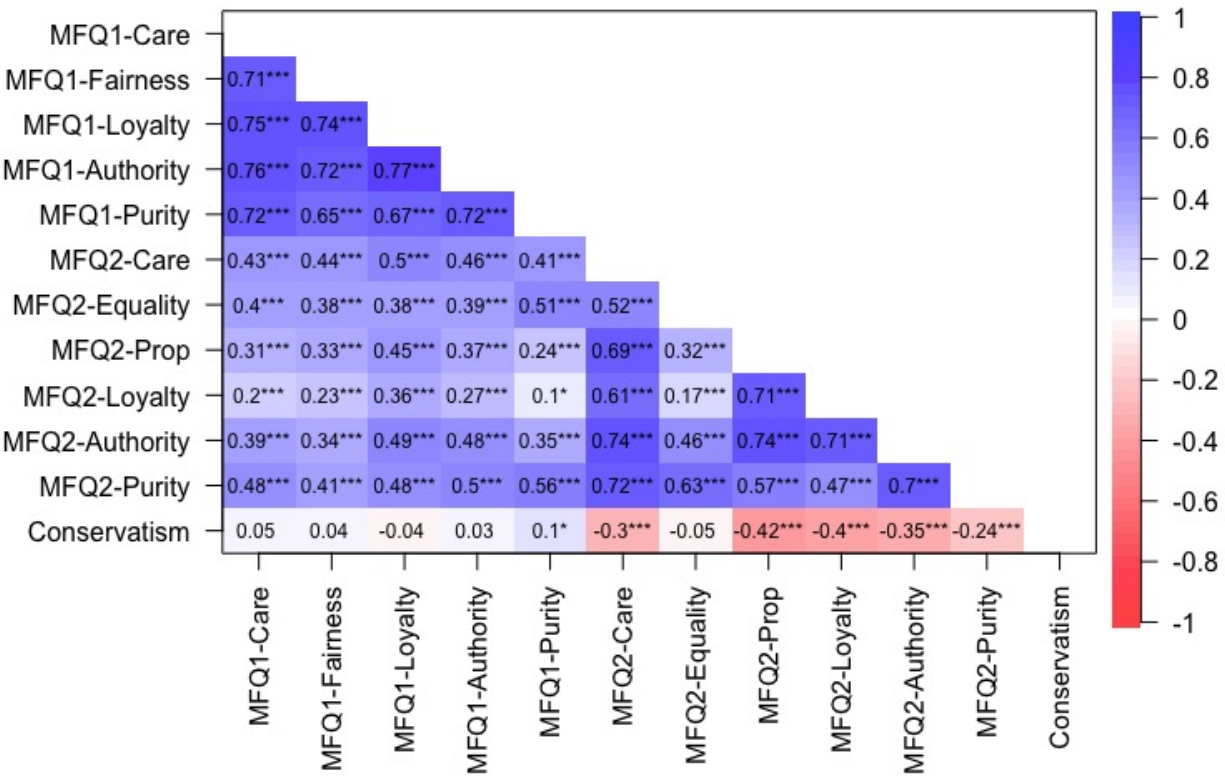


Figure S24. Correlation matrix between study variables in China in Study 1c

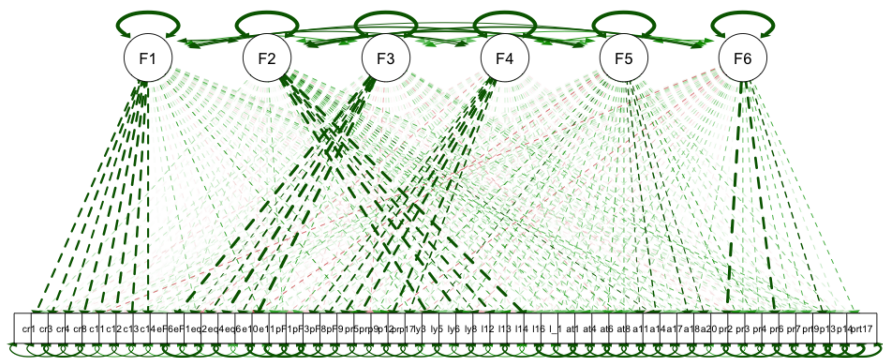


Table S16

The Results of CFAs across 19 countries (Study 2); no modification indices were applied

country	χ^2	df	CFI	TLI	RMSEA	SRMR	Relative χ^2
Japan	1078.65	579.00	0.84	0.82	0.07	0.07	1.86
Kenya	1030.83	579.00	0.86	0.85	0.06	0.08	1.78
Egypt	1047.56	579.00	0.85	0.84	0.06	0.07	1.81
Russia	1070.43	579.00	0.85	0.84	0.06	0.08	1.85
Peru	932.64	579.00	0.89	0.88	0.06	0.07	1.61
France	936.03	579.00	0.88	0.86	0.06	0.08	1.62
Belgium	990.29	579.00	0.86	0.84	0.06	0.09	1.71
UAE	1000.87	579.00	0.91	0.90	0.06	0.06	1.73
Mexico	964.98	579.00	0.86	0.85	0.06	0.07	1.67
Nigeria	999.49	579.00	0.83	0.82	0.06	0.08	1.73
Switzerland	1096.93	579.00	0.86	0.85	0.07	0.09	1.89
Saudi Arabia	1161.73	579.00	0.82	0.81	0.07	0.08	2.01
Morocco	1001.64	579.00	0.89	0.88	0.06	0.07	1.73
Ireland	953.96	579.00	0.89	0.88	0.06	0.09	1.65
New Zealand	952.62	579.00	0.90	0.89	0.06	0.08	1.65
Chile	1090.29	579.00	0.84	0.83	0.07	0.10	1.88
South Africa	1089.61	579.00	0.82	0.81	0.07	0.08	1.88
Colombia	1030.53	579.00	0.83	0.82	0.06	0.08	1.78
Argentina	1192.91	579.00	0.79	0.77	0.07	0.11	2.06

Table S17

The Results of CFAs across 19 countries (Study 2); error terms were co-varied

country	χ^2	df	CFI	TLI	RMSEA	SRMR	Relative χ^2
Japan	992.59	558.00	0.86	0.84	0.06	0.07	1.78
Kenya	866.12	558.00	0.91	0.89	0.05	0.07	1.55
Egypt	996.40	558.00	0.86	0.84	0.06	0.07	1.79
Russia	943.07	558.00	0.89	0.87	0.06	0.07	1.69
Peru	821.51	558.00	0.91	0.90	0.05	0.06	1.47
France	844.59	558.00	0.90	0.89	0.05	0.07	1.51
Belgium	894.51	558.00	0.88	0.87	0.05	0.08	1.60
UAE	950.47	558.00	0.92	0.90	0.06	0.06	1.70
Mexico	865.49	558.00	0.89	0.88	0.05	0.07	1.55
Nigeria	917.13	558.00	0.86	0.84	0.06	0.07	1.64
Switzerland	937.47	558.00	0.90	0.89	0.06	0.08	1.68
Saudi Arabia	1097.89	558.00	0.84	0.82	0.07	0.08	1.97
Morocco	911.75	558.00	0.91	0.89	0.06	0.06	1.63
Ireland	875.37	558.00	0.91	0.90	0.05	0.08	1.57
New Zealand	852.90	558.00	0.92	0.91	0.05	0.07	1.53
Chile	952.77	558.00	0.88	0.86	0.06	0.08	1.71
South Africa	970.92	558.00	0.86	0.84	0.06	0.07	1.74
Colombia	886.01	558.00	0.88	0.86	0.05	0.07	1.59
Argentina	959.88	558.00	0.86	0.84	0.06	0.08	1.72

Table S18

Results of measurement invariance models for women and men (Study 2)

Model	chi-squared	df	Δ df	CFI	Δ CFI	RMSEA	Δ RMSEA	<i>p</i> value	BIC	AIC
Configural	1958.728	1158	—	0.744	—	0.083	—	—	21487	20672
Metric	2009.521	1188	30	0.738	0.007	0.083	0.000	0.01024	21378	20663
Scalar	2086.596	1218	30	0.723	0.015	0.084	0.001	5.157e-06	21296	20680

Table S19

Results of measurement invariance models across religious groups (Study 2)

Model	chi-squared	df	Δ df	CFI	Δ CFI	RMSEA	Δ RMSEA	<i>p</i> value	BIC	AIC
Configural	6801.7	1737	—	0.904	—	0.050	—	—	341997	339721
Metric	7169.3	1797	60	0.898	0.006	0.050	0.001	<.00001	341875	339969
Scalar	8171.3	1857	60	0.880	0.018	0.054	0.003	<.00001	342387	340851

Table S20

Alpha α Coefficients in 19 Nations (Study 2)

Nation	Care	Equality	Proportionality	Loyalty	Authority	Purity
Argentina	0.86	0.84	0.70	0.78	0.77	0.68
Belgium	0.88	0.88	0.68	0.82	0.73	0.68
Chile	0.89	0.81	0.76	0.82	0.82	0.75
Columbia	0.82	0.83	0.72	0.82	0.77	0.74
Egypt	0.85	0.83	0.77	0.82	0.80	0.68
France	0.89	0.86	0.72	0.81	0.73	0.68
Ireland	0.89	0.83	0.80	0.86	0.87	0.77
Japan	0.85	0.82	0.79	0.83	0.77	0.65
Kenya	0.87	0.80	0.76	0.84	0.83	0.73
Mexico	0.86	0.82	0.78	0.79	0.77	0.71
Morocco	0.88	0.83	0.83	0.87	0.80	0.72
New Zealand	0.88	0.87	0.75	0.86	0.86	0.80
Nigeria	0.80	0.83	0.72	0.79	0.72	0.68
Peru	0.84	0.85	0.80	0.81	0.80	0.76
Russia	0.87	0.84	0.74	0.85	0.83	0.74
Saudi Arabia	0.85	0.81	0.77	0.85	0.80	0.65
South Africa	0.84	0.79	0.71	0.82	0.78	0.78
Switzerland	0.88	0.91	0.78	0.85	0.85	0.73
UAE	0.90	0.81	0.89	0.89	0.87	0.78
Ranges	0.80-0.90	0.79-0.91	0.68-0.89	0.78-0.89	0.72-0.87	0.65-0.80

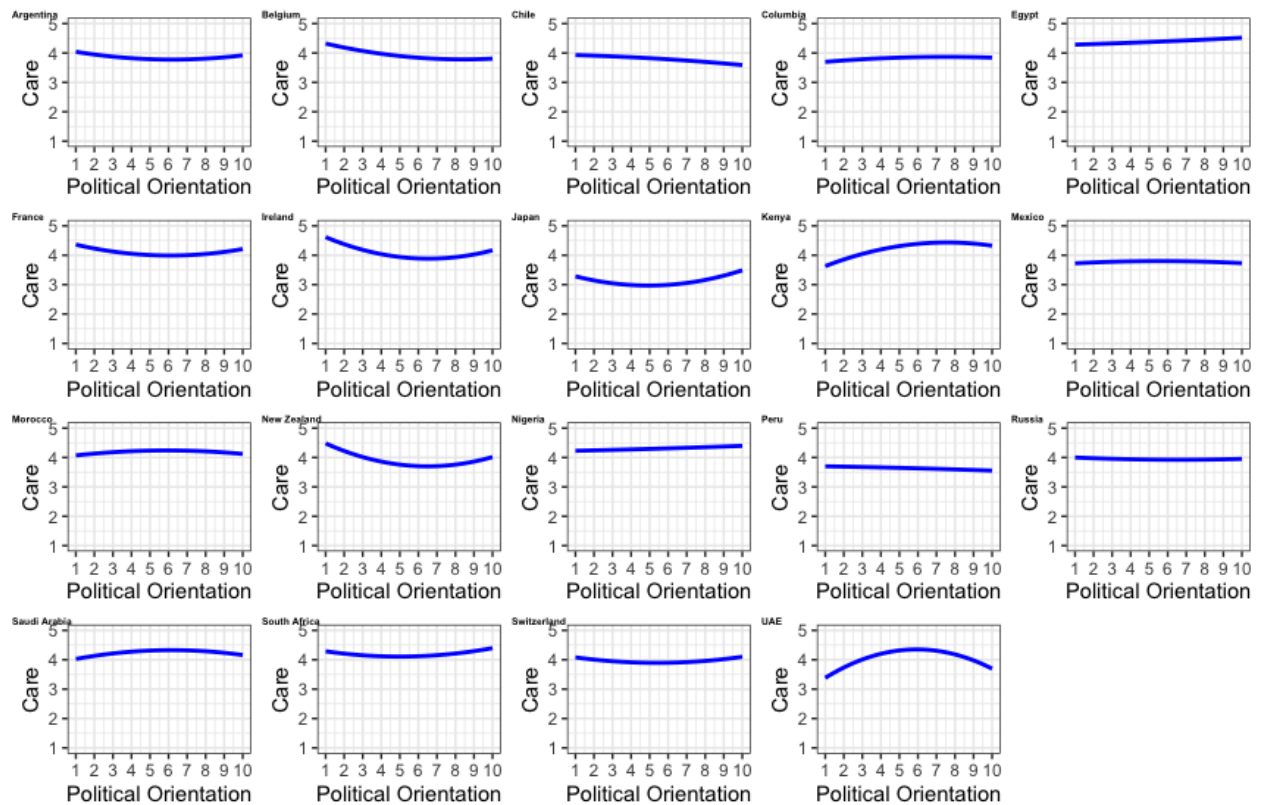


Figure S26. Quadratic Relationships between Care and Political Ideology across Nations (Study 2)

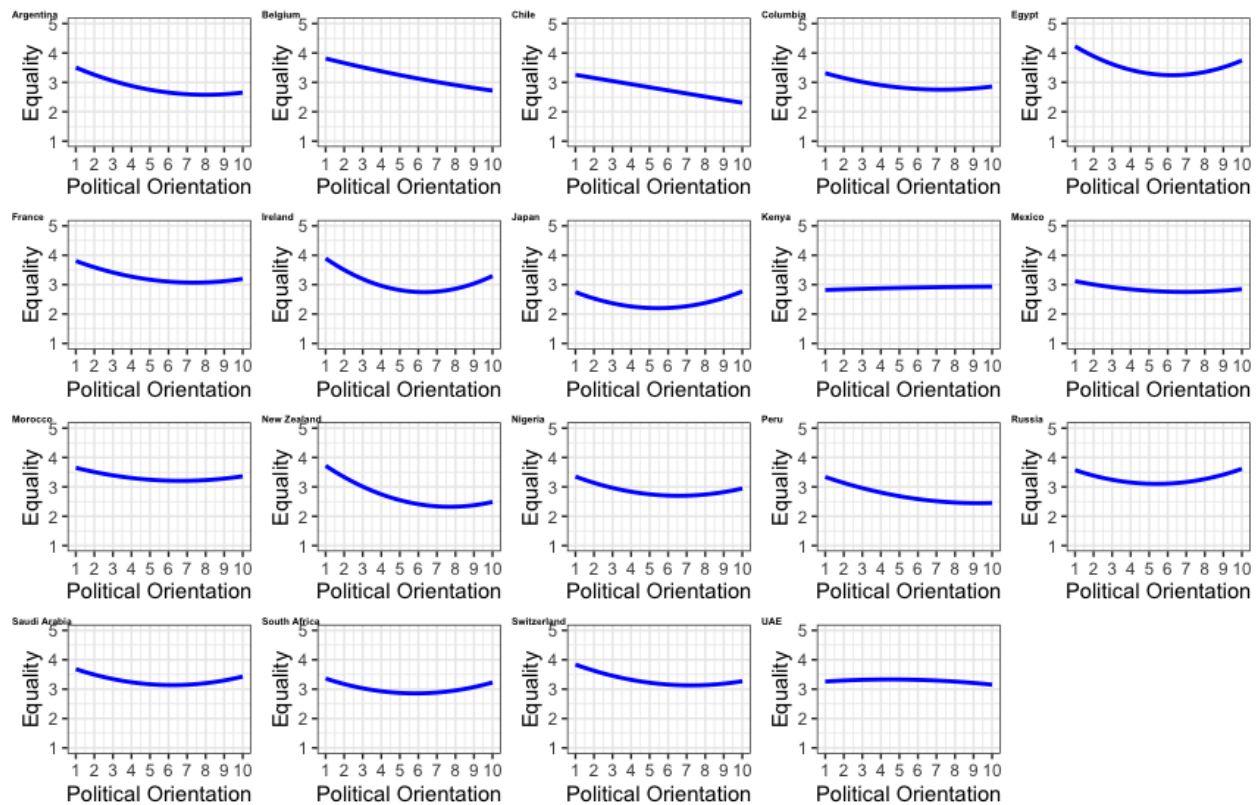


Figure S27. Quadratic Relationships between Equality and Political Ideology across Nations (Study 2)

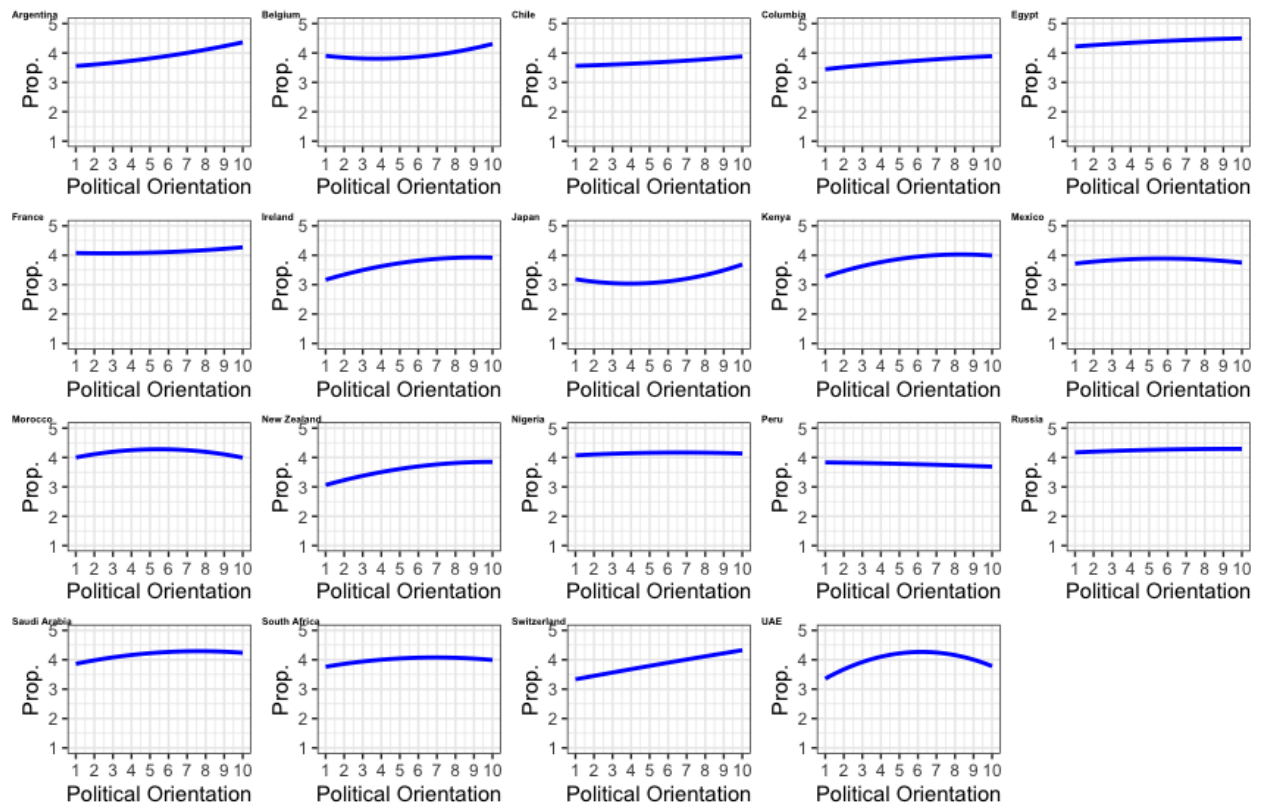


Figure S28. Quadratic Relationships between Proportionality and Political Ideology across Nations (Study 2)

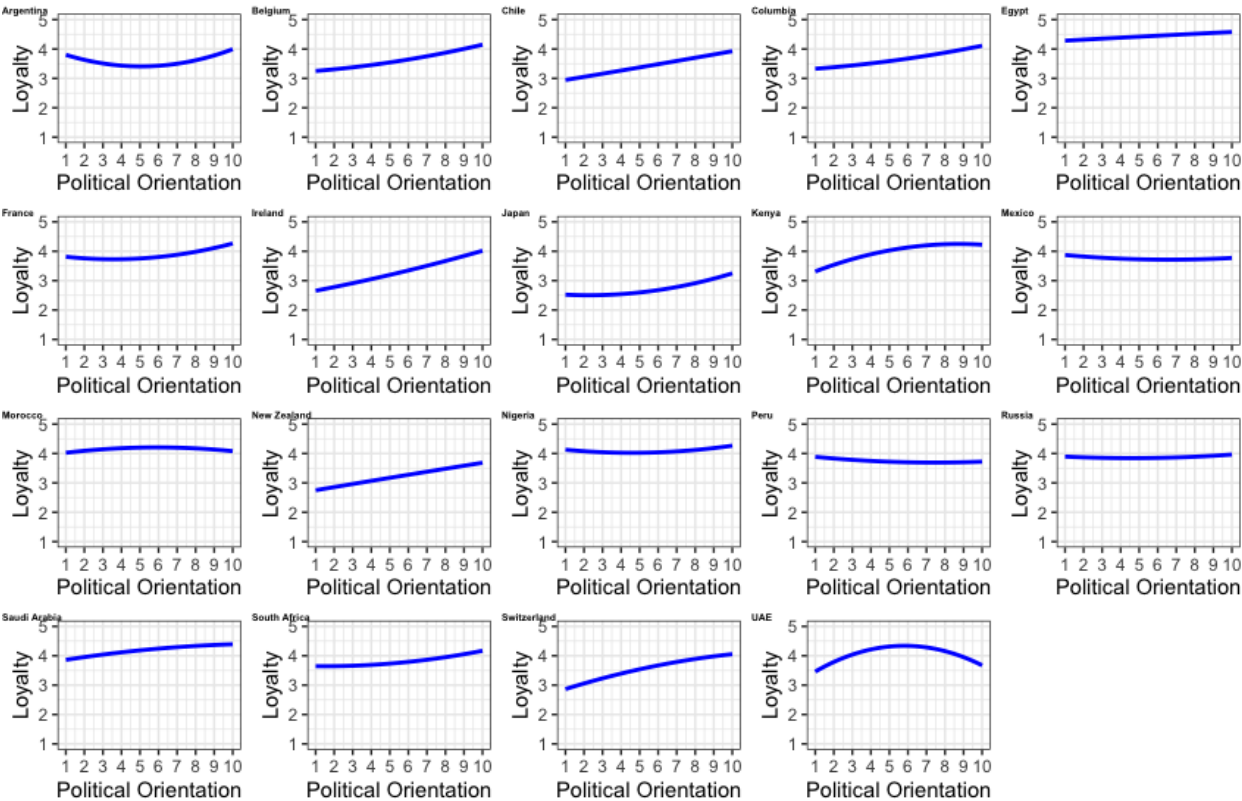


Figure S29. Quadratic Relationships between Loyalty and Political Ideology across Nations (Study 2)

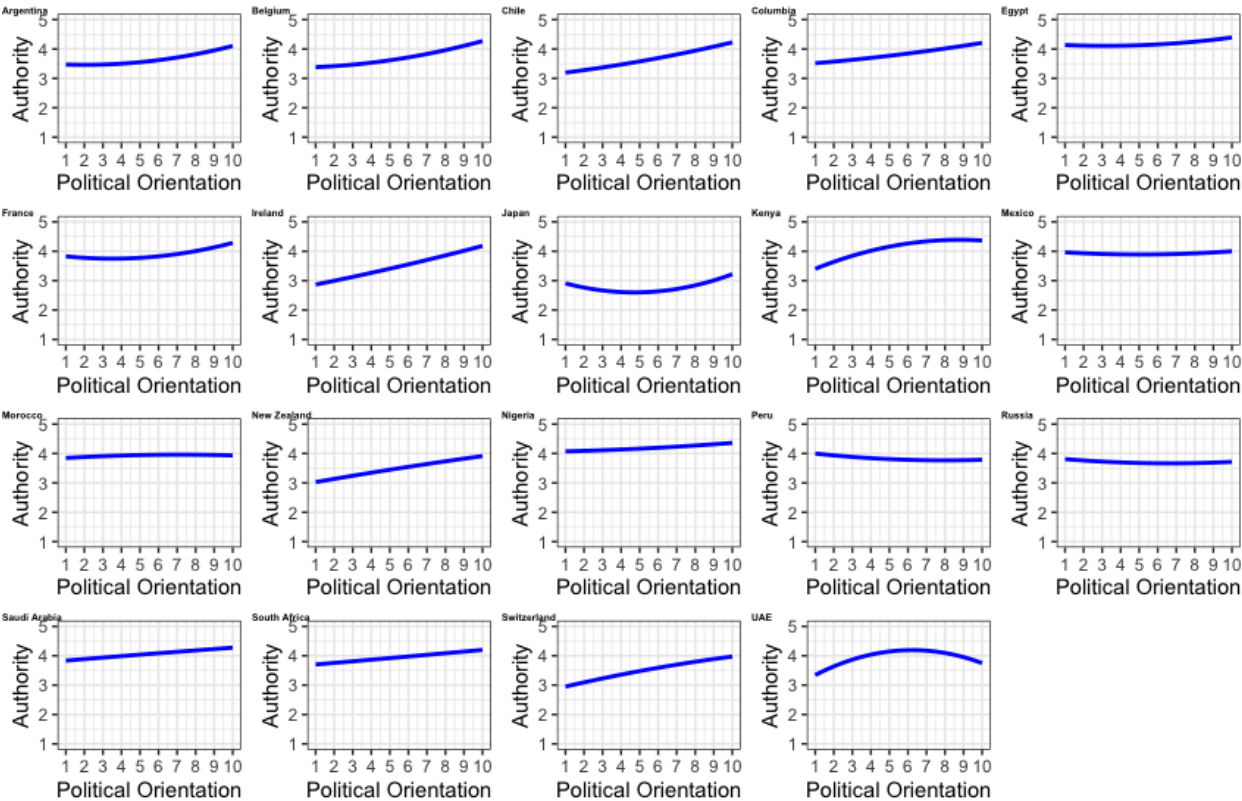


Figure S30. Quadratic Relationships between Authority and Political Ideology across Nations (Study 2)

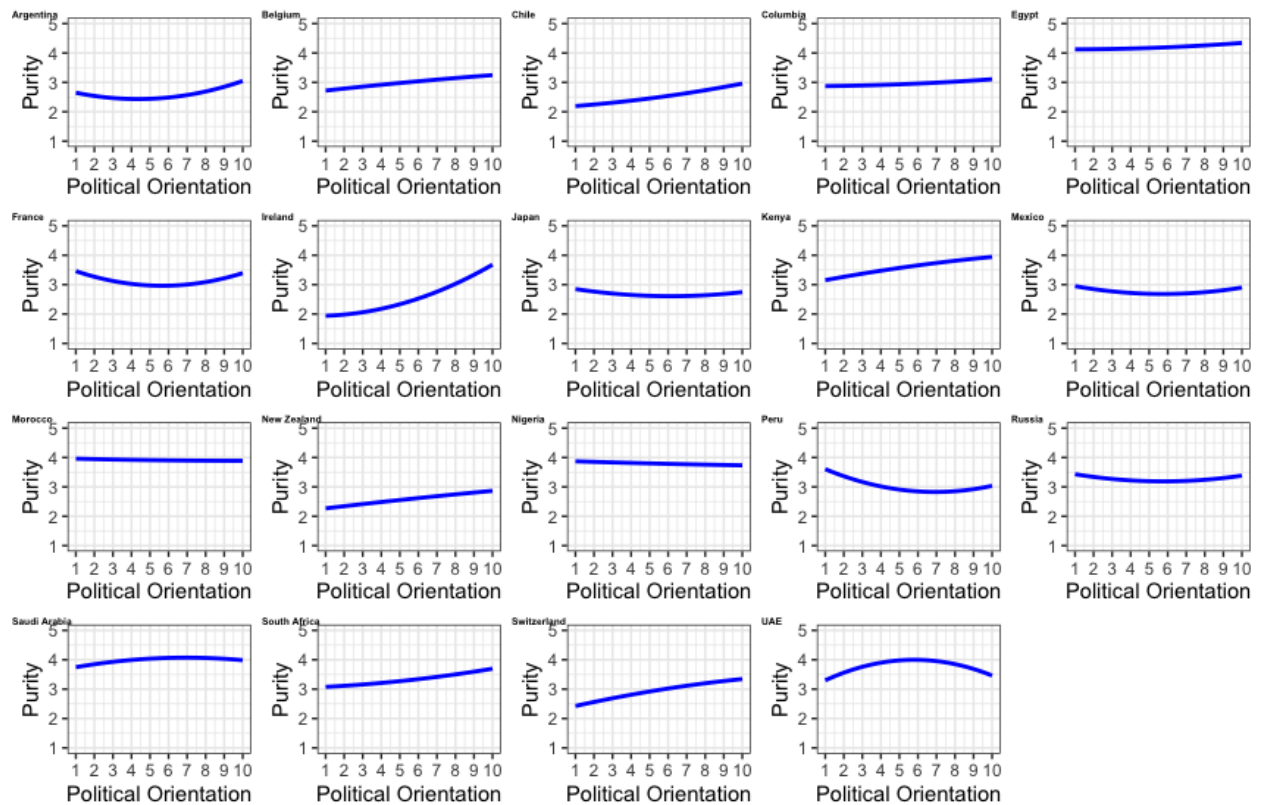


Figure S31. Quadratic Relationships between Purity and Political Ideology across Nations (Study 2)

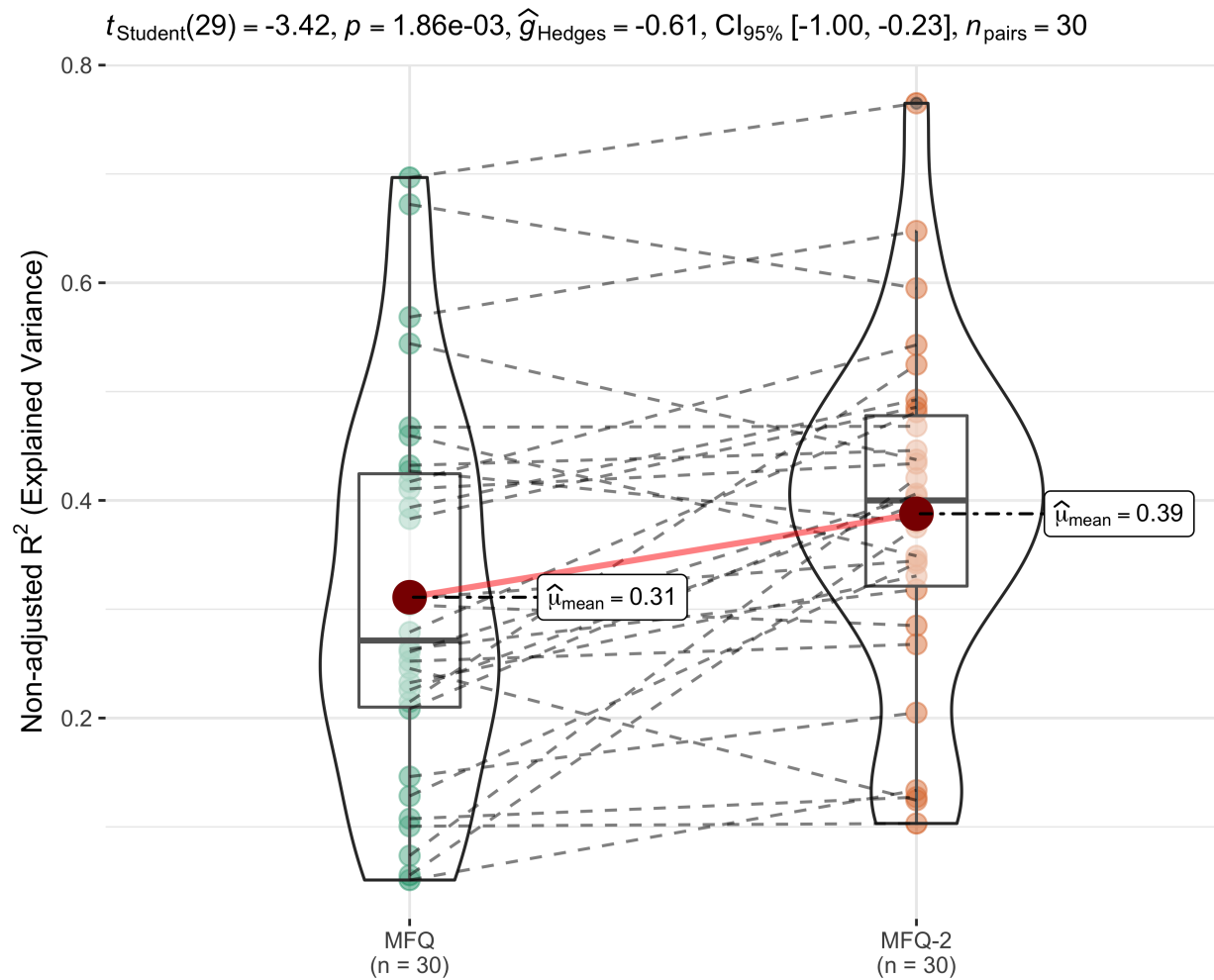


Figure S32. The Predictive Power of MFQ-1 and MFQ-2 in Predicting Outcomes Using Non-Adjusted Explained Variance (Study 3)

Table S21

The Standardized Regression Coefficients Predicting Criterion Variables based on All Foundations (Study 3)

	Care	Equality	Proportionality	Loyalty	Authority	Purity
svs_benevolence_tot	0.45	-0.19	-0.00	-0.03	0.26	0.23
svs_equality_tot	0.47	0.13	0.05	0.09	-0.16	-0.02
svs_success_tot	-0.01	-0.12	0.02	0.05	0.31	0.12
svs_loyalty_tot	0.24	-0.30	0.06	0.04	0.38	0.18
svs_authority_tot	-0.07	-0.09	-0.06	0.21	0.44	0.32
svs_purity_tot	0.08	-0.14	-0.07	-0.05	0.24	0.66
LWA_tot	-0.17	0.58	0.06	0.02	-0.23	0.28
EC_tot	0.69	-0.15	-0.01	0.12	-0.18	-0.15
GLS_tot	-0.09	-0.07	-0.08	0.65	0.20	0.06
LSRP_tot	-0.53	0.38	-0.06	0.26	-0.22	0.39
BJW_tot	-0.24	0.04	0.06	0.28	0.14	0.25
DSR_tot	0.04	0.08	0.11	0.04	-0.04	0.33
SfR_tot	-0.10	0.56	0.00	-0.06	-0.09	0.20
Collectivism_tot	0.21	0.14	0.04	0.26	0.44	-0.14
SDO_tot	-0.39	-0.15	-0.11	0.19	0.07	0.45
PMPS_tot	0.20	-0.29	0.59	-0.15	0.07	-0.22
RWA_tot	-0.28	-0.11	-0.15	0.10	0.40	0.49
DUREL_tot	0.05	-0.05	-0.22	0.03	0.22	0.64

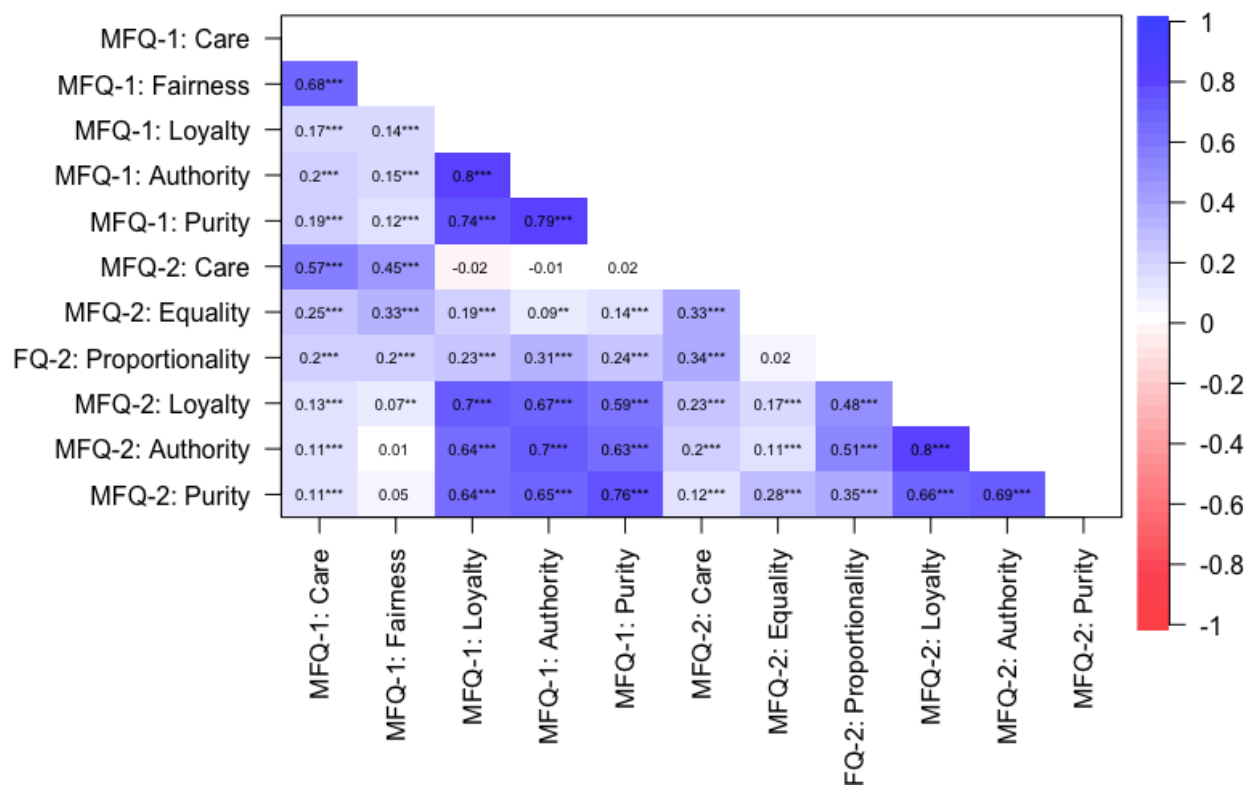


Figure S33. Correlation matrix between MFQ-1 and the final MFQ-2 scores (Study 3)

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