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► **To cite this version:**

Kelly Kirkland, Charlie Crimston, Jolanda Jetten, Catherine Amiot, Peter Baguma, et al.. Moral Expansiveness Around the World: The Role of Societal Factors Across 36 Countries. *Social Psychological and Personality Science*, 2022, 14 (3), pp.305-318. 10.1177/19485506221101767 . hal-03846941

**HAL Id: hal-03846941**

**<https://hal.science/hal-03846941>**

Submitted on 2 Feb 2024

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Kirkland, K., Crimston, C. R., Jetten, J., Rudnev, M., Acevedo-Triana, C., Amiot, C. E., Ausmees, L., Baguma, P., Barry, O., Becker, M., Bilewicz, M., Boonyasiriwat, W., Castelain, T., Costantini, G., Dimdins, G., Espinosa, A., Finchilescu, G., Fischer, R., Friese, M., ... Bastian, B. (2023). Moral expansiveness around the world: the role of societal factors across 36 countries. *Social Psychological and Personality Science*, 14(3), 305-318. Advance online publication. <https://doi.org/10.1177/19485506221101767>

### **Published in:**

Social Psychological and Personality Science

### **Document Version:**

Peer reviewed version

### **Queen's University Belfast - Research Portal:**

[Link to publication record in Queen's University Belfast Research Portal](#)

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## Moral expansiveness across cultures: The role of societal factors across 39 countries

Word count: TBA

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## Abstract

What are the things that we think matter morally, and what determines which entities fall into this category? To date, research has explored several individual-level and historical factors that influence these decisions – that is the size of our ‘moral circles’. There has, however, been less attention focused on which societal-level factors may play a role. We present the first multi-national exploration of moral expansiveness – that is the size of people’s moral circles across countries. We found low generalized trust, greater perceptions of a breakdown in the social fabric of society, and greater perceived income inequality are associated with smaller moral circles. Generalized trust also helped to explain the effects of perceived income inequality on lower levels of moral inclusiveness. Other inequality indicators (e.g., Gini coefficients) were, however, unrelated to moral expansiveness. These findings suggest societal factors, especially those associated with generalized trust, may influence the size of our moral worlds.

Keywords: Moral circles, moral expansiveness, economic inequality, trust, anomie

## Moral expansiveness across cultures: The role of societal factors across 39 countries

Turn on any news channel and the message is clear – it seems we live in a world characterised by crime, war and disaster (Bregman, 2020). Yet evidence suggests we are living in the most peaceable times in human history; as humans we are far less violent and care more about those around them compared to any other period in time (Bloom, 2010; Pinker, 2011; Singer, 1981; Waytz et al., 2019). This increase in concern for distant others represents an expansion of our moral circle – the metaphorical boundary drawn around the entities we believe do and do not deserve our moral concern (Singer, 1981). To date, several studies have shown how a variety of individual differences relate to more restricted or expanded moral circles (Crimston et al., 2016; Waytz et al., 2019). However, little is known about the societal factors that shape our moral worlds. The current study thus aims to explore the role of generalized trust, economic inequality, and perceptions of anomie on the expansion of our moral circles.

### **The Moral Circle**

Compared to pre-modern ancestors, the human moral circle has expanded across history in unprecedented ways. Indeed, our hunter-gatherer ancestors are thought to have only cared for their kin and their tribe, and engaged in brutal warfare against those deemed to be outsiders (Meyer et al., 2015; Pinker, 2011; Saladié & Rodríguez-Hidalgo, 2017). The change from a hunter-gatherer lifestyle to agriculture was coupled with a fivefold reduction of violent death, and our allegiances expanded beyond small tribes to members of entire cities (Pinker, 2011). This trend accelerated between the Middle Ages and the 20<sup>th</sup> century, with a ten- to 50-fold drop in the number of people dying by violence in Europe. In modern times, human violence has reached an all-time low and this has coincided with a considerable expanse in our moral concern for others (Bloom, 2010; Crimston et al., 2016, 2018b; Pinker, 2011; Singer, 1981). For many, our moral obligations extend beyond those in our immediate

environment – we feel an obligation to protect from harm those in faraway countries, animals, and the physical environment.

For decades, the expansion of our moral circles over time has been of great philosophical interest (Singer, 1981). However, the capacity to scientifically measure this aspect of moral cognition was developed only recently. Crimston and colleagues (2016) developed the Moral Expansiveness Scale (MES) to capture this construct. For this measure, individuals indicate the entities they include in or exclude from their moral circle, ranging from family and ingroup members to villains and animals. The greater the number of entities placed within one's moral circle, the greater a person's moral expansion. Scores on the MES predict many prosocial outcomes, such as enhanced perspective taking, a greater desire to sacrifice the self for others and volunteering behavior (Crimston et al., 2016, 2018b, 2018a).

The growth of our moral concern throughout history is thought to be due, at least in part, to an increasing capacity for reason and rationality (Bloom, 2010; Pinker, 2011; Singer, 1981). While this trend is evident over time, there are still remarkable disagreements between people in the 21<sup>st</sup> century over who and what is deemed worthy of moral concern. For example, there are significant differences between individuals in the placement of nature and animals within their moral circles (Crimston et al., 2016). Moreover, we see substantial variation in the extent to which individuals value nature vs. outgroups, with some ascribing greater moral worth to human outgroups (“human lovers”), whereas others ascribe greater moral worth to animals and ecosystems (“treehuggers”; Rottman et al., 2021). There are also differences in moral expansion between those with left- and right-wing ideologies, with more restricted moral circles associated with conservative values as well as moral foundations of loyalty and purity (Crimston et al., 2018a; Graham et al., 2011).

### **Societal Factors and Moral Expansiveness**

The limited research to date has provided important insights advancing our understanding of moral circles. However, this work has focussed on individual level factors such as empathy and political orientation (Crimston et al., 2016, 2018b; Waytz et al., 2019), or historical factors such as the capacity for reason (Pinker, 2011). To our knowledge, little to no research has analysed the societal factors that may result in differences in the expansion of our moral world. For one, the size of moral circles may depend on the strength of the social ties between people. The strength of social ties can be captured by two concepts in particular: generalized trust and anomie. First, trust reflects the belief that others will behave in a predictable way (Thagard, 2018), and this provides the social glue that binds people together. In turn, *generalized* trust refers to the extension of trust to others at large (Nannestad, 2008; Van Lange, 2015). A second concept, anomie, extends beyond the basic notion of trust. Anomie refers to the collective perception that the social fabric and leadership of a society is breaking down (Sprong et al., 2019; Teymoori et al., 2017). A breakdown in social fabric is characterised by low trust and a perception that there are few shared moral standards amongst people. Moreover, a breakdown in leadership occurs when leaders are perceived to be illegitimate and ineffective. These two factors are critical to achieve a state of anomie, and each fuels the other (Teymoori et al., 2017). Anomie thus reflects societies with low generalized trust, but it goes beyond this by capturing other perceptions of society (e.g., ineffective leadership and a lack of shared moral standards).

Both anomie and low generalized trust reflect environments with fractured social networks, and this in turn may influence the size of moral circles. Indeed, research has found that both high anomie and low generalized trust are linked to reduced concern for entities such as outgroup members. For example, higher generalized trust is related to positive treatment, attitudes and emotions directed towards minorities (Umemura, 2017). Similarly, anomie is thought to result in a contraction of the social self in response to weaker social ties



and this draws individuals towards smaller, safer groups (Teymoori et al., 2017). This can result in tribalism, where a substantial concern for one's ingroup is coupled with less concern for the outgroup (Heydari et al., 2014). These findings suggest high anomie and low generalized trust may result in a contraction of our moral world and those deemed worthy of our moral concern. However, weaker social ties do not occur in isolation and they are affected in important ways by environmental factors such as economic inequality.

Economic inequality, where a majority of wealth is concentrated in the hands of a minority of the population, is thought to erode the social connections between individuals (Wilkinson & Pickett, 2009). To date, numerous studies have charted a robust link between high economic inequality and reduced generalized trust (e.g., Elgar, 2010; Oishi et al., 2011; Uslaner & Brown, 2005). Recent work has also found high inequality results in greater perceptions of anomie (Sprong et al., 2019). The link between a poor social fabric and greater inequality is thought to exist because inequality, by definition, results in greater distances between individuals in terms of wealth (Jetten et al., 2017). These more salient differences between groups make wealth a more relevant category to understand the social world (Jetten et al., 2017), and this is thought to enhance social comparisons and feelings of competitiveness (Sánchez-Rodríguez et al., 2018). Thus, economic inequality may be linked to more contracted moral circles, and this relationship may be explained by a reduction in generalized trust and an increase in perceptions of anomie.

### **The Current Study**

The current study aims to examine the relationship between the strength of social networks (i.e., generalized trust and perceptions of anomie) and the expansion of moral concern. We also aim to examine whether the broader societal factor of economic inequality is linked to reduced moral expansiveness. Specifically, we hypothesized that high inequality will be related to lower moral expansiveness, and this relationship will be mediated by both

low generalized trust and greater perceptions of anomie. These relationships will be explored in a large, cross-national dataset and represents the first culturally diverse analysis of moral expansiveness.

### **Method**

The current study drew on data from an existing multinational dataset. Hypotheses were pre-registered prior to analysing the data and analysis code has been placed on the Open Science Framework ([https://osf.io/jzpbba/?view\\_only=7c096b2f1c674a90b07944e1839ec61e](https://osf.io/jzpbba/?view_only=7c096b2f1c674a90b07944e1839ec61e)). However, we were not able to place raw data on OSF due to practical limitations. See Supplementary Materials 1 for notes on departure from pre-registration.

### **Participants**

Data collection began in 2018 and was completed in 2019. Participants were recruited from 41 universities spanning 39 countries: Australia, Belgium, Brazil, Canada (English speaking), Canada (French speaking), Chile, China, Colombia, Costa Rica, England, Estonia, France, Germany, Hong Kong, Italy, Japan, Latvia, Macedonia, Malaysia, Netherlands, New Zealand, Nigeria, Northern Ireland, Pakistan, Peru, Philippines, Poland, Portugal, Scotland, Singapore, Slovakia, South Africa, South Korea, Spain, Thailand, Turkey, Uganda, Ukraine, USA (North), USA (South) and Wales. In total, 6665 participants ( $M = 21.61$  years,  $SD = 5.87$  years) completed the questionnaire and approximately 63% of participants identified as female. See Supplementary Materials 2 for information regarding sample size, data exclusion and data collection.

### **Measures**

The individual measures included in the current study were taken from a larger multinational survey (see Supplementary Materials 3 for additional details). Additionally, country-level measures were taken from existing online databases (see Supplementary Materials 4 for additional details).

**Economic inequality.** We measured inequality in three different ways: Gini coefficient (country-level), perceived Gini coefficient (individual-level) and perceived wealth gap between the rich and the poor (individual-level). We first examined the effect of country-level inequality with the Gini coefficient from the World Bank (The World Bank, 2019b). The Gini coefficient measures the degree to which wealth is evenly or unevenly spread across a particular population. Scores for the Gini coefficient can vary between 0 (perfectly equal) to 1 (perfectly unequal; Westfall, 2020).

In addition, we examined subjective perceptions of inequality. An individual's *experience* of wealth is thought to be highly predictive of a number of important outcomes above and beyond *actual* wealth (Glei et al., 2018; Jackson & Payne, 2020; Zang & Bardo, 2019). Perceptions of economic inequality appear to follow a similar pattern and individuals are unlikely to have precise knowledge of how unequal their environment actually is (Oshio & Urakawa, 2014). For example, individuals drastically underestimate how much wealth the top 20% in the US own; while in reality, the top quintile owns 84% of the wealth, individuals estimate they own approximately 57% (Norton & Ariely, 2011; Starmans et al., 2017).

Moreover, country-level measures are limited in their capacity to predict human behavior, and individuals within a country may have very different experiences of inequality. For example, living in a low inequality US state, such as West Virginia (Gini = .37), provides a different experience compared to a high inequality US state such as the District of Columbia (Gini = .54; Frank, 2014). Smaller scale measures may better reflect an individual's actual experience of inequality; however, these are often unavailable. Instead, measures of an individual's perception of inequality in their environment may prove the best way of capturing their experience. Sprong et al. (2019) provided the first evidence for the value of individual-level perceptions; high inequality was linked to enhanced perceptions of anomie, and in turn, was related to increased perceptions that the participant's country needed

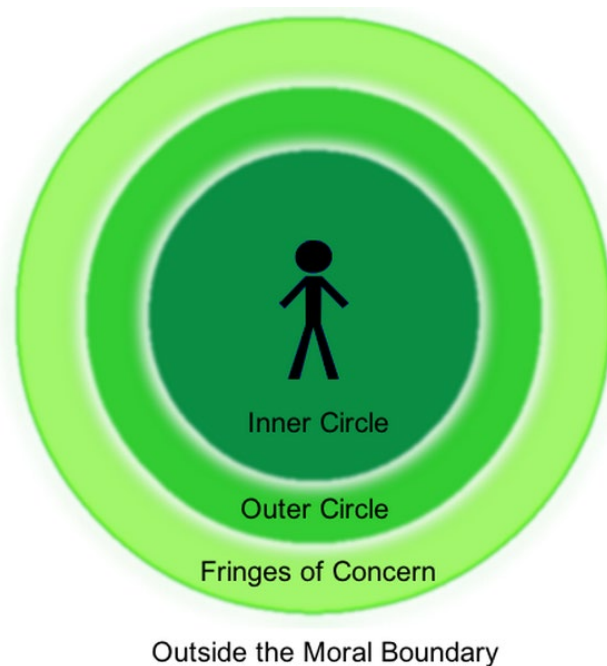
a strong leader. Importantly, this mediated relationship held for subjective perceptions of inequality but not objective measures of inequality (i.e., the Gini coefficient).

We measured perceived inequality in two ways. First, the perceived wealth gap between the rich and the poor was ascertained with the following question: “We would like you to think of the poorest and the wealthiest people in <participant’s country>. Overall, how large is the wealth gap between the poorest and the wealthiest people?”. Responses to this question were coded from (1) very small to (7) very large. Second, we measured inequality based on the entire distribution of wealth using a quasi-Gini coefficient (Sprong et al., 2019). Participants were asked to imagine 100 citizens in their country, and how many of these 100 would belong to each of the five wealth quintiles. The perceived Gini measure was calculated in a similar way to the country-level Gini coefficient (see Supplementary Materials 5 for Gini calculations). Scores could range from (0) most equal to (1) most unequal.

**Generalized trust.** Van Lange et al. (2014) developed a scale of generalized trust that measures both the trust one has for others (three items), e.g., “I completely trust most other people”, and the trust one perceives others to have for them (three items), e.g., “I think that most other people trust me”. Responses were coded from (1) completely disagree to (7) completely agree, with higher scores representing higher levels of generalized trust ( $\alpha = .58$ ).

**Anomie.** Perceptions of anomie were assessed using 12 items developed by Teymoori et al. (2017), with six items measuring breakdown in the social fabric of society, e.g., “People think that there are no clear moral standards to follow”. In addition, six items measured breakdown in leadership, e.g., “Some laws are not fair”. Responses were assessed on a scale from (1) strongly disagree to (7) strongly agree, with higher scores indicating greater perceptions of anomie. A total anomie score was obtained ( $\alpha = .83$ ), as well as a score for a breakdown in the social fabric of society ( $\alpha = .77$ ) and for breakdown in leadership ( $\alpha = .81$ ).

**Moral Expansiveness Scale.** Participants were shown an image of concentric circles and they were informed that each circle represents the amount of moral concern they might have for a particular entity (see Figure 1; Crimston et al., 2016). Using this circle, participants were asked to indicate how much moral concern they afforded to 30 entities, grouped into ten categories: family/friends, in-group members, revered members of society, stigmatized individuals, out-group members, villains, high sentient animals, low sentient animals, the environment and plants. Responses to each entity were coded as: (3) the inner circle of moral concern, (2) the outer circle of moral concern, (1) the fringes of moral concern and (0) outside the moral boundary. A total MES score was obtained by adding the score of each of the 30 entities, to achieve a moral expansiveness score between (0) least morally expansive and (90) most morally expansive ( $\alpha = .92$ ).



*Figure 1.* Image shown to participants for the Moral Expansiveness Scale.

**Control variables.** We controlled for several variables that may be related to moral expansiveness and perceptions of inequality. First, we included several individual level measures. Liberals and conservatives have been shown to differ in their expansion of moral concern (Waytz et al., 2019), and liberals tend to perceive greater levels of inequality

compared to conservatives (Norton & Ariely, 2011). To control for this, we included economic and social conservatism as control variables. Responses to both questions were coded from (1) left/liberal to (7) right/conservative.

Relative to males, females typically exhibit greater moral concern for diverse entities (Waytz et al., 2019) and males also tend to perceive greater levels of inequality compared to females (Norton & Ariely, 2011). To account for this, gender was measured as (1) male or (2) female. Age was measured on a continuous scale in years. Finally, those from higher SES backgrounds tend to be less prosocial to strangers (Piff et al., 2010) and perceive greater levels of inequality (Norton & Ariely, 2011) compared to lower SES individuals. We therefore controlled for social class using the MacArthur Scale of Subjective Social Status (Glei et al., 2018; Goodman et al., 2001; Singh-Manoux et al., 2003). Participants were shown a ten-rung ladder and asked to indicate where they felt they fit on the ladder relative to others, and this was coded from (1) bottom rung/worst off in society to (10) top rung/best off in society.

In addition, several country-level measures were included that may potentially influence the relationship between inequality and moral expansiveness. First, we accounted for the overall prosperity of each country using the Legatum Prosperity Index (Legatum Institute, 2019). This measure collates variables signalling quality of life including economic growth, education, health and wellbeing, and was measured from (0) least prosperous to (100) most prosperous. This was important to account for as a decent quality of life may be necessary before individuals can expand their moral worlds and a prosperous country may also be associated with lower economic inequality.

Democracy in a country gives individuals more freedom compared to those run by authoritarian rule. In democracies, differences in opinions serve as a foundation for the political system, and this may give citizens the freedom to care for greater numbers of

entities. Further, many argue that power travels alongside money when it is skewed towards the elite (Milanovic, 2017). High inequality may result in wealthier individuals having significant power over the political system, eroding true democracy. To account for this, we included the democracy index collated by the Economist Intelligence Unit that ranks countries between (0) most authoritarian to (10) most democratic (Economist Intelligence Unit, 2019).

In addition, high levels of threat and crime within an individual's environment may lead individuals to have restricted moral circles, and threat and crime have been associated with higher inequality (Wilkinson & Pickett, 2009). We included the homicide rate per 100,000 inhabitants per year for each country from the United Nations Office on Drugs and Homicide (United Nations Office on Drugs and Crime, 2019). We also accounted for the wealth of each country by including a measure of Gross Domestic Product at Purchasing Power Parity (GDP PPP) per capita from the World Bank in international dollars (The World Bank, 2019a).

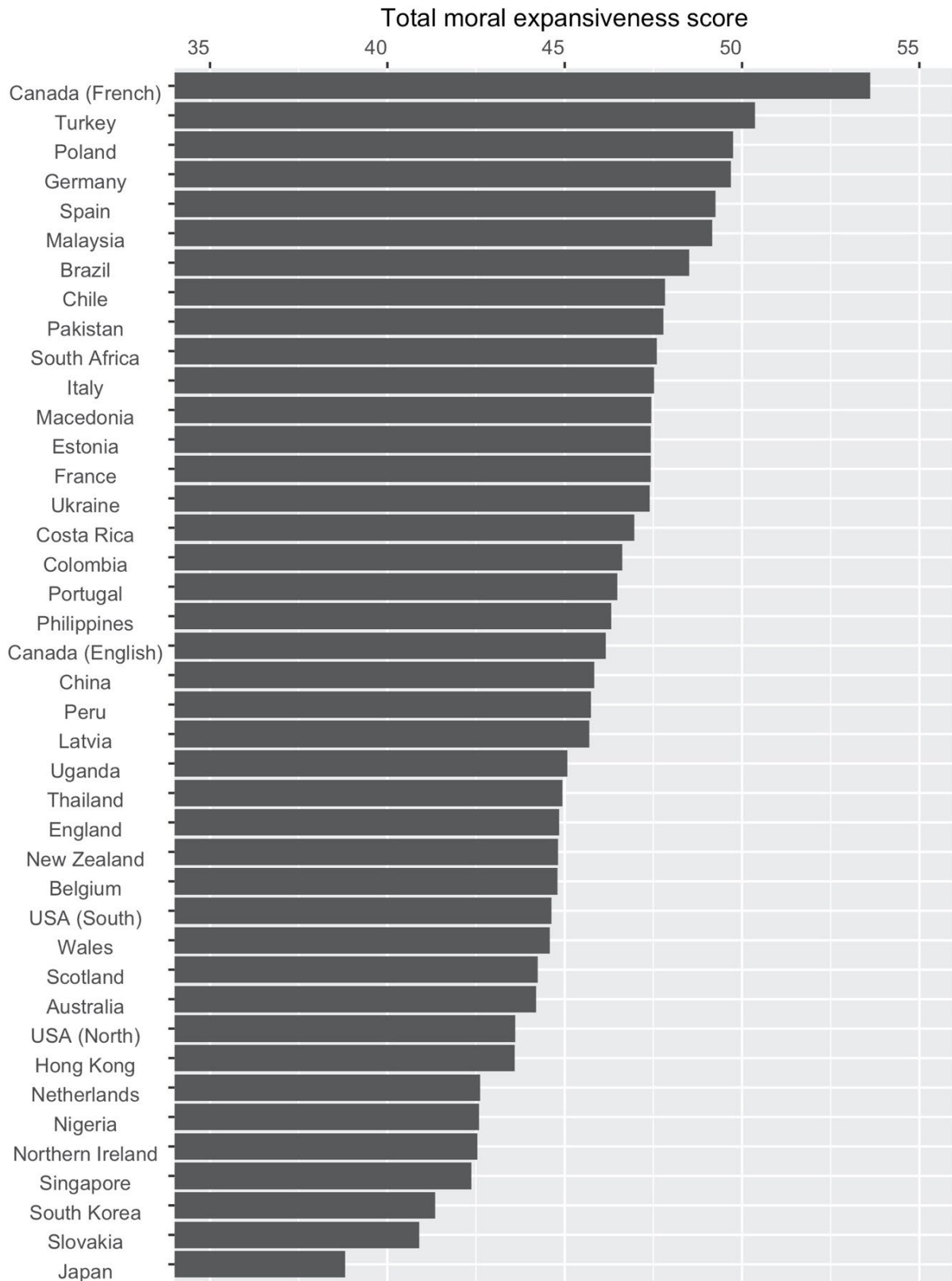
### **Method of Analysis**

In the current study, data was collected from 41 samples and the nested nature of this data was accounted for in analyses. We created a series of Linear Mixed Models (LMM) to address our hypotheses, with a random intercept of country. In each model, all control variables were included as fixed effects and each continuous predictor variable was scaled and centred. The analyses were conducted in R studio (R Core Team, 2008) with the lme4 package to estimate Linear Mixed Models (Bates et al., 2015). The United States (North and South) and Canada (French speaking and English speaking) samples were collected from two different locations, and these were treated as separate samples.

### **Results**

See Supplementary Materials 6 for full results for all models reported below. We first examined the Intraclass Correlation (ICC), and found approximately 4.0% of the variance in moral expansiveness can be explained at the country-level (see Figure 2). While this was small, a Likelihood Ratio Test established the variance between countries was greater than zero,  $\chi^2(40) = 295.53, p < .001$ . An Ordinary Least Squares ANOVA provided converging evidence for this with a significant main effect of country on moral expansiveness,  $F(40, 6520) = 7.51, p < .001$ . Collapsing across all countries, the average moral expansiveness score was approximately on the midpoint of the scale ( $M = 45.93, SD = 13.20$ ), and the distribution of moral expansiveness scores was approximately normal. To establish the relationship between the control variables and moral expansiveness, an LMM was conducted. As shown in Table 1, females ( $M = 46.20, SD = 12.86$ ) reported greater moral expansiveness compared to males ( $M = 44.83, SD = 13.58$ ). In addition, greater moral expansiveness was witnessed with increased age and in those who reported lower levels of economic conservatism.





*Figure 2.* Average moral expansiveness scores per country. Higher numbers indicate greater moral expansiveness.

Table 1

*Linear Mixed Model Examining the Effect of Control Variables on Moral Expansiveness*

Fixed effects	Moral Expansiveness		
	$\beta$	95% CI	<i>p</i>
GDP PPP per capita	-0.08	-0.20, 0.04	.187
Prosperity	0.02	-0.16, 0.20	.814
Democracy	<0.01	-0.12, 0.12	.974
Homicide	0.03	-0.06, 0.13	.513
Gender	0.10	0.04, 0.16	< .001***
Age	0.04	0.01, 0.07	.003**
Subjective SES	0.01	-0.01, 0.04	.272
Social conservatism	-0.02	-0.05, 0.01	.175
Economic conservatism	-0.08	-0.11, -0.05	< .001***
Random effects	Variance	<i>SD</i>	ICC
Country (intercept)	5.09	2.26	.03
Residual	162.52	12.75	

*Note:* Gender was coded as male (1) and female (2).

\*  $p < .05$       \*\*  $p < .01$       \*\*\*  $p < .001$

We then conducted three additional LMMs to examine the effect of generalized trust and anomie on moral expansiveness, with control variables included in the models. First, higher generalized trust was associated with greater moral expansiveness,  $\beta = 0.07$ , 95% CI = [0.05, 0.10],  $p < .001$ . However, there was no significant relationship between perceived anomie and moral expansiveness,  $\beta = -0.03$ , 95% CI = [-0.06, 0.00],  $p = .066$ . We further analysed the relationship between moral expansiveness and the two anomie subscales: breakdown in the social fabric and breakdown in leadership. While the relationship between moral expansiveness and a breakdown in leadership was non-significant,  $\beta = -0.01$ , 95% CI = [-0.04, 0.02],  $p = .370$ , higher moral expansiveness was associated with reduced perceptions of a breakdown in the social fabric of society,  $\beta = -0.03$ , 95% CI = [-0.06, 0.00],  $p = .032$ . Since the relationship between anomie as well as breakdown within leadership and moral expansiveness were not significant, we will not consider these variables in further analyses.

We then conducted nine separate LMMS to examine the effect of each inequality predictor (perceived wealth gap, perceived Gini and country level Gini) on 1) moral expansiveness, 2) generalized trust and 3) breakdown in social fabric. For each model, the inequality predictor and control variables were added as fixed effects, and country was included as the random intercept. As demonstrated in Table 2, a higher perceived wealth gap between the rich and the poor was associated with reduced moral expansiveness, lower generalized trust, and greater perceptions of breakdown in the social fabric. In addition, a higher perceived Gini coefficient was related to greater perceptions of a breakdown in the social fabric. Based on these findings, we examined the hypothesised mediation effect for perceived wealth gap only, with generalized trust and breakdown in the social fabric as potential mediators.

Table 2

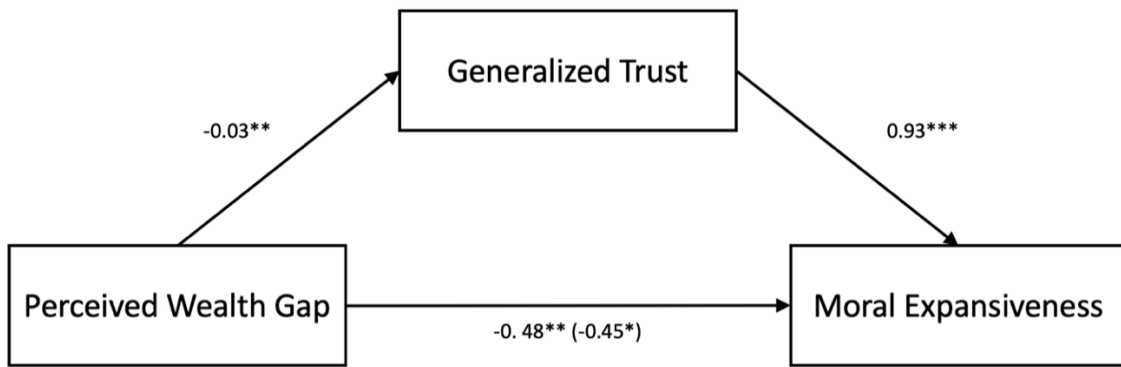
*Linear Mixed Models Examining the Effect of the Inequality Predictors on Moral Expansiveness, Generalized Trust and Breakdown in the Social Fabric of Society.*

Independent variables	Dependent variables	$\beta$	95% CI	$p$
Perceived wealth gap	Moral expansiveness	-0.04	-0.07, -0.01	.003**
	Generalized trust	-0.03	-0.06, -0.01	.010*
	Breakdown in social fabric	0.10	0.08, 0.13	< .001***
Perceived Gini	Moral expansiveness	0.01	-0.02, 0.04	.669
	Generalized trust	0.01	-0.02, 0.04	.361
	Breakdown in social fabric	0.06	0.04, 0.09	< .001***
Country-level Gini	Moral expansiveness	0.08	-0.06, 0.22	.225
	Generalized trust	-0.15	-0.34, 0.03	.113
	Breakdown in social fabric	0.23	0.00, 0.46	.061

\*  $p < .05$       \*\*  $p < .01$       \*\*\*  $p < .001$

We analysed whether generalized trust mediated the effect between perceived wealth gap and moral expansiveness in a multi-level mediation model. In line with predictions, the indirect effect of perceived wealth gap via generalized trust on moral expansiveness was significant,  $b = -0.03$ , 95% CI = [-0.06, -0.01], and the direct effect remained significant,  $b = -0.45$ , 95% CI = [-0.81, -0.12] (see Figure 3). We further analysed whether a breakdown in

the social fabric mediated the relationship between perceived wealth gap and moral expansiveness. Contrary to predictions, the indirect effect of perceived wealth gap via a breakdown in the social fabric on moral expansiveness was non-significant,  $b = -0.03$ , 95% CI = [-0.07, 0.00].



*Figure 3.* Mediation model of the relationship between perceived wealth gap and moral expansiveness, via generalized trust. Unstandardized coefficients are given. Indirect effects were calculated for each of 1000 bootstrapped samples, with the 95% confidence intervals calculated for the 2.5<sup>th</sup> and 97.5<sup>th</sup> percentiles. The value outside parentheses on the lower path is the total effect, and the direct effect is the value inside parentheses. \* $p < .05$ , \*\*  $p < .01$ , \*\*\* $p < .001$

## Discussion

Our moral circles have expanded over time, from a concern for our kin and ingroup, to outgroup members and even animals and nature. In the 21<sup>st</sup> century, even though we include more entities in our moral circles on average compared to any other time in history, there are still significant differences observed between people in how narrow or broad their moral circles are. Until now, it has been unclear how societal factors relate to these differences in the size of moral circles. Here we aimed to establish the relationship between societal factors (i.e., economic inequality, generalized trust and perceptions of anomie) and

the expansion of our moral world in a multinational dataset. Our work has revealed three novel insights. First, only small differences were observed between countries in average moral expansiveness scores, suggesting cultural differences may not affect the size of moral circles to a considerable degree. Second, as hypothesised, greater moral expansiveness was linked to high generalized trust and lower perceptions of a breakdown in the social fabric, but not a breakdown in leadership. Finally, greater perceived economic inequality was linked to more restricted moral circles, and this was mediated by lower generalized trust, but not perceptions of breakdown in social fabric.

We found a clear link between greater generalized trust and increased moral expansiveness. This suggests that trust is the glue that binds relationships, and *generalized* trust may be a necessary ingredient before one can have concern for strangers and other more distant entities. Furthermore, while perceptions of breakdown within leadership (e.g., that government is ineffective and illegitimate) was not predictive of the scope of moral expansiveness, greater perceptions of breakdown in social fabric (e.g., low trust and no shared moral standards) was linked to reduced MES scores. Together this suggests that the relationships between individuals in a society (i.e., the extent to which others can be trusted and have a shared moral framework) relate to the size of moral circles as opposed to perceptions of ineffectiveness and illegitimacy of those in power.

Low generalized trust was found to mediate the relationship between a higher perceived wealth gap amongst the rich and the poor and reduced moral expansiveness. This suggests inequality may fuel low trust amongst individuals, which, in turn, may reduce the size of moral circles. Prior research has established that high economic inequality is related to reduced generalized trust (Oishi et al., 2011; Uslaner & Brown, 2005; Wilkinson & Pickett, 2007), and this is the first work to show it may also have trickle down effects on how we construct our moral world. In contrast, perceptions of breakdown in social fabric did not

mediate the relationship between a higher perceived wealth gap among the rich and the poor and reduced moral expansiveness. Although a breakdown in social fabric is characterised by lower generalized trust between citizens, it also encompasses the perception that there is no shared moral standard amongst people (Teymoori et al., 2017). It thus appears to be the specific element of trust, rather than a breakdown in the social fabric more broadly, that fuel the relationship between perceived wealth gap and moral expansiveness.

It is worth noting, that the mediation effect (perceived wealth gap on moral expansiveness scores, via generalized trust) emerged only when exploring one form of inequality – the perceived wealth gap between the rich and the poor. The perceived Gini coefficient and the country-level Gini coefficient did not relate to moral expansiveness or generalized trust. There are several explanations for the discrepancy in the predictive power of the three inequality measures. First, the three measures represent ways of capturing inequality, but they are not identical constructs. The wealth gap variable defines inequality as the comparison of the wealth owned by the richest to the poorest but ignores the middle class. Both Gini coefficients instead calculate inequality based on the *entire* wealth distribution. This suggests that it is specifically the distance between the poorest and richest which matters most for trust in society and therefore for the size of people's moral worlds. However, our findings may be driven by another third variable that relates to perceptions of inequality. To diminish this possibility, we carefully controlled for variables that may be influencing perceptions of inequality such as gender and conservatism, but our findings may still be influenced by some other variable not controlled for here. Thus, there is some uncertainty about the effect of inequality on moral expansiveness and future work is necessary to provide more robust evidence for this relationship.

The current work is a novel and important step in our understanding of how societal factors may affect human morality. Past work has discussed how moral circles may have

expanded historically, and this may be due to a rise in our capacity for reason and enlightenment ideals (Pinker, 2011; Singer, 1981). Recent empirical work has also suggested more expansive moral circles (as opposed to insular ingroup concerns) are related to liberal political orientations (Waytz et al., 2019), as well as enhanced empathy, connection, and identification with others and more prosocial behavior (Crimston et al., 2016). However, until now, little work has established how societal factors relate to differences between moral circles in current times. In addition, we have also presented the first cross-national analysis of the expansion of our moral world in a large and diverse multinational dataset, allowing us to have more confidence that our results are relevant beyond WEIRD samples (Henrich et al., 2010).

Despite these strengths, the current study has several shortcomings that warrant future research. First, the findings are correlational, making it impossible to establish causality. Future work may wish to examine the causal direction of these relationships in experimental designs. Prior research has successfully manipulated inequality (Côté et al., 2015; Sánchez-Rodríguez et al., 2018; Sprong et al., 2019), and future work should explore whether these manipulations affect moral expansiveness. In addition, we examined overall levels of moral expansiveness, and this approach does not reveal variations in concern for specific types of entities. That is, our analysis does not speak to *which* entities one cares for and how this may be affected by societal factors. Related work has already established that individual differences (e.g., anthropomorphism and dehumanization) predict crucial variations in the makeup of the moral circle (i.e., greater concern for humans vs. nature) and subsequent prosocial intentions (Rottman et al., 2021). Future work may wish to examine how these societal factors affect moral concern for specific entities, such as outgroup members and villains, or greater concern for the environment. Additionally, the generalized trust measure had low reliability. We do not believe this is of great concern, as low reliability generally

makes it harder to find significant relationships. However, it remains possible that this could increase the chances of spurious findings and future work should replicate our findings with other generalized trust measures. Finally, while we collected data from several diverse cultures, the samples came from university pools. The current findings should be replicated in future research with more culturally representative and heterogeneous samples.

Throughout history, our empathy and concern has extended to other entities in ways that are otherwise unprecedented in the animal kingdom. However, until now, little research has explored what kinds of societal factors may influence differences between moral circles in modern times. Here our aim was to examine how some of these factors, including generalized trust, anomie, and inequality, affect the size of our moral worlds. We found a novel link between lower generalized trust and reduced moral expansiveness. Moreover, we have provided initial evidence that due to its relationship with lower generalized trust, economic inequality may reduce the size of our moral worlds. The current study represents an important step in our understanding of how our societies may shape human morality.



## References

- Bates, D., Mächler, M., Bolker, B. M., & Walker, S. C. (2015). Fitting linear mixed-effects models using lme4. *Journal of Statistical Software*, *67*(1).  
<https://doi.org/10.18637/jss.v067.i01>
- Bloom, P. (2010). How do morals change? *Nature*, *464*(7288), 490.  
<https://doi.org/10.1038/464490a>
- Bregman, R. (2020). *Human Kind: A Hopeful History*. Bloomsbury Publishing.
- Côté, S., House, J., & Willer, R. (2015). High economic inequality leads higher-income individuals to be less generous. *Proceedings of the National Academy of Sciences*, *112*(52), 15838–15843. <https://doi.org/10.1073/pnas.1511536112>
- Crimston, C. R., Bain, P. G., Hornsey, M. J., & Bastian, B. (2016). Moral expansiveness: Examining variability in the extension of the moral world. *Journal of Personality and Social Psychology*, *111*(4), 636–653. <https://doi.org/10.1037/pspp0000086>
- Crimston, C. R., Hornsey, M. J., Bain, P. G., & Bastian, B. (2018a). Moral expansiveness short form: Validity and reliability of the MESx. *PLoS ONE*, *13*(10), 1–10.  
<https://doi.org/10.1371/journal.pone.0205373>
- Crimston, C. R., Hornsey, M. J., Bain, P. G., & Bastian, B. (2018b). Toward a psychology of moral expansiveness. *Current Directions in Psychological Science*, *27*(1), 14–19.  
<https://doi.org/10.1177/0963721417730888>
- Economist Intelligence Unit. (2019). *Democracy Index 2019*.  
<https://www.eiu.com/topic/democracy-index>
- Elgar, F. J. (2010). Income inequality, trust, and population health in 33 countries. *American Journal of Public Health*, *100*(11), 2311–2315.  
<https://doi.org/10.2105/AJPH.2009.189134>
- Frank, M. W. (2014). A new state-level panel of annual inequality measures over the period

1916-2005. *Journal of Business Strategies*, 31(1), 241–263.

- Glei, D. A., Goldman, N., & Weinstein, M. (2018). Perception has its own reality: Subjective versus objective measures of economic distress. *Population and Development Review*, 44(4), 695–722. <https://doi.org/10.1111/padr.12183>
- Goodman, E., Adler, N. E., Kawachi, I., Frazier, A. L., Huang, B., & Colditz, G. A. (2001). Adolescents' perceptions of social status: Development and evaluation of a new indicator. *Pediatrics*, 108(2), 1–8. <https://doi.org/10.1542/peds.108.2.e31>
- Graham, J., Nosek, B. A., Haidt, J., Iyer, R., Koleva, S., & Ditto, P. H. (2011). Mapping the moral domain. *Journal of Personality and Social Psychology*, 101(2), 366–385. <https://doi.org/10.1037/a0021847>
- Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world? *Behavioral and Brain Sciences*, 33(139), 61–135. <https://doi.org/10.1017/S0140525X0999152X>
- Heydari, A., Teymoori, A., Haghish, E. F., & Mohamadi, B. (2014). Influential factors on ethnocentrism: The effect of socioeconomic status, anomie, and authoritarianism. *Social Science Information*, 53(2), 240–254. <https://doi.org/10.1177/0539018413517521>
- Jackson, J. C., & Payne, K. (2020). Cognitive barriers to reducing income inequality. *Social Psychological and Personality Science*, 12(5), 687–696. <https://doi.org/10.1177/1948550620934597>
- Jetten, J., Wang, Z., Steffens, N. K., Mols, F., Peters, K., & Verkuyten, M. (2017). A social identity analysis of responses to economic inequality. *Current Opinion in Psychology*, 18, 1–5. <https://doi.org/10.1016/j.copsyc.2017.05.011>
- Lange, P. A. M. Van, Vinkhuyzen, A. A. E., & Posthuma, D. (2014). Genetic influences are virtually absent for trust. *PLoS ONE*, 9(4), e93880. <https://doi.org/10.1371/journal.pone.0093880>

- Legatum Institute. (2019). *Legatum Prosperity Index*. <https://www.prosperity.com/rankings>
- Meyer, C., Lohr, C., Gronenborn, D., & Alt, K. W. (2015). The massacre mass grave of Schöneck-Kilianstädten reveals new insights into collective violence in Early Neolithic Central Europe. *Proceedings of the National Academy of Sciences of the United States of America*, *112*(36), 11217–11222. <https://doi.org/10.1073/pnas.1504365112>
- Milanovic, B. (2017). *The higher the inequality, the more likely we are to move away from democracy*. The Guardian.
- Nannestad, P. (2008). What have we learned about generalized trust, if anything? *Annual Review of Political Science*, *11*, 413–436. <https://doi.org/10.1146/annurev.polisci.11.060606.135412>
- Norton, M. I., & Ariely, D. (2011). Building a better America—one wealth quintile at a time. *Perspectives on Psychological Science*, *6*(1), 9–12. <https://doi.org/10.1177/1745691610393524>
- Oishi, S., Kesebir, S., & Diener, E. (2011). Income inequality and happiness. *Psychological Science*, *22*(9), 1095–1100. <https://doi.org/10.1177/0956797611417262>
- Oshio, T., & Urakawa, K. (2014). The association between perceived income inequality and subjective well-being: Evidence from a social survey in Japan. *Social Indicators Research*, *116*(3), 755–770. <https://doi.org/10.1007/s11205-013-0323-x>
- Piff, P. K., Kraus, M. W., Côté, S., Cheng, B. H., & Keltner, D. (2010). Having less, giving more: The influence of social class on prosocial behavior. *Journal of Personality and Social Psychology*, *99*(5), 771–784. <https://doi.org/10.1037/a0020092>
- Pinker, S. (2011). *The better angels of our nature: Why violence has declined*. Viking.
- R Core Team. (2008). R: A Language and Environment for Statistical Computing. Vol. 739. In *R Foundation for Statistical Computing*. <https://doi.org/http://dx.doi.org/10.1007/978-3-540-74686-7>

- Rottman, J., Crimston, C. R., & Syropoulos, S. (2021). Tree-huggers versus human-lovers: Anthropomorphism and dehumanization predict valuing mature over outgroups. *Cognitive Science*, 45(4), 1–37. <https://doi.org/10.1111/cogs.12967>
- Saladié, P., & Rodríguez-Hidalgo, A. (2017). Archaeological evidence for cannibalism in prehistoric Western Europe: from Homo antecessor to the Bronze Age. *Journal of Archaeological Method and Theory*, 24(4), 1034–1071. <https://doi.org/10.1007/s10816-016-9306-y>
- Sánchez-Rodríguez, Á., Willis, G. B., Jetten, J., & Rodríguez-Bailón, R. (2018). Economic inequality enhances inferences that the normative climate is individualistic and competitive. *European Journal of Social Psychology*, 49(6), 1114–1127. <https://doi.org/10.1002/ejsp.2557>
- Singer, P. (1981). *The expanding circle: Ethics and sociobiology*. Farrar, Straus & Giroux.
- Singh-Manoux, A., Adler, N. E., & Marmot, M. G. (2003). Subjective social status: Its determinants and its association with measures of ill-health in the Whitehall II study. *Social Science and Medicine*, 56(6), 1321–1333. [https://doi.org/10.1016/S0277-9536\(02\)00131-4](https://doi.org/10.1016/S0277-9536(02)00131-4)
- Sprong, S., Jetten, J., Wang, Z., Peters, K., Mols, F., Verkuyten, M., Bastian, B., Ariyanto, A., Autin, F., Ayub, N., Badea, C., Besta, T., Butera, F., Costa-Lopes, R., Cui, L., Fantini, C., Finchilescu, G., Gaertner, L., Gollwitzer, M., ... Wohl, M. J. A. (2019). “Our country needs a strong leader right now”: Economic inequality enhances the wish for a strong leader. *Psychological Science*, 30(11), 1625–1637. <https://doi.org/10.1177/0956797619875472>
- Starmans, C., Sheskin, M., & Bloom, P. (2017). Why people prefer unequal societies. *Nature Human Behaviour*, 1(4), 1–7. <https://doi.org/10.1038/s41562-017-0082>
- Teymoori, A., Bastian, B., & Jetten, J. (2017). Towards a psychological analysis of anomie.

*Political Psychology*, 38(6), 1009–1023. <https://doi.org/10.1111/pops.12377>

Thagard, P. (2018). *What Is Trust?* Psychology Today.

The World Bank. (2019a). *GDP per capita, PPP (current international \$)*.

[https://data.worldbank.org/indicator/NY.GDP.PCAP.PP.CD?end=2019&name\\_desc=false&start=1990&view=chart](https://data.worldbank.org/indicator/NY.GDP.PCAP.PP.CD?end=2019&name_desc=false&start=1990&view=chart)

The World Bank. (2019b). *Gini index (World Bank estimate)*.

<https://data.worldbank.org/indicator/SI.POV.GINI>

Umemura, T. (2017). Attitudes toward ingroups versus outgroups as unique distinctions between political trust and generalized social trust: A study of ethnically diverse youth in the Czech Republic. *Ceskoslovenska Psychologie*, 61(5), 433–448.

United Nations Office on Drugs and Crime. (2019). *Victims of intentional homicide, 1990-2018*. <https://dataunodc.un.org/content/data/homicide/homicide-rate>

Uslaner, E. M., & Brown, M. (2005). Inequality, trust, and civic engagement. *American Politics Research*, 33(6), 868–894. <https://doi.org/10.1177/1532673X04271903>

Van Lange, P. A. M. (2015). Generalized trust: Four lessons from genetics and culture.

*Current Directions in Psychological Science*, 24(1), 71–76.

<https://doi.org/10.1177/0963721414552473>

Waytz, A., Iyer, R., Young, L., Haidt, J., & Graham, J. (2019). Ideological differences in the expanse of the moral circle. *Nature Communications*, 10(1).

<https://doi.org/10.1038/s41467-019-12227-0>

Westfall, P. (2020). *Gini Index*. Investopedia. <https://www.investopedia.com/terms/g/gini-index.asp>

Wilkinson, R. G., & Pickett, K. E. (2007). The problems of relative deprivation: Why some societies do better than others. *Social Science and Medicine*, 65(9), 1965–1978.

<https://doi.org/10.1016/j.socscimed.2007.05.041>

Wilkinson, R. G., & Pickett, K. E. (2009). *The spirit level: Why more equal societies almost always do better*. Allen Lane.

Zang, E., & Bardo, A. R. (2019). Objective and subjective socioeconomic status, their discrepancy, and health: Evidence from East Asia. *Social Indicators Research*, *143*(2), 765–794. <https://doi.org/10.1007/s11205-018-1991-3>