

Echoes of compassion in the Global Flourishing Study: Cross-national distributions and predictors of prosociality and loving care

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Abstract: *Background.* This article explores compassion as a manifestation of ‘love in action’ (sometimes termed compassionate love) that can be expressed in many ways. As a first step, we focus on four key outcomes: three compassionate acts (helping strangers, volunteering, and charitable giving) and a broader measure of love that encompasses compassion (showing love and care to others). We view compassion as an outcome that is associated with identifiable enabling conditions (e.g., good health), as well as a cause of valued well-being outcomes, but little is known about cross-national variation in such associations.

Methods. We synthesized a series of studies that used data from the Global Flourishing Study (GFS), a diverse and international sample of 202,898 individuals across 22 countries. These studies examined the distributions of three compassionate acts and showing love/care across (1) countries, (2) demographic categories, and (3) examined candidate childhood predictors of the compassionate acts and showing love/care in adulthood, and cross-national variation in these associations.

Results. First, across all measures, there was meaningful variation across countries (e.g., helping strangers ranged from 11% [0.11, 0.12] in Japan to 83% [0.81, 0.84] in Nigeria) and within countries across measures. Second, there was meaningful demographic variation between measures across countries (e.g., love/care and charitable giving increased with age, helping strangers decreased with age, and volunteering was more uniform [until 80+]). Finally, when evaluating childhood predictors, the three compassionate acts and showing love/care had some similarities, and some differences (e.g., experiencing childhood abuse was associated with a higher likelihood of compassionate acts in adulthood, but lower love/care).

Discussion. These cross-national findings provide insights into the key sociodemographic variables and childhood predictors that may help guide the development of the epidemiology of compassion, including the emergence of a case definition for compassion itself. Cross-national variations in patterns across these measures suggest that future research must attend to important contextual differences.

Keywords: prosocial behavior, love, cross-national, childhood, demographics

1. Introduction

Compassion is central to what it means to be human and especially to be ethical, and it is also at the heart of some of the world’s most influential institutions, including healthcare and justice systems as well as religious traditions (Strauss et al., 2016). It has been called the “most intensive

form” of intersubjectivity and critical for an “enriched existence” (Davies, 2001:xix). Research on compassion is well-developed in fields such as psychology or neuroscience, but not in epidemiology (Addiss et al., 2022). One reason is lack of agreement about a suitable “case definition,” although important progress has recently been made (Addiss and Richards, 2026; Addiss et al., 2022; Strauss et al., 2016). A universal definition of compassion “may not be either achievable or appropriate”—this was the conclusion of a collective discussion of compassion experts, as summarized by the Task Force for Global Health (2024:9). Hightower and Addiss (2026:6) note that, “we may not be able to measure compassion directly.” But many scholars would agree that whatever else it might include, compassion will generally refer to “a response to suffering that involves cognitive awareness, empathy, and action to alleviate suffering” (Addiss et al., 2022:2) and also that “we can measure whether compassion is high or low with a set of observed variables” (Hightower and Addiss, 2026:6). Given the ubiquity of suffering in the world, this broad understanding of compassion will likely play a critical role in “positive epidemiology,” an emerging subdiscipline that focuses on the sociodemographic, spatial, and temporal clustering of “health in its fullest sense” (VanderWeele et al., 2020:190).

There are currently no population-level studies of compassion that qualify as truly epidemiological. This article uses cross-national data to explore proxy measures (‘echoes of compassion’ that indicate compassion could be present) as an initial move towards establishing an epidemiology of compassion. Until more direct assessments of compassion are developed, validated, and deployed in large-scale data collection efforts, our proxies provide some guidance for measuring exposures that affect aspects of compassion at the population level (e.g., nation). Understanding the distribution and predictors of these measures is also valuable as an end in itself due to the important role that they play in the quality of life for individuals and groups. Because compassion and related constructs also serve as exposures for other desired outcomes (Lee et al., 2021; Saarinen et al., 2020; VanderWeele and Lee, 2025), our findings also have implications for the epidemiology of well-being. We view compassion as a manifestation of ‘love in action’ (sometimes termed *compassionate love*, see Fehr and Sprecher, 2026; Sprecher and Fehr, 2005) that can be expressed in many ways across cultures. It is an outcome that is associated with identifiable enabling conditions at the population level (e.g., religious service attendance, good health). But little is known about cross-national variation in such associations. As a first step toward such understanding, and therefore toward an epidemiology of compassion more generally, we present findings for four key compassion-relevant outcomes: three compassionate acts (helping strangers, volunteering, and charitable giving) and a broader measure of love that encompasses compassion (showing love and care to others).

1.1 Compassion and compassion-relevant constructs

Compassion, helping others, volunteering, charitable giving, and other prosocial acts can all be viewed in some sense as expressions of love and care, or “loving care” (Post, 2022:143). Wolterstorff (2011:3-4) notes that “Among the diverse phenomena that we use the English word ‘love’ to refer to, prominent is that of seeking to promote some well-being-good of someone or other as an end in itself.” Drawing on Aquinas, this well-established philosophical position affirms that love involves “the desire to be with, or be united with, the beloved and to the desire to contribute or have good come to the beloved object, sometimes requiring both desires to constitute love” (VanderWeele, 2023:105). Love is thus defined as “a disposition toward either (i) desiring a perceived good or desiring union with it, either as an end itself or with it being a source of delight in itself or (ii) desiring good for a particular object for its own sake” (VanderWeele, 2023:106). In principle, the object could include a variety of possibilities, including other people,

a place, or even all of creation (Lomas et al., 2024; Counted et al., 2025). The current paper focuses on interpersonal love. Post (2022:142) draws on the work of psychiatrist Harry Stack Sullivan to argue that love makes the concerns of the other “as real to you, or more real, than your own.” This is perhaps the essence of love, that it releases human beings from “the proliferation of blinding self-centered aims” so that the “direction of attention is, contrary to nature, outward, away from the self” (Murdoch, 1950/1999:354), and so that the beloved, and the good of the beloved, both become ‘real’ for the lover. This is fundamental to prosocial acts that are more than simple reflex or conditioned behaviors, such as reaching out to prevent an infant from touching something dangerous, which seems to be a “hardwired” response for most people.

If we take compassion to be an expression of love (Post, 2022), in the context of the perception of someone else’s suffering, then the desire for the good of the other (i.e., that their suffering might be reduced or relieved) is critical. In many cases, the expression of this desire will also involve “union” with the beloved, in the sense of being present to them in a manner that allows awareness of their suffering and empathy for them to arise, which is consistent with the definition of compassion identified by Addiss et al. (2022). On the other hand, charitable giving might not entail awareness of the unique suffering of a specific person, but rather a benevolent desire to positively impact a group or issues, possibly without direct need or explicit regard to suffering. Many acts of love aim not at the reduction of suffering, but instead at the promotion of excellence, goodness, happiness, moral virtue, or flourishing. Regardless of whether all the elements of love are present in a particular expression of compassion—or whether all of the elements of compassion are present in specific act of benevolent, prosocial helping—it is clear that all of these constructs bear a family resemblance.

Post (2022:143) suggests that love is the hub and compassion, helping, gratitude, forgiveness, and the like are spokes (“modulations”) that radiate from it. Noting how virtues tend to cluster and work together, Gulliford and Roberts (2018:216) highlight an “allocentric quintet” of virtues rooted in “to caring about others for their sake”: compassion, generosity, gratitude, forgivingness, and a “guest member,” humility. There is little to be gained by reifying a specific number, and the phrase “guest member” suggests that other guests are also possible, and Post (2022) does list others. What is the object of allocentric virtues, however enumerated? Gulliford and Roberts (2018:216) have a ready answer: the good of the other, or in their words, “care about their health, happiness, safety, pleasure, comfort, or prospects—their well-being very broadly conceived.” Even absent a specific desire to know and help a particular individual, charitable giving (unless completely motivated by an instrumental desire for tax benefit), and other forms of helping, derive from a concern with the good of the other, and can therefore be understood as expressions of love in action. Indeed, research has found that compassion fosters domains of well-being and flourishing (Nolan et al., 2022)—as does volunteering (Kim et al., 2020), informal helping (Nakamura et al., 2024) and other expressions of love (Wilkinson et al., 2025)—and the well-being and flourishing of the beloved is a core goal of love. In other words, compassion is inherently related to the domains of well-being (VanderWeele & Johnson, 2025ab).

In sum, attempts to promote goodness for others in the context of perceiving their suffering are often labelled “compassion” (Strauss et al., 2016) or “compassionate love” (Sprecher and Fehr, 2005), but love itself (i.e., desiring the good of the other) does not require the beloved’s suffering. This is why terms such as loving care, loving-kindness, *shalom*, *caritas*, *agape*, and charity are the broader categories that ground compassion or compassionate love (e.g., Lee, 2022; Post, 2022). The Greek terms *eros* (self-seeking love) and *agape* (self-giving love, spiritual love) are sometimes framed as opposites (Nygren, 1982), but they are perhaps better understood as complimentary (Hanson, 2023; Sorokin, 1954). In other words, love and compassion, like all other prosocial acts,

need not be militantly “selfless,” although Murdoch’s point still holds: love helps us direct genuine attention to the beloved, their sufferings, their needs, and their greatest good.

The convergence, or family resemblance, of love, compassion, and related constructs is reflected in empirical measures. For example, an assessment of the Compassion Love Scale (CLS) notes that “it is questionable whether [some] items... assess compassion or in fact more broadly assess empathy and kindness respectively” and that the CLS exhibits “significant correlations in the expected directions with measures of empathy, helpfulness, [and] volunteerism (Strauss et al., 2016:21-22). It is probable that a clear conceptual or empirical distinction between love, compassion, and related constructs will remain elusive. They might be better understood as modes of expression, or modulations, in different contexts (Post, 2022).

1.2 ‘Echoes of compassion’, and ‘health in its fullest sense,’ in positive epidemiological studies

Even if a true epidemiology of compassion has not yet emerged, there is value in using available data to examine ‘echo’ measures which have an allocentric family resemblance. The Global Flourishing Study (GFS) provides an opportunity to explore four such measures in 22 geographically and culturally diverse countries: formal volunteering, helping strangers, charitable giving, and showing love/care. The first three are compassionate acts (also referred to as prosocial behaviors), while the fourth is a broader measure that could entail any of the other three, as well as other expressions of loving care (e.g., forgiveness). Although we had access to only the first wave of GFS data, future research might profit from the longitudinal nature of the data collection and make further contributions to understanding how these ‘echoes of compassion’ are shaped by various exposures over time, and how they might also impact other outcomes of interest, such as the domains of well-being and flourishing covered by the GFS (i.e., “health in its fullest sense,” VanderWeele et al., 2020:190). At present, we focus on the geographic and sociodemographic distributions of these four compassion-related measures across nations, as well as their childhood predictors. We expect that similar findings will emerge for these four measures, but we also anticipate that important variations will be revealed. It is likely, but far from guaranteed, that future research will uncover somewhat similar patterns with regard to the actual experience of compassion itself.

Cross-national research finds that formal volunteering varies across nations and sociodemographic groups within nations, and that it is associated with a variety of well-being indicators (Nakamura et al., 2025a; Snyder and Omoto, 2008). Similar findings have emerged for helping strangers and charitable giving (Nakamura et al., 2025b) and showing love or care to others (Lee et al., 2026; VanderWeele and Lee, 2025). It is well-understood that prosociality, however measured, is an important determinant of well-being (Kubzansky et al., 2023). But there has been less research comparing the distributions of different forms of prosociality across nations and sociodemographic groups. Our paper is among the first to explore these patterns through the lens of compassion. Insights about predictors of such clustering by place and group could inform policies that shape the common good in culturally nuanced ways. It is our hope that attention to these ‘echoes of compassion’ will encourage researchers to develop and study more direct measures of compassion experience.

2. Methods

In this study, we synthesize findings from a series of published studies using coordinated analyses (Lee et al., 2026; Nakamura et al., 2025abcd). These publications are part of the Nature special collection of papers on Wave 1 of the GFS that are using coordinated methodology across papers and constructs (consistent methods in all papers for comparison purposes). In these

studies, the distribution of formal volunteering, helping strangers, charitable giving, and showing love/care were examined across countries, demographic categories, and candidate childhood predictors of the aforementioned compassionate acts and showing love/care in adulthood, and whether these associations varied by country. We have created tables containing select results from these publications, with permission under the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>) for Nakamura et al. (2025abcd) and for Lee et al. (2026). An abbreviated description of the methods used in the studies synthesized here is described in the methods section below. These methods have been adapted from these previously published studies and other materials, and further methodological detail and item wording is available elsewhere (Crabtree et al., 2021; Johnson et al., 2023; Johnson et al., 2024; Lomas et al., 2025; Padgett et al., 2025a, 2025b; Padgett, Cowden, et al., 2025; Padgett et al., 2024; Ritter et al., 2024; VanderWeele et al., 2025).

2.1 Study population

The GFS is a study of 202,898 participants from 22 geographically and culturally diverse countries, with nationally representative sampling within each country, concerning the distribution of determinants of multiple domains of well-being, which taken together, and inclusive of all levels of analysis, comprise complete well-being, or flourishing (VanderWeele et al., 2025). Wave 1 of the data included the following countries and territories: Argentina, Australia, Brazil, Egypt, Germany, Hong Kong, India, Indonesia, Israel, Japan, Kenya, Mexico, Nigeria, the Philippines, Poland, South Africa, Spain, Sweden, Tanzania, Turkey, United Kingdom, and the United States. These countries and territories were selected to (a) maximize coverage of the world's population, (b) ensure geographic, cultural, and religious diversity, and (c) prioritize feasibility and leverage existing data collection infrastructure. Data collection was carried out by Gallup Inc. Data for Wave 1 were collected principally during 2023, with some countries beginning data collection in 2022 and exact dates varying by country (Ritter et al., 2024). The precise sampling design varied by country to ensure nationally representative samples and further details are available elsewhere (Ritter et al., 2024). Survey items were all obtained via self-report (in face-to-face, telephone, or online surveys).

2.2 Measures

2.2.1 Demographics variables

Participants self-reported sociodemographic characteristics, including age (18-24, 25-29, 30-39, 40-49, 50-59, 60-69, 70-79, and 80 or older), gender (male, female, or 'other'), marital status (single/never married, married, separated, divorced, widowed, and domestic partner), employment (employed, self-employed, retired, student, homemaker, unemployed and searching, and 'other'), education (up to 8 years, 9-15 years, and 16+ years), religious service attendance (more than once/week, once/week, one-to-three times/month, a few times/year, or never), immigration status (born in this country or born in another country), religious tradition/affiliation (Christianity, Islam, Hinduism, Buddhism, Judaism, Sikhism, Baha'i, Jainism, Shinto, Taoism, Confucianism, Primal/Animist/Folk religion, Spiritism, African-Derived, some other religion, or no religion/atheist/agnostic; precise response categories varied by country (Johnson et al., 2023), and racial/ethnic identity (assessed in some, but not all, countries, with response categories varying by country).

2.2.2 Childhood factors

Childhood variables (most of which were retrospectively reported) included relationship with mother (very/somewhat good versus very/somewhat bad), relationship with father (very/somewhat good versus very/somewhat bad), parental marital status (married, divorced, never married, and one or both had died), subjective financial status (lived comfortably, got by, found it difficult, and found it very difficult), experience of abuse (yes/no), feeling like an outsider while growing up (yes/no), self-rated health (excellent, very good, good, fair, or poor), immigration status (born in this country or born in another country), religious service attendance during childhood (at least once/week, one-to-three times/month, less than once/month, or never), gender (male, female, or 'other'), age (year of birth; 18–24, 25–29, 30–39, 40–49, 50–59, 60–69, 70–79, and 80 or older), childhood religious tradition/affiliation (response options varied by country), and racial/ethnic identity (response options varied by country).

2.2.3 Outcome variables

Volunteering (“In the past month, have you volunteered your time to an organization?”), charitable giving (“In the past month, have you donated money to a charity?”), and helping strangers (“In the past month, have you helped a stranger or someone you didn't know who needed help?”) were each assessed with a single item. Response options were binary yes/no for all three items. Showing love/care (which, for brevity, we sometimes refer to as “love/care”) was assessed with the following question: “How often do you show someone in your life that you love or care for them?” Response options were a Likert-type scale ranging from 0 (never) to 10 (always). We analyzed this indicator as a continuous variable, with higher scores indicating higher frequency of showing love/care. A related item has been used in religious settings (Krause, 2006) but was adapted for general community surveys in the GFS (Ritter et al., 2024).

For additional details on the assessments see the COS GFS codebook or other materials (Crabtree et al., 2021).

2.3 Statistical analysis

Statistical analyses are briefly described here, and further detail is available elsewhere (Padgett, Bradshaw, et al., 2025ab; Padgett, Cowden, et al., 2025). First, we estimated nationally representative proportions (adjusted for complex survey design and weighted to be nationally representative) for volunteering, helping strangers, and charitable giving separately for each country and presented them in order from highest to lowest along with 95% confidence intervals. The same was done for mean values of showing love/care. Second, we estimated variation in proportions or means for each measure across demographic categories, with all analyses initially conducted separately within each country. Then, we conducted random effects meta-analyses of country-specific means and proportions for each specific demographic category. Third, for binary measures, we fit a weighted modified Poisson regression model with complex survey adjusted standard errors within each country by regressing our measures (in separate models) on all of the aforementioned childhood predictor variables simultaneously. For showing love/care, we used a weighted linear regression model with complex survey adjusted standard errors to regress showing love/care on all childhood predictors simultaneously. Country-specific regression coefficients were pooled using random effects meta-analyses of the regression coefficients. All meta-analyses were conducted in R using the metafor package (Viechtbauer, 2010). These meta-analyses show sociodemographic patterns and associations with childhood factors in the entire sample across nations. Country-specific patterns can be found in the original publications (Lee et

al., 2026; Nakamura et al., 2025abcd). Bonferroni corrected p -value thresholds are provided based on the number of demographic (i.e., $p < .007$) or childhood (i.e., $p < .004$) variables considered. Further details can be found in the table footnotes, Nakamura et al. (2025abcd), and Lee et al. (2026).

We also conducted exploratory, non-preregistered, correlation analyses. First, we conducted between country correlations of the ‘echoes of compassion’ based on the country-level means and proportions (Figure A1). Second, we conducted correlations between the ‘echoes of compassion’ within each country (Table A1) and in the overall sample (meta-analyzed country specific correlation estimates for each variable pair; Table A2).

3. Results

3.1 Descriptive statistics

Nationally representative descriptive statistics on demographic characteristics of the overall sample (all 22 countries combined) are provided elsewhere (Lee et al., 2026; Nakamura et al., 2025abcd). The sample was generally evenly distributed across age groups (apart from participants aged over 80), and gender, apart from ‘other’ gender identities (51% female participants). The sample primarily reported: being married (53%), being employed for an employer (39%), attending religious services at least a few times a year or more (63%), having 9–15 years of education (57%), and being native to their home country (94%). Participants more often reported having a very good relationship with their mother (63%) and father (53%), growing up in families with married parents (75%), perceiving their family’s financial status as “getting by” (41%), not experiencing abuse (82%), and not feeling like an outsider during childhood (84%). Participants also more often rated their health as excellent (33%) and attended religious services at least 1/week at age 12 (41%).

Meta-analyzing across these 22 countries, the overall estimated proportions and means were 24% (95% CI [0.19, 0.29]) for volunteering, 56% (95% CI [0.49, 0.63]) for helping strangers, 38% (95% CI [0.31, 0.46]) for charitable giving, and 8.08 (95% CI: 7.99, 8.16) on a scale from 0-10 (from Never to Always) for showing love/care. The Supplementary Materials in the original studies provide nationally representative descriptive statistics across demographic categories by country (see Supplementary Tables S1a–S22a in each paper (Lee et al., 2026; Nakamura et al., 2025abcd)).

3.2 Variation in volunteering, helping strangers, charitable giving, and showing love/care across and within countries

Table 1 shows ordered proportions of volunteering, helping strangers, and charitable giving, and ordered means of showing love/care, across countries. We caution against interpreting these findings as definitive rankings between countries, given cross-cultural complexities related to translation, response scales, and social norms, as well as national institutional orientations to the distribution of access to resources, including economic scarcity or abundance (Lee et al., 2025; Oishi, 2010).

First, across all measures, we observed meaningful variation between countries. Rates of compassionate acts varied widely between countries: volunteering ranged from 4% (95% CI [0.04, 0.05]) in Egypt to 51% (95% CI [0.48, 0.53]) in Nigeria, rates of helping strangers ranged from 11% (95% CI [0.11, 0.12]) in Japan to 83% (95% CI [0.81, 0.84]) in Nigeria, rates of charitable giving ranged from 10% (95% CI [0.09, 0.10]) in Japan to 79% (95% CI [0.77, 0.80]) in Indonesia. Conversely, showing love/care to others (range: 0 = Never, 10 = Always) was a common practice across countries in the sample: seventeen of the 22 countries had means of 8 or higher (the range

was 5.96 (95% CI [5.92, 5.99]) in Japan to 9.05 (95% CI [8.99, 9.10]) in the Philippines) and only two countries were below 7: Hong Kong and Japan. Countries in the Global South tended to report the highest means of love/care, with the Philippines, Indonesia, Tanzania, and Mexico having the four highest means. In contrast, many Western, developed countries reported lower means—for instance, the United Kingdom placed 16th, and Sweden, Germany, and Poland were even further down the list, though Israel was 5th.

There was also meaningful variation within countries across measures with some countries scoring consistently high across multiple measures and others scoring consistently low. Nigeria was the only country in the top half (top 11) for all four measures, with 51% volunteering (95% CI [0.48, 0.53], 1st), 83% helping strangers (95% CI [0.81, 0.84], 1st), 48% charitable giving (95% CI [0.45, 0.50], 9th), and a love and care score of 8.38 (95% CI [8.31, 8.45], 11th). The United States and Australia were also among the top 12 countries for all four measures. In contrast, some countries scored low across all measures, such as Japan, with 9% volunteering (95% CI [0.08, 0.09], 20th), 11% helping strangers (95% CI [0.11, 0.12], 22nd), 10% charitable giving (95% CI [0.09, 0.10], 22nd), and a love and care score of 5.96 (95% CI [5.92, 5.99], 22nd). Likewise, Poland had corresponding values of 8% for volunteering (95% CI [0.07, 0.09], 21st), 26% helping strangers (95% CI [0.24, 0.28], 21st), 20% charitable giving (95% CI [0.19, 0.22], 18th), and a love and care score of 7.80 (95% CI [7.68, 7.92], 20th).

Most countries showed more mixed profiles. Several countries scored relatively high for three of the four measures but lower in another: for example, Indonesia reported 46% volunteering (95% CI [0.44, 0.48], 2nd), 79% charitable giving (95% CI [0.77, 0.80], 1st), and a love and care score of 8.85 (95% CI [8.79, 8.91], 2nd), but only 50% helping strangers (95% CI [0.48, 0.52], 18th). Similarly, Hong Kong had 35% volunteering (95% CI [0.32, 0.37], 4th), 65% helping strangers (95% CI [0.62, 0.67], 6th), 51% charitable giving (95% CI [0.48, 0.53], 7th), but lower love/care (6.52, 95% CI [6.40, 6.64], 21st). Other countries had high scores on one or two measures, and lower scores on others: the United Kingdom had relatively high charitable giving (61%, 95% CI [0.59, 0.63], 2nd) and volunteering (30%, 95% CI [0.28, 0.31], 6th), but lower helping strangers (56%, 95% CI [0.54, 0.58], 15th), and love/care (8.14, 95% CI [8.06, 8.21], 16th). Egypt had a high proportion of helping strangers (73%, 95% CI [0.71, 0.74], 2nd) and charitable giving (58%, 95% CI [0.56, 0.60], 3rd) but lower volunteering (4%, 95% CI [0.04, 0.05], 22nd) and love/care (8.27, 95% CI [8.17, 8.37], 14th); the Philippines reported the highest love and care score (9.05, 95% CI [8.99, 9.10], 1st) and moderate helping strangers (64%, 95% CI [0.62, 0.65], 8th), and volunteering (26%, 95% CI [0.24, 0.27], 9th), but lower charitable giving (14%, 95% CI [0.13, 0.15], 21st).

When evaluating bivariate correlations between the means and proportions of volunteering, helping strangers, charitable giving, and showing love/care, at the country level (Figure A1), volunteering was moderately positively correlated with helping strangers ($r = 0.50$, $t(20) = 2.56$, $p = .019$; 95% CI [0.10, 0.76]). Helping strangers was also moderately positively correlated with showing love/care ($r = 0.48$, $t(20) = 2.48$, $p = .022$; 95% CI [0.08, 0.75]). No other correlations between the measures were statistically significant at the country level, though the country sample is only 22. Correlations between the 'echoes of compassion' within each country (Table A1) and in the overall sample (meta-analyzed country specific correlation estimates for each variable pair; Table A2) are available in the Appendix. These tables showed that the four measures were all positively correlated, but that the three compassionate acts (volunteering, charitable giving, helping strangers) were more strongly correlated with each other than with showing love/care. However, this pattern did not hold for Hong Kong, where all four measures were moderately correlated with each other (ranging from $r = 0.28$ to $r = 0.45$).

Table 1. Ordered proportions and means of volunteering, helping strangers, charitable giving, and showing love and care to others^a

Volunteering		Helping Strangers		Charitable Giving		Showing Love and Care to Others	
Country	Proportion	Country	Proportion	Country	Proportion	Country	Mean
Nigeria	0.51 (0.48, 0.53)	Nigeria	0.83 (0.81, 0.84)	Indonesia	0.79 (0.77, 0.80)	Philippines	9.05 (8.99, 9.10)
Indonesia	0.46 (0.44, 0.48)	Egypt	0.73 (0.71, 0.74)	United Kingdom	0.61 (0.59, 0.63)	Indonesia	8.85 (8.79, 8.91)
Kenya	0.40 (0.38, 0.41)	Brazil	0.69 (0.67, 0.70)	Egypt	0.58 (0.56, 0.60)	Tanzania	8.72 (8.61, 8.83)
Hong Kong	0.35 (0.32, 0.37)	Argentina	0.67 (0.65, 0.69)	Israel	0.55 (0.52, 0.59)	Mexico	8.71 (8.65, 8.77)
Australia	0.34 (0.32, 0.36)	Kenya	0.66 (0.64, 0.68)	Australia	0.53 (0.51, 0.55)	Israel	8.60 (8.47, 8.72)
United Kingdom	0.30 (0.28, 0.31)	Hong Kong	0.65 (0.62, 0.67)	Sweden	0.52 (0.51, 0.53)	South Africa	8.59 (8.47, 8.71)
India	0.29 (0.27, 0.31)	Israel	0.64 (0.61, 0.67)	Hong Kong	0.51 (0.48, 0.53)	Kenya	8.57 (8.50, 8.64)
United States	0.27 (0.26, 0.28)	Philippines	0.64 (0.62, 0.65)	United States	0.49 (0.48, 0.50)	United States	8.56 (8.51, 8.61)
Philippines	0.26 (0.24, 0.27)	Mexico	0.63 (0.61, 0.65)	Nigeria	0.48 (0.45, 0.50)	Argentina	8.51 (8.43, 8.58)
South Africa	0.25 (0.22, 0.27)	Australia	0.62 (0.60, 0.64)	India	0.39 (0.37, 0.41)	Brazil	8.47 (8.42, 8.52)
Argentina	0.21 (0.20, 0.22)	Turkey	0.61 (0.58, 0.64)	Germany	0.36 (0.35, 0.38)	Nigeria	8.38 (8.31, 8.45)
Germany	0.21 (0.20, 0.22)	United States	0.59 (0.58, 0.60)	Spain	0.36 (0.35, 0.38)	Australia	8.31 (8.24, 8.38)
Israel	0.21 (0.18, 0.23)	South Africa	0.58 (0.55, 0.61)	Brazil	0.31 (0.30, 0.32)	Spain	8.28 (8.22, 8.35)
Mexico	0.21 (0.20, 0.23)	India	0.56 (0.54, 0.58)	Turkey	0.31 (0.28, 0.34)	Egypt	8.27 (8.17, 8.37)
Brazil	0.19 (0.18, 0.19)	United Kingdom	0.56 (0.54, 0.58)	Kenya	0.28 (0.26, 0.30)	India	8.20 (8.13, 8.27)
Spain	0.17 (0.16, 0.19)	Spain	0.53 (0.51, 0.55)	Tanzania	0.27 (0.26, 0.29)	United Kingdom	8.14 (8.06, 8.21)

Volunteering		Helping Strangers		Charitable Giving		Showing Love and Care to Others	
Turkey	0.15 (0.13, 0.17)	Germany	0.51 (0.50, 0.53)	Mexico	0.21 (0.19, 0.22)	Sweden	8.11 (8.08, 8.15)
Sweden	0.11 (0.11, 0.12)	Indonesia	0.50 (0.48, 0.52)	Poland	0.20 (0.19, 0.22)	Turkey	7.89 (7.72, 8.05)
Tanzania	0.11 (0.10, 0.12)	Sweden	0.44 (0.43, 0.45)	Argentina	0.20 (0.19, 0.22)	Germany	7.81 (7.76, 7.87)
Japan	0.09 (0.08, 0.09)	Tanzania	0.34 (0.32, 0.35)	South Africa	0.19 (0.17, 0.22)	Poland	7.80 (7.68, 7.92)
Poland	0.08 (0.07, 0.09)	Poland	0.26 (0.24, 0.28)	Philippines	0.14 (0.13, 0.15)	Hong Kong	6.52 (6.40, 6.64)
Egypt	0.04 (0.04, 0.05)	Japan	0.11 (0.11, 0.12)	Japan	0.10 (0.09, 0.10)	Japan	5.96 (5.92, 5.99)

^aStandard errors (for binary measures: volunteering, helping strangers, and charitable giving), and standard deviations/Gini coefficients of inequality (for continuous measure showing love/care) are available in the original publications of this work (Lee et al., 2026; Nakamura et al., 2025abcd)

3.3 Demographic variation between volunteering, helping strangers, charitable giving, and showing love/care

Table 2 shows demographic variation between measures across countries. Across measures, some sociodemographic factors were consistently associated with compassionate acts and showing love/care, whereas others showed measure-specific patterns. Notably, in many places, confidence intervals overlapped.

3.3.1 Age

While helping strangers decreased with age (from 60% (95% CI [0.53, 0.66]) among 18–24-year-olds to 45% (95% CI [0.37, 0.54]) among those aged 70–79), both charitable giving (from 28% (95% CI [0.22, 0.36]) in the youngest group to 59% (95% CI [0.32, 0.81]) among those aged 80+) and showing love/care (from 7.90 (95% CI [7.60, 8.21]) for the youngest group to 8.40 (95% CI [8.10, 8.69]) for the oldest group) increased with age. Volunteering rates were generally stable from ages 18–79 (19%–22%) before declining sharply among those aged 80+ (11%, 95% CI [0.05, 0.23]); though there was uncertainty in the point estimates for this age group.

3.3.2 Gender

Gender was largely unrelated to compassionate acts (volunteering, helping strangers, and charitable giving). Males and females engaged in more volunteering and charitable giving than ‘other’ gender identities, but it is unclear if there are differences due to small sample sizes in the ‘other’ gender category. Showing love/care was higher among females (8.36, 95% CI [8.07, 8.65]) than males (8.02, 95% CI [7.71, 8.34]), again with the lowest scores among ‘other’ genders (7.36, 95% CI [6.70, 8.01]).

3.3.3 Marital status

Charitable giving and showing love/care differed based on marital status. Charitable giving was highest among married (40%, 95% CI [0.31, 0.49]), widowed (40%, 95% CI [0.31, 0.50]), and divorced individuals (37%, 95% CI [0.30, 0.45]), and lowest among those with a domestic partner (29%, 95% CI [0.23, 0.36]) or single/never married (31%, 95% CI [0.25, 0.39]). Showing love/care was also highest among widowed (8.42, 95% CI [8.07, 8.77]) and married individuals (8.39, 95% CI [8.10, 8.67]) and lowest among the single/never married (7.78, 95% CI [7.39, 8.16]). Rates of volunteering and helping strangers were similar across marital status categories, though widowed individuals had a lower proportion of helping strangers (49%, 95% CI [0.41, 0.57]).

3.3.4 Employment status

The highest rates of volunteering (26%, 95% CI [0.20, 0.32]) and helping strangers (63%, 95% CI [0.55, 0.70]) were for self-employed participants, who also showed high charitable giving (40%, 95% CI [0.32, 0.49]) and showing love/care (8.25, 95% CI [7.99, 8.51]). Those employed for an employer showed similar trends (volunteering = 22%, 95% CI [0.17, 0.28]; helping strangers = 59%, 95% CI [0.51, 0.67]; charitable giving = 38%, 95% CI [0.31, 0.47]; showing love/care = 8.18, 95% CI [7.87, 8.49]). Retirees had the highest rate of charitable giving (41%, 95% CI [0.32, 0.50]) and high love/care (8.35, 95% CI [8.04, 8.66]) while reporting comparatively lower helping strangers (48%, 95% CI [0.40, 0.57]) and moderate volunteering (21%, 95% CI [0.16, 0.27]). Students had higher rates of volunteering 24% (95% CI [0.19, 0.29]) and helping strangers 58% (95% CI [0.51, 0.65]), but lower charitable giving (28%, 95% CI [0.21, 0.36]) and lower showing love/care (7.89, 95% CI [7.58, 8.20]). Not working was generally linked to lower scores on ‘echoes of compassion’: homemakers and the unemployed had the lowest volunteering (both 18%, 95%

CI [0.13, 0.24]); the unemployed also showed the lowest charitable giving (26%, 95% CI [0.20, 0.33]) and low love/care (7.85, 95% CI [7.38, 8.31]). However, notably, homemakers reported the highest love/care (8.36, 95% CI [8.04, 8.69]).

3.3.5 Education

Rates of volunteering, helping strangers, and charitable giving were higher with increasing education, but education did not seem to be strongly associated with love/care. Volunteering ranged from 17% (95% CI [0.12, 0.24]) among those with ≤ 8 years of education to 27% (95% CI [0.22, 0.34]) among those with 16+ years, helping strangers from 51% (95% CI [0.43, 0.60]) to 62% (95% CI [0.55, 0.70]), and charitable giving from 33% (95% CI [0.25, 0.42]) to 46% (95% CI [0.38, 0.54]). Love/care showed little evidence of change with increasing education, from 8.12 (95% CI [7.77, 8.47]) to 8.21 (95% CI [7.91, 8.51]).

3.3.6 Religious service attendance (RSA)

Higher frequency of RSA was associated with greater volunteering, helping strangers, charitable giving, and love/care. Volunteering ranged from 15% (95% CI [0.11, 0.20]) among those who never attended to 37% (95% CI [0.28, 0.47]) among those attending more than once per week; helping strangers from 51% (95% CI [0.44, 0.59]) to 64% (95% CI [0.57, 0.71]); charitable giving from 29% (95% CI [0.22, 0.38]) to 51% (95% CI [0.40, 0.62]); and love/care from 7.91 (95% CI [7.59, 8.24]) to 8.60 (95% CI [8.41, 8.79]).

3.3.7 Immigration status

Rates of compassionate acts and showing love/care showed little evidence of differences by immigration status. Showing love/care was higher among the native-born (8.20, 95% CI [7.90, 8.50]) than immigrant (8.06, 95% CI [7.74, 8.37]) participants. Rates of volunteering, helping strangers, and charitable giving were mostly similar in native-born and immigrant participants.

3.4 Childhood predictors of volunteering, helping strangers, charitable giving, and showing love/care

When evaluating childhood predictors, the three compassionate acts and showing love/care showed some similarities, and some differences (Table 3). We describe childhood predictors showing evidence of associations below, and all results can be found in Table 3.

3.4.1 Childhood religious service attendance (RSA)

RSA at age 12 was positively associated with all outcomes in a graded, dose–response manner. Compared with those who never attended religious services, participants attending religious services at least 1/week had a 61% higher likelihood of volunteering (RR = 1.61, 95% CI [1.42, 1.82]), 19% higher likelihood of helping strangers (RR = 1.19, 95% CI [1.10, 1.29]), 33% higher likelihood of charitable giving (RR = 1.33, 95% CI [1.21, 1.47]), and higher love/care ($\beta = 0.28$, 95% CI [0.14, 0.41]). Less frequent attendance (still compared to those who never attended) was also positively associated with all outcomes, though with mostly smaller effect sizes.

Table 2. Random effects meta-analysis of volunteering, helping strangers, charitable giving, and showing love and care to others – proportions and means by demographic category^{a,b}

Variable	Category	Volunteering			Helping Strangers			Charitable Giving			Showing Love/Care		
		Proportion	95% CI	Global p-value	Proportion	95% CI	Global p-value	Proportion	95% CI	Global p-value	Mean	95% CI	Global p-value
Age group		<.001**			<.001**			<.001**			<.001**		
	18-24	0.22	(0.18, 0.28)		0.60	(0.53, 0.66)		0.28	(0.22,0.36)		7.9	(7.60, 8.21)	
	25-29	0.21	(0.16, 0.27)		0.59	(0.52, 0.67)		0.36	(0.28,0.44)		8.12	(7.80, 8.43)	
	30-39	0.20	(0.15, 0.26)		0.59	(0.52, 0.67)		0.36	(0.28,0.44)		8.10	(7.75, 8.45)	
	40-49	0.22	(0.16, 0.28)		0.58	(0.50, 0.65)		0.37	(0.28,0.46)		8.22	(7.89, 8.56)	
	50-59	0.22	(0.16, 0.29)		0.57	(0.48, 0.66)		0.37	(0.29,0.46)		8.27	(7.95, 8.59)	
	60-69	0.21	(0.16, 0.27)		0.51	(0.43, 0.60)		0.38	(0.30,0.47)		8.33	(8.03, 8.64)	
	70-79	0.19	(0.14, 0.25)		0.45	(0.37, 0.54)		0.40	(0.31,0.49)		8.32	(8.04, 8.60)	
	80 or older	0.11	(0.05, 0.23)		0.48	(0.29, 0.67)		0.59	(0.32,0.81)		8.40	(8.10, 8.69)	
Gender		<.001**			<.001**			<.001**			<.001**		
	Male	0.23	(0.18, 0.29)		0.58	(0.50, 0.65)		0.38	(0.30,0.46)		8.02	(7.71, 8.34)	
	Female	0.20	(0.15, 0.25)		0.54	(0.46, 0.61)		0.35	(0.27,0.44)		8.36	(8.07, 8.65)	
	Other	0.08	(0.02, 0.30)		0.56	(0.18, 0.88)		0.08	(0.01,0.42)		7.36	(6.70, 8.01)	
Marital status		<.001**			<.001**			<.001**			<.001**		
	Married	0.22	(0.17, 0.29)		0.55	(0.47, 0.63)		0.40	(0.31,0.49)		8.39	(8.10, 8.67)	
	Separated	0.21	(0.18, 0.26)		0.57	(0.48, 0.65)		0.33	(0.27,0.40)		8.06	(7.72, 8.39)	
	Divorced	0.21	(0.15, 0.28)		0.56	(0.48, 0.64)		0.37	(0.30,0.45)		8.07	(7.72, 8.42)	
	Widowed	0.21	(0.16, 0.27)		0.49	(0.41, 0.57)		0.40	(0.31,0.50)		8.42	(8.07, 8.77)	
	Domestic partner	0.21	(0.15, 0.29)		0.54	(0.47, 0.61)		0.29	(0.23,0.36)		8.23	(7.78, 8.68)	
	Single, never married	0.21	(0.16, 0.26)		0.57	(0.50, 0.64)		0.31	(0.25,0.39)		7.78	(7.39, 8.16)	
Employment status		<.001**			<.001**			<.001**			<.001**		
	Employed for an employer	0.22	(0.17, 0.28)		0.59	(0.51, 0.67)		0.38	(0.31,0.47)		8.18	(7.87, 8.49)	
	Self-employed	0.26	(0.20, 0.32)		0.63	(0.55, 0.70)		0.40	(0.32,0.49)		8.25	(7.99, 8.51)	
	Retired	0.21	(0.16, 0.27)		0.48	(0.40, 0.57)		0.41	(0.32,0.50)		8.35	(8.04, 8.66)	
	Student	0.24	(0.19, 0.29)		0.58	(0.51, 0.65)		0.28	(0.21,0.36)		7.89	(7.58, 8.20)	
	Homemaker	0.18	(0.13, 0.24)		0.51	(0.43, 0.59)		0.33	(0.25,0.43)		8.36	(8.04, 8.69)	

Variable	Category	Volunteering			Helping Strangers			Charitable Giving			Showing Love/Care		
		Proportion	95% CI	Global <i>p</i> -value	Proportion	95% CI	Global <i>p</i> -value	Proportion	95% CI	Global <i>p</i> -value	Mean	95% CI	Global <i>p</i> -value
	Unemployed and looking for a job	0.18	(0.13, 0.24)		0.55	(0.46, 0.63)		0.26	(0.20,0.33)		7.85	(7.38, 8.31)	
	None of these/other	0.16	(0.10, 0.26)		0.52	(0.45, 0.60)		0.29	(0.22,0.37)		8.09	(7.76, 8.41)	
Education				<.001**			<.001**			<.001**			<.001**
	Up to 8 years	0.17	(0.12, 0.24)		0.51	(0.43, 0.60)		0.33	(0.25,0.42)		8.12	(7.77, 8.47)	
	9-15 years	0.21	(0.16, 0.26)		0.56	(0.47, 0.63)		0.35	(0.28,0.44)		8.20	(7.89, 8.50)	
	16+ years	0.27	(0.22, 0.34)		0.62	(0.55, 0.70)		0.46	(0.38,0.54)		8.21	(7.91, 8.51)	
Religious Service Attendance				<.001**			<.001**			<.001**			<.001**
	>1/week	0.37	(0.28, 0.47)		0.64	(0.57, 0.71)		0.51	(0.40,0.62)		8.60	(8.41, 8.79)	
	1/week	0.30	(0.23, 0.38)		0.60	(0.53, 0.67)		0.48	(0.38,0.58)		8.38	(8.16, 8.60)	
	1-3/month	0.26	(0.20, 0.33)		0.60	(0.53, 0.67)		0.41	(0.32,0.51)		8.16	(7.91, 8.41)	
	A few times a year	0.20	(0.16, 0.25)		0.57	(0.49, 0.64)		0.36	(0.28,0.44)		8.16	(7.87, 8.44)	
	Never	0.15	(0.11, 0.20)		0.51	(0.44, 0.59)		0.29	(0.22,0.38)		7.91	(7.59, 8.24)	
Immigration status				<.001**			<.001**			<.001**			.007*
	Born in this country	0.21	(0.17, 0.27)		0.56	(0.48, 0.63)		0.37	(0.29,0.45)		8.20	(7.90, 8.50)	
	Born in another country	0.19	(0.12, 0.29)		0.59	(0.51, 0.65)		0.32	(0.19,0.50)		8.06	(7.74, 8.37)	

^a*p* < .05; ^{**}*p* < .007 (Bonferroni corrected threshold); CI, confidence interval; Global *p*-value corresponds to a test of the null hypothesis that there are no differences between the groups for that sociodemographic characteristic in any of the 22 countries.

^bOther metrics (SE, standard error; τ , the standard deviation of the distribution of means across countries, which is an indicator of cross-national heterogeneity; I^2 , an estimate of the variability in means due to heterogeneity across countries vs. sampling variability) are available in the original publications of this work (Lee et al., 2026; Nakamura et al., 2025abcd).

Table 3. Random effects meta-analysis of regression of volunteering, helping strangers, charitable giving, and showing love/care on childhood predictors

Variable	Category	Volunteering			Helping Strangers			Charitable Giving			Showing Love/Care		
		RR	95% CI	Global <i>p</i> -value	RR	95% CI	Global <i>p</i> -value	RR	95% CI	Global <i>p</i> -value	Est.	95% CI	Global <i>p</i> -value
Relationship with mother	(Ref: Very bad/somewhat bad)			<.001**			0.418			0.017*			<.001**
	Very good/somewhat good	1.02	(0.95, 1.10)		1.02	(0.99, 1.04)		1.04	(0.98,1.11)		0.16	(0.06, 0.26)	
Relationship with father	(Ref: Very bad/somewhat bad)			<.001**			0.302			0.053			<.001**
	Very good/somewhat good	1.09	(1.04, 1.15)		1.02	(1.00, 1.03)		1.05	(1.02,1.08)		0.10	(0.02, 0.18)	
Parent marital status	(Ref: Parents married)			<.001**			<.001**			0.289			0.001**
	Divorced	0.96	(0.91, 1.02)		1.04	(1.02, 1.07)		0.99	(0.96,1.03)		-0.06	(-0.16, 0.05)	
	Single, never married	1.00	(0.94, 1.07)		1.04	(1.01, 1.06)		1.00	(0.95,1.05)		-0.08	(-0.16, 0.00)	
	One or both parents had died	1.02	(0.96, 1.08)		1.03	(1.00, 1.07)		1.02	(0.99,1.05)		0.02	(-0.09, 0.13)	
Subjective financial status of family growing up	(Ref: Got by)			<.001**			.002**			<.001**			<.001**
	Lived comfortably	1.10	(1.04, 1.16)		1.03	(1.00, 1.05)		1.07	(1.04,1.11)		0.13	(0.04, 0.22)	

Variable	Category	Volunteering			Helping Strangers			Charitable Giving			Showing Love/Care		
		RR	95% CI	Global p-value	RR	95% CI	Global p-value	RR	95% CI	Global p-value	Est.	95% CI	Global p-value
Abuse	Found it difficult	0.98	(0.95, 1.02)	<.001**	0.99	(0.98, 1.01)	<.001**	0.97	(0.94,1.01)	<.001**	0.00	(-0.05, 0.05)	<.001**
	Found it very difficult	1.02	(0.95, 1.10)		1.03	(1.00, 1.06)		1.00	(0.95,1.06)		-0.06	(-0.14, 0.03)	
	(Ref: No)												
	Yes	1.16	(1.10, 1.23)		1.11	(1.08, 1.16)		1.11	(1.06,1.16)		-0.09	(-0.17, -0.02)	
Outsider growing up	(Ref: No)			<.001**			<.001**			<.001**			<.001**
	Yes	1.17	(1.11, 1.23)		1.08	(1.06, 1.10)		1.11	(1.04,1.18)		-0.16	(-0.23, -0.08)	
Self-rated health growing up	(Ref: Good)			<.001**			<.001**			<.001**			<.001**
	Excellent	1.07	(1.00, 1.15)		1.06	(1.02, 1.10)		1.08	(1.03,1.13)		0.34	(0.20, 0.48)	
	Very good	1.04	(0.98, 1.11)		1.04	(1.00, 1.07)		1.06	(1.02,1.11)		0.14	(0.07, 0.21)	
	Fair	1.02	(0.93, 1.12)		1.03	(1.00, 1.07)		0.99	(0.95,1.04)		-0.13	(-0.24, -0.01)	
	Poor	1.09	(0.99, 1.20)		1.05	(1.00, 1.09)		1.08	(1.00,1.18)		-0.12	(-0.33, 0.10)	
Immigration status	(Ref: Born in this country)			<.001**			<.001**			<.001**			<.001**
	Born in another country	0.56	(0.18, 1.77)		1.04	(0.98, 1.10)		0.58	(0.19,1.72)		0.02	(-0.07, 0.11)	
Age 12 religious service attendance	(Ref: Never)			<.001**			<.001**			<.001**			<.001**
	At least 1/week	1.61	(1.42, 1.82)		1.19	(1.10, 1.29)		1.33	(1.21,1.47)		0.28	(0.14, 0.41)	
	1-3/month	1.48	(1.33, 1.64)		1.20	(1.10, 1.31)		1.28	(1.15,1.43)		0.18	(0.04, 0.31)	
	< 1/month	1.25	(1.15, 1.35)		1.11	(1.05, 1.17)		1.12	(1.02,1.24)		0.10	(0.02, 0.18)	

Variable	Category	Volunteering			Helping Strangers			Charitable Giving			Showing Love/Care		
		RR	95% CI	Global p-value	RR	95% CI	Global p-value	RR	95% CI	Global p-value	Est.	95% CI	Global p-value
Year of birth	(Ref: 1998-2005; age 18-24)			<.001**			<.001**			<.001**			<.001**
	1993-1998; age 25-29	0.98	(0.93, 1.05)		1.00	(0.96, 1.04)		1.22	(1.14,1.31)		0.19	(0.09, 0.29)	
	1983-1993; age 30-39	0.95	(0.88, 1.03)		1.00	(0.95, 1.05)		1.26	(1.15,1.37)		0.21	(0.10, 0.32)	
	1973-1983; age 40-49	1.01	(0.93, 1.09)		0.98	(0.92, 1.04)		1.28	(1.16,1.42)		0.32	(0.16, 0.47)	
	1963-1973; age 50-59	1.00	(0.92, 1.09)		0.96	(0.88, 1.05)		1.28	(1.16,1.41)		0.35	(0.18, 0.51)	
	1953-1963; age 60-69	0.97	(0.86, 1.10)		0.87	(0.78, 0.98)		1.34	(1.19,1.50)		0.41	(0.25, 0.56)	
	1943-1953; age 70-79	0.92	(0.79, 1.06)		0.78	(0.67, 0.90)		1.42	(1.19,1.69)		0.43	(0.20, 0.67)	
	1943 or earlier; age 80+ [‡]	0.22	(0.04, 1.17)		0.71	(0.58, 0.86)		1.60	(1.35,1.90)		0.50	(0.22, 0.78)	
Gender	(Ref: Male)			<.001**			<.001**			<.001**			<.001**
	Female	0.87	(0.80, 0.95)		0.94	(0.90, 0.98)		0.94	(0.88,1.00)		0.36	(0.26, 0.47)	
	Other [‡]	0.15	(0.02, 1.41)		0.25	(0.04, 1.51)		0.04	(0.00,0.51)		-0.30	(-0.85, 0.24)	

^a * $p < .05$; ** $p < .004$ (Bonferroni corrected threshold); CI, confidence interval; RR = Risk Ratio; Est. = β ; Global p -value (corresponds to the joint test of the null hypothesis that the country-specific joint parameter Wald tests (all parameters within variable groups are zero) are all null all 22 countries); [‡]Group is very small (<0.1% of the observed sample) within several countries leading large uncertainty in this estimate or even complete separation—be cautious about interpreting this estimate.

^b Other metrics (the estimated proportion of effects (the estimated proportion of effects above (or below) a threshold based on the calibrated effect sizes); I^2 (an estimate of the variability in means due to heterogeneity across countries vs. sampling variability); and additional details of heterogeneity of effects) are available in the original publications of this work (Lee et al., 2026; Nakamura et al., 2025abcd).

3.4.2 Childhood abuse and feeling like an outsider growing up

Adverse childhood experiences were associated with a higher likelihood of compassionate acts, but lower love/care. Specifically, experiencing childhood abuse was associated with a higher likelihood of volunteering (RR = 1.16, 95% CI [1.10, 1.23]), helping strangers (RR = 1.11, 95% CI [1.08, 1.16]), and charitable giving (RR = 1.11, 95% CI [1.06, 1.16]), but lower love/care ($\beta = -0.09$, 95% CI [-0.17, -0.02]). Similarly, feeling like an outsider growing up was associated with a higher likelihood of volunteering (RR = 1.17, 95% CI [1.11, 1.23]), helping strangers (RR = 1.08, 95% CI [1.06, 1.10]), and charitable giving (RR = 1.11, 95% CI [1.04, 1.18]), but lower love/care ($\beta = -0.16$, 95% CI [-0.23, -0.08]).

3.4.3 Childhood self-rated health

Overall, better childhood self-rated health was more positively associated with most compassionate acts and showing love/care. Excellent self-rated health during childhood (vs. good) was associated with a higher likelihood of helping strangers (RR = 1.06, 95% CI [1.02, 1.10]), charitable giving (RR = 1.08, 95% CI [1.03, 1.13]), and higher love/care ($\beta = 0.34$, 95% CI [0.20, 0.48]). Very good (vs. good) childhood health was associated with a higher likelihood of charitable giving (RR = 1.06, 95% CI [1.02, 1.11]) and higher love/care ($\beta = 0.14$, 95% CI [0.07, 0.21]). Conversely, fair (vs. good) childhood health was associated with lower love/care ($\beta = -0.13$, 95% CI [-0.24, -0.01]).

3.4.4 Parental relationships, family structure, and subjective socioeconomic status

Participants reporting a very good/somewhat good (vs. very/ somewhat bad) relationship with their father had a higher likelihood of volunteering (RR = 1.09, 95% CI [1.04, 1.15]) and charitable giving (RR = 1.05, 95% CI [1.02, 1.08]), and higher love/care ($\beta = 0.10$, 95% CI [0.02, 0.18]). A very good/somewhat good (vs. very/ somewhat bad) relationship with one's mother was associated with higher love/care ($\beta = 0.16$, 95% CI [0.06, 0.26]), but not with other outcomes. Parent marital status during childhood was associated with helping strangers (having parents who were divorced (RR = 1.04, 95% CI [1.02, 1.07]), or single (RR = 1.04, 95% CI [1.01, 1.06]) was associated with an increased likelihood of helping strangers), but showed no associations with other outcomes. Growing up "living comfortably" financially was associated with a higher likelihood of volunteering (RR = 1.10, 95% CI [1.04, 1.16]) and charitable giving (RR = 1.07, 95% CI [1.04, 1.11]) and higher love/care ($\beta = 0.13$, 95% CI [0.04, 0.22]).

3.4.5 Demographics

Age was not associated with the likelihood of volunteering, but was associated with a lower likelihood of helping strangers, after the age of 60. On the other hand, increasing age was associated with a higher likelihood of charitable giving, as well as higher love/care. Females reported a lower likelihood of volunteering (RR = 0.87, 95% CI [0.80, 0.95]), and helping strangers (RR = 0.94, 95% CI [0.90, 0.98]), but higher love/care ($\beta = 0.36$, 95% CI [0.26, 0.47]), than men. This was after multivariate control for the other childhood variables, in contrast to the gender comparisons discussed above. Immigration status was not associated with any of the four measures.

3.5 Individual country differences

Differences between countries across demographic factors and childhood predictors are described in more detail in the original publications of this work (Lee et al., 2026; Nakamura et al., 2025abcd). We note a few observations here.

Across outcomes, demographic patterns varied substantially between countries. For example, globally, more RSA was associated with more volunteering (19 countries), charitable giving (17 countries), and helping strangers (15 countries). Love/care for those attending services greater than once per week was higher than for those never attending in all but three countries (Egypt, South Africa, and Spain). In four countries (Australia, Poland, Sweden, and the United States), females volunteered more than males, though confidence intervals overlapped, and in remaining countries for which differences were observed, males volunteered more than females. Females reported higher love/care in most countries. Education was positively associated with volunteering, charitable giving, and helping in most countries, with notable exceptions (e.g., inverse or null associations in Hong Kong, India, Mexico, Israel, Spain, and the Philippines depending on outcome).

Across 22 countries, childhood predictors showed heterogeneous associations with outcomes in adulthood. Most consistently, childhood RSA at least weekly at age 12 was associated with higher rates of volunteering in 16 countries, helping strangers in 15 countries, charitable giving in 14 countries, and was also positively associated with higher love/care in 10 countries. Markers of adversity—childhood abuse and feeling like an outsider—were often associated with greater likelihood of compassionate acts in adulthood (abuse: volunteering in 9 countries, helping strangers in 14, charitable giving in 8; feeling like an outsider: volunteering in 9, helping strangers in 10, charitable giving in 9). Conversely, feeling like an outsider growing up was associated with lower love/care in 8 countries, and experiencing abuse was associated with lower love/care in 4 countries and higher love/care in only one (the United States). Childhood self-rated health was typically associated with more positive outcomes (e.g., “excellent” vs. “good” linked to higher volunteering/giving/helping in many countries), but notable exceptions appeared (e.g., Israel showed lower rates of volunteering with “excellent” health; Spain showed lower rates of charitable giving). For showing love/care, in several countries, better self-rated health was associated with higher love/care in adulthood, while worse self-rated health was associated with lower love/care. Gender also varied by context (e.g., females less likely to engage in volunteering, helping strangers, and charitable giving in many countries with some exceptions, but higher love/care in 17 countries).

4. Discussion

Epidemiology has generally focused on the incidence, distribution, and efforts to control diseases or promote a limited, primarily physical, understanding of health (Addiss et al., 2022). Positive epidemiology has recently emerged to support expanding epidemiological inquiry to include a range of well-being and flourishing domains, in short to explore “health in its fullness sense” (VanderWeele et al., 2020:190). Compassion has not been the object of study of large-scale epidemiological research initiatives, despite its demonstrated importance for individuals and groups. In short, “little is known about how to effectively ‘scale up’ compassion to the organizational or population levels” (Addiss et al., 2022:2). We explored distributions and predictors of four compassion-relevant, “allocentric,” measures, or ‘echoes of compassion’, across 22 countries in order better understand these – factors as important ends in themselves, and to encourage more research on compassion itself. Our study focused on three compassionate acts (helping strangers, volunteering, and charitable giving) and a broader measure of love that

encompasses compassion (showing love or care to others). Each of these ‘echoes of compassion’ is the subject of its own interdisciplinary subfield and our findings may be of interest to scholars working in those areas, as well as those interested in specific domains of well-being and complete well-being, or flourishing. We also hope that our research on these four measures will contribute to the development of a case definition of compassion and subsequently an epidemiology of compassion.

We observed meaningful variation across 22 countries for all four measures. The proportion of participants within a country who reported helping strangers varied from 11% to 83%. A similar range was found for charitable giving (10% to 79%). Formal volunteering ranged from 4% to 51% and the means for showing love or care to another varied from 5.96 to 9.05 (maximum of 10). No single nation seemed to have uniformly high scores across all these measures. In fact, Nigeria was the only country in the top half (top 11 out of 22) for all four measures. Some nations had high scores on one or two measures and lower scores on others. With further research, this suggests that nations might learn from each other how to become more compassionate on measures that are not one of their relative strengths.

Findings for Japan (which had the lowest proportion or mean score on three of our measures, and third lowest on volunteering) are particularly noteworthy in light of the fact that further analysis of GFS data revealed that respondents from this country report “strikingly low scores on many well-being indicators,” including a composite measure of the subjective experience of flourishing (VanderWeele et al., 2025:646). This is not to suggest that Japan has uniformly low scores on all well-being domains. In fact, it has some of the highest scores in our sample of 22 countries on several highly valued outcomes, such as gross domestic product, environmental sustainability, contribution to global peace, human freedom, and motivation to succeed (Lee et al., 2025). But comparatively low scores on the subjective measures of well-being, a serious fertility crisis that threatens the viability of Japanese society, along with low scores on our ‘echoes of compassion’ measures, as well as important correlates of love and compassion (e.g., religious service attendance), are worthy of further investigation. We suggest that facile distinctions, such as a crude dichotomization of individualism and collectivism, are not sufficient for understanding such patterns (Lomas et al., 2023). Recent research using GFS data on religious centrality (based on this survey item, “My religious beliefs and practices are what really lie behind my whole approach to life.”) shows that Japan has the lowest percentage of agreement (7%; Woodbury et al., 2025). For comparison, the percentage in Indonesia was 94% (Woodbury et al., 2025), and this country had the second highest love/care score, as well as the highest subjective flourishing score (Lee et al., 2025; VanderWeele et al., 2025). These comparisons suggest that religion, ‘echoes of compassion’, and subjective indicators of well-being and flourishing may be positively related, but also that these factors might be inversely related to some highly valued objective indicators such as economic growth, freedom, environmental sustainability, and global peace (Lee et al., 2025).

It is worth noting that, at the country level, volunteering was moderately positively correlated with helping strangers and helping strangers was moderately positively correlated with showing love/care, but none of the other correlations were significant (Figure A1 in the Appendix). The measures might be related conceptually, but in practice this is not the case at the country level, though they are in some cases at the individual country level (see Tables in the Appendix). Figure A1 was based on a small sample size ($n = 22$), which might account for the difference. Countries in the Global South tended to report the highest means of love/care, while the highest rates of the three compassionate acts were more evenly distributed across high- and middle-income countries. We also found meaningful variation within countries across ‘echoes of compassion’.

For example, in Brazil, 69% of participants reported helping strangers (3rd highest among the countries), while only 19% reported volunteering (15th) and 31% reported charitable giving (13th). Brazil's mean for showing love/care was 8.5 (10th).

We also found substantial demographic variation between 'echoes of compassion' across countries. As one example, while showing love/care and charitable giving increased with age, helping strangers decreased with age, and volunteering was more uniform in age (until 80+). There may be multiple reasons for these patterns. We speculate that older people could be less comfortable helping strangers because of fear of crime, or perhaps they are more likely to be constrained at home and thus have less time in the company of strangers. Increased charitable giving with age might be a function of greater discretionary income later in life. Some cultures might encourage formal volunteering, while others may not. For example, Nigeria, which ranked 1st for helping strangers and formal volunteering (and as we noted, was the only country in the top half for all four measures), has promoted a robust National Youth Services Corps for decades, which mobilizes both volunteering and service more generally (Nakamura et al., 2025a). Some sociodemographic variables were more consistently related to all four measures (e.g., higher religious service attendance), while others were related only to some (e.g., higher education for the three compassionate acts, but not showing love/care). There are a variety of possible explanations for such associations. For example, religious teachings tend to encourage love and compassion (Davies, 2016), while social norms might encourage women to show more love and care than men (Lee et al., 2026; Xi et al., 2022). Taken as a whole, findings for our 'echoes of compassion' do not demonstrate a uniform pattern that would allow for straightforward predictions about the distribution of compassion across nations, although robust findings for some demographic categories did emerge. We would expect variations based on the 'carrier' of compassion (e.g., the person showing compassion to another), the 'target' of compassion, and the cultural context in which the compassion is enacted—all topics that are ripe for epidemiological study. The cross-national variations that we found in patterns across these measures suggest that future research must attend to contextual differences.

Regarding childhood predictors, we found both similarities and differences across groups. For example, more frequent religious service attendance at age 12 and higher self-rated childhood health were associated with increased rates of compassionate acts and showing love/care, while experiencing childhood abuse and feeling like an outsider in the family were associated with a higher likelihood of volunteering, giving, and helping in adulthood, but lower showing love/care. Other research has found that childhood trauma is associated with greater civic engagement, including as a volunteer, which might indicate posttraumatic growth (Nakamura et al., 2025d). But it is not clear why such growth would not also have a positive association with showing love/care more broadly. Some variables (e.g., immigration status) were not related to acting compassionately. And even when the overall pattern is quite clear—as with higher self-rated childhood health and most outcomes—some countries did not fit the pattern (e.g., Israel showed lower rates of volunteering with "excellent" health; Spain showed lower rates of charitable giving). This is a reminder that an epidemiology of compassion will likely need to attend to contextual differences by disaggregating data into meaningful comparison groups.

Addiss et al. (2022:5) identified 89 potential "risk" factors for compassion—"risk" in the sense that we might expect higher levels of compassion to result from the presence of these factors—across multiple levels of analysis, including individual, contextual, and structural levels. These authors examined nine studies on the relationship between compassion and country of origin and found results to be "inconsistent and inconclusive" (p. 12). We also found substantial country variations with our four 'echoes of compassion' measures, but as mentioned, some consistencies

emerged as well. One difficulty with previous research, such as the nine studies reported by Addiss et al., is that different measures of compassion were used (e.g., empathy in some studies, compassion in others). One advantage of the GFS is that consistent measures and methodologies were used across the four studies that generated the findings for 22 countries that we reviewed here (Lee et al., 2026; Nakamura et al., 2025abcd; Padgett, Bradshaw, et al., 2025ab). In the review by Addiss et al., RSA was associated with compassion in 57% of the tests of association, whereas our results were more uniformly supportive of the association between RSA (both currently, and at age 12) and our ‘echoes of compassion’ measures.

Our study has several limitations, some of which apply to the GFS more generally and have been discussed elsewhere (Nakamura et al., 2025abcd). First, item translation between languages may lead to different interpretations of key survey measures. Second, the childhood predictors were reported retrospectively, and thus may be subject to recall bias, and it would have been preferable to triangulate self-reports with other data sources. Third, it was not possible to assess all possible candidate predictors or fully rule out confounding by unmeasured variables. Fourth, our measures capture patterns at a certain point in time and subsequent waves of the GFS are needed to determine which remain stable and which vary over time. Fifth, and most obviously, the GFS did not measure the experience of compassion directly, but we have suggested that compassion is an expression of loving care and that our four ‘echoes of compassion’ survey items bear an allocentric, family resemblance. Future research should consider deploying some of the existing measures of compassion (see Addiss et al., 2022; Jiang et al., 2023) in large-scale, longitudinal, epidemiological surveys.

Despite these limitations, our study is the first to compare distributions and childhood predictors across 22 countries for four ‘echoes of compassion’ that are valued as ends in themselves. Our cross-national findings provide insights into the key sociodemographic variables and childhood predictors that may help guide the development of the epidemiology of compassion. More generally, they shed light on the ways in which different expressions of loving care cluster geographically, sociodemographically, and with regard to childhood predictors. Future waves of the GFS will allow us to explore changes over time in this clustering and to approach causal inference about why these changes might be occurring. Future research will also allow us to examine whether engaging in compassionate acts and showing love/care are associated with improved subsequent health and well-being outcomes (e.g., flourishing scores) – an important question that could be explored in forthcoming analyses using Wave 2 data from the GFS. This research promises to make important contributions to the establishment of positive epidemiology, and will perhaps serve to focus greater scholarly and policy attention on love and compassion.

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J. S. N. conducted some data analyses and contributed to the initial draft and revisions of the paper. M. T. L. contributed to the initial draft and revisions of the paper. R. N. P. conducted data analyses and provided helpful edits, comments, and additions on the written drafts. B. R. J. and T. J. V. provided helpful edits, comments, and additions on the written drafts.

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AI was not used in drafting this article.

Data availability statement

Data for Wave 1 of the Global Flourishing Study is available through the Center for Open Science upon submission of a pre-registration (<https://doi.org/10.17605/OSF.IO/3JTZ8>). Please see <https://doi.org/10.17605/OSF.IO/3JTZ8> for more information about data access.

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References

- Addiss, D. G., Richards, A., Adiabu, S., Horwath, E., Leruth, S., Graham, A. L., & Buesseler, H. (2022). Epidemiology of compassion: A literature review. *Frontiers in Psychology, 13*, 992705. <https://doi.org/10.3389/fpsyg.2022.992705>
- Addiss, D. G., & Richards, A. (2026). Towards an epidemiology of compassion. *International Journal of Wellbeing, 16*(2), 6295, 1-9. <https://doi.org/10.5502/ijw.v16i2.6295>
- Counted, V., Lee, M. T., Lomas, T., Cowden, R., Allen, K. A., Basu, J., ... & VanderWeele, T. J. (2025). Love of place: Conceptual framework and template for measuring the contributory and unitive affection towards a place. *International Journal of Intercultural Relations, 107*, 102203. <https://doi.org/10.1016/j.ijintrel.2025.102203>
- Crabtree, S., English, C., Johnson, B. R., Ritter, Z., & VanderWeele, T. J. (2021). Global Flourishing Study: Questionnaire development report. Gallup Inc. <https://osf.io/y3t6m>
- Davies, O. (2016). *A theology of compassion: Metaphysics of difference and the renewal of tradition*. Wipf and Stock Publishers.
- Fehr, B., & Sprecher, S. (2026). Compassionate love: Theory, measurement, and application. *International Journal of Wellbeing, 16*(2), 5599, 1-32. <https://doi.org/10.5502/ijw.v16i2.5599>
- Gulliford, L., & Roberts, R. C. (2018). Exploring the “unity” of the virtues: The case of an allocentric quintet. *Theory & Psychology, 28*(2), 208-226. <https://doi.org/10.1177/0959354317751666>
- Hanson, J. (2023). The oneness of love in works of love. *Religions, 14*(12), 1517. <https://doi.org/10.3390/rel14121517>
- Hightower, A. W., & Addiss, D. G. (2026). Statistical methods for developing index measures of compassion. *International Journal of Wellbeing, 16*(2), 5595, 1-13. <https://doi.org/10.5502/ijw.v16i2.5595>
- Jiang, H., Wang, W., Mei, Y., Zhao, Z., Lin, B., & Zhang, Z. (2023). A scoping review of the self-reported compassion measurement tools. *BMC Public Health, 23*(1), 2323. <https://doi.org/10.1186/s12889-023-17178-2>
- Johnson, B. R., Stankov, T., Honohan, J., Fogleman, A., Wang, H., Zacc Ritter, Ripley, A., VanderWeele, T. J., Srinivasan, R., Markham, L., & Phillips, T. (2024). *The Global Flourishing Study*. Open Science Framework. <https://doi.org/10.17605/OSF.IO/3J TZ8>
- Johnson, K. A., Moon, J. W., VanderWeele, T. J., Schnitker, S., & Johnson, B. R. (2023). Assessing religion and spirituality in a cross-cultural sample: Development of religion and spirituality items for the Global Flourishing Study. *Religion, Brain & Behavior, 14*(4), 345-358. <https://doi.org/10.1080/2153599X.2023.2217245>
- Kim, E. S., Whillans, A. V., Lee, M. T., Chen, Y., & VanderWeele, T. J. (2020). Volunteering and subsequent health and well-being in older adults: An outcome-wide longitudinal approach. *American Journal of Preventive Medicine, 59*(2), 176-186. <https://doi.org/10.1016/j.amepre.2020.03.004>
- Krause, N. (2006). Church-based social support and mortality. *The Journals of Gerontology. Series B, Psychological Sciences and Social Sciences, 61*(3), S140-146. <https://doi.org/10.1093/geronb/61.3.s140>
- Kubzansky, L. D., Epel, E. S., & Davidson, R. J. (2023). Prosociality should be a public health priority. *Nature Human Behaviour, 7*(12), 2051-2053. <https://doi.org/10.1038/s41562-023-01717-3>
- Lee, E. E., Govind, T., Ramsey, M., Wu, T. C., Daly, R., Liu, J., ... & Jeste, D. V. (2021). Compassion toward others and self-compassion predict mental and physical well-being: A 5-year longitudinal study of 1090 community-dwelling adults across the lifespan. *Translational Psychiatry, 11*(1), 397. <https://doi.org/10.1038/s41398-021-01491-8>
- Lee, M. T. (2022). Love as a foundational principle for humanistic management. In *Love and organization: Lessons of love for human dignity, leadership, and motivation* (pp. 5-38). Routledge.
- Lee, M. T., Ritchie-Dunham, J. L., Moreira-Almeida, A., Khosla, M., Johnson, B. R., VanderWeele, T. J. (2025). *Complete well-being throughout the world: Lessons from the first wave of the Global Flourishing Study*. The Institute for Global Human Flourishing. Baylor University. <http://doi.org/10.17605/OSF.IO/FV8HJ>

- Lee, M. T., Wilkinson, R., Long, K. N., Case, B. W., Ritchie-Dunham, J. L., Bradshaw, M., ... & VanderWeele, T. J. (2026). Sociodemographic variation and childhood predictors of showing love and care for others across 22 countries: a cross-national analysis. *Scientific Reports*, 16, 1796. <https://doi.org/10.1038/s41598-025-31380-9>
- Lomas, T., Bradshaw, M., Case, B., Cowden, R. G., Crabtree, S., English, C., Fogleman, A., Johnson, K. A., Ritter, Z., Johnson, B. R., & VanderWeele, T. J. (2025). The development of the Global Flourishing Study questionnaire: Charting the evolution of a new 109-item inventory of human flourishing. *BMC Global and Public Health*, 3(1), 30. <https://doi.org/10.1186/s44263-025-00139-9>
- Lomas, T., Diego-Rosell, P., Shiba, K., Standridge, P., Lee, M. T., Case, B., ... & VanderWeele, T. J. (2023). Complexifying individualism versus collectivism and west versus east: Exploring global diversity in perspectives on self and other in the Gallup World Poll. *Journal of Cross-Cultural Psychology*, 54(1), 61-89. <https://doi.org/10.1177/00220221221130978>
- Lomas, T., Case, B. W., Lee, M. T., Basu, J., Bear, L., Cowden, R. G., ... & VanderWeele, T. J. (2024). Love of creation: Exploring diversity and commonality among religious and philosophical traditions. *Zygon: Journal of Religion and Science*, 59(2), 352-381. <https://doi.org/10.16995/zygon.10856>
- Murdoch, I. (1999). *Existentialists and mystics: Writings on philosophy and literature*. Penguin. Originally published in 1950.
- Nakamura, J. S., Lee, M. T., VanderWeele, T. J., & Kim, E. S. (2024). Informal helping and subsequent health and well-being in older US adults. *International Journal of Behavioral Medicine*, 31(4), 503-515. <https://doi.org/10.1007/s12529-023-10187-w>
- Nakamura, J. S., Gibson, C. B., Woodberry, R. D., Lee, M. T., Kim, Y. I., Shiba, K., ... & VanderWeele, T. J. (2025a). Understanding who volunteers globally through an examination of demographic variation in volunteering across 22 countries. *Scientific Reports*, 15(1), 25299. <https://doi.org/10.1038/s41598-025-05459-2>
- Nakamura, J. S., Węziak-Białowolska, D., Woodberry, R. D., Kubzansky, L. D., Shiba, K., Padgett, R. N., ... & VanderWeele, T. J. (2025b). Demographic variation in charitable giving and helping across 22 countries in the Global Flourishing Study. *Scientific Reports*, 15(1), 14802. <https://doi.org/10.1038/s41598-025-96009-3>
- Nakamura, J. S., Woodberry, R. D., Weziak-Białowolska, D., Kubzansky, L. D., Shiba, K., Padgett, R. N., ... & VanderWeele, T. J. (2025c). Childhood predictors of charitable giving and helping across 22 countries in the Global Flourishing Study. *Scientific Reports*, 15(1), 14493. <https://doi.org/10.1038/s41598-024-77950-1>
- Nakamura, J. S., Woodberry, R. D., Gibson, C. B., Lee, M. T., Kim, Y.-I., Shiba, K., ... & VanderWeele, T. J. (2025d). Childhood predictors of volunteering across 22 countries in the Global Flourishing Study. *Scientific Reports*, 15(1), 14797. <https://doi.org/10.1038/s41598-024-81639-w>
- Nolan, M. T., Diefendorff, J., Erickson, R. J., & Lee, M. T. (2022). Psychological compassion climate: Examining the nomological network of perceptions of work group compassion. *Journal of Vocational Behavior*, 133, 103688. <https://doi.org/10.1016/j.jvb.2021.103688>
- Nygren, A. (1982). *Agape and Eros*. University of Chicago Press. Reprint.
- Oishi, S. (2010). Culture and well-being: Conceptual and methodological issues. In *International differences in well-being* (pp. 34-69). Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780199732739.003.0003>
- Padgett, R. N., Bradshaw, M., Chen, Y., Cowden, R. G., Jang, S. J., Kim, E. S., Shiba, K., Johnson, B. R., & VanderWeele, T. J. (2025a). Analytic methodology for childhood predictor analyses for wave 1 of the Global Flourishing Study. *BMC Global and Public Health*, 3(1), 29. <https://doi.org/10.1186/s44263-025-00142-0>
- Padgett, R. N., Bradshaw, M., Chen, Y., Cowden, R. G., Jang, S. J., Kim, E. S., Shiba, K., Johnson, B. R., & VanderWeele, T. J. (2025b). Analytic methodology for demographic variation analyses for wave 1 of the global flourishing study. *BMC Global and Public Health*, 3(1), 28. <https://doi.org/10.1186/s44263-025-00140-2>
- Padgett, R. N., Bradshaw, M., Chen, Y., Jang, S. J., Shiba, K., & VanderWeele, T. J. (2024). *Global*

- Flourishing Study statistical analyses code*. Open Science Framework.
<https://doi.org/10.17605/OSF.IO/VBYPE>
- Padgett, R. N., Cowden, R. G., Chattopadhyay, M., Han, Y., Honohan, J., Ritter, Z., Srinivasan, R., Johnson, B. R., & VanderWeele, T. J. (2025). Survey sampling design in wave 1 of the Global Flourishing Study. *European Journal of Epidemiology*, 40(4), 391-406. <https://doi.org/10.1007/s10654-024-01167-9>
- Post, S. G. (2022). *Dignity for deeply forgetful people: How caregivers can meet the challenges of Alzheimer's Disease*. Johns Hopkins.
- Ritter, Z., Srinivasan, R., Han, Y., Chattopadhyay, M., Honohan, J., Johnson, B., & VanderWeele, T. J. (2024). *Global Flourishing Study methodology*. Gallup Inc. <https://osf.io/k2s7u>
- Saarinen, A. I., Keltikangas-Järvinen, L., Pulkki-Råback, L., Cloninger, C. R., Elovainio, M., Lehtimäki, T., ... & Hintsanen, M. (2020). The relationship of dispositional compassion with well-being: A study with a 15-year prospective follow-up. *The Journal of Positive Psychology*, 15(6), 806-820. <https://doi.org/10.1080/17439760.2019.1663251>
- Snyder, M., & Omoto, A. M. (2008). Volunteerism: Social issues perspectives and social policy implications. *Social Issues and Policy Review*, 2(1), 1-36. <https://doi.org/10.1111/j.1751-2409.2008.00009.x>
- Sorokin, P. A. (2002). *The ways and power of love: Techniques of moral transformation*. Templeton Foundation.
- Sprecher, S., & Fehr, B. (2005). Compassionate love for close others and humanity. *Journal of Social and Personal Relationships*, 22(5), 629-651. <https://doi.org/10.1177/0265407505056439>
- Strauss, C., Taylor, B. L., Gu, J., Kuyken, W., Baer, R., Jones, F., & Cavanagh, K. (2016). What is compassion and how can we measure it? A review of definitions and measures. *Clinical Psychology Review*, 47, 15-27. <https://doi.org/10.1016/j.cpr.2016.05.004>
- Task Force for Global Health (2024). *Towards an epidemiology of compassion workshop report*. Task Force for Global Health.
- VanderWeele, T. J. (2023). On an analytic definition of love. *Journal of Ethics and Social Philosophy*, 25, 105-135. <https://doi.org/10.26556/jesp.v25i1.2695>
- VanderWeele, T. J., Chen, Y., Long, K., Kim, E. S., Trudel-Fitzgerald, C., & Kubzansky, L. D. (2020). Positive epidemiology? *Epidemiology*, 31(2), 189-193. <https://doi.org/10.1097/EDE.0000000000001147>
- VanderWeele, T. J., and Johnson, B.R. (2025a). Why we need to measure flourishing – lessons from a global survey. *Nature*, 641, 34-36. <https://doi.org/10.1038/d41586-025-01254-1>
- VanderWeele, T. J., and Johnson, B.R. (2025b). Multidimensional versus unidimensional approaches to well-being. *Nature Human Behaviour*, 9, 857-863. <https://doi.org/10.1038/s41562-025-02187-5>
- VanderWeele, T. J. & Lee, M. T. (2025). Love and human flourishing. *International Journal of Wellbeing*, 15(4), 4663, 1-31. <https://doi.org/10.5502/ijw.v15i4.4663>
- VanderWeele, T. J., Johnson, B. R., Bialowolski, P. T., Bonhag, R., Bradshaw, M., Breedlove, T., Case, B., Chen, Y., Chen, Z. J., Counted, V., Cowden, R. G., de la Rosa, P. A., Felton, C., Fogleman, A., Gibson, C., Grigoropoulou, N., Gundersen, C., Jang, S. J., Johnson, K. A., ... Yancey, G. (2025). The Global Flourishing Study: Study profile and initial results on flourishing. *Nature Mental Health*, 3, 636-653. <https://doi.org/10.1038/s44220-025-00423-5>
- Viechtbauer, W. (2010). Conducting meta-analyses in R with the metafor package. *Journal of Statistical Software*, 36(3), 1-48. <https://doi.org/10.18637/jss.v036.i03>
- Wilkinson, R., Chen, Y., Lee, M. T., Cowden, R. G., & Vanderweele, T. J. (2025). Sibling love in adolescence and subsequent health and well-being in adulthood. *Social Science & Medicine*, 368, 117700. <https://doi.org/10.1016/j.socscimed.2025.117700>
- Wolterstorff, N. (2015). *Justice in love*. Eerdmans.
- Woodbury, R. D., Johnson, K. A., Case, B., Bradshaw, M., VanderWeele, T. J., & Johnson, B. R. (2025). Religious centrality across 22 countries. *Scientific Reports*, 15(1), 15081. <https://doi.org/10.1038/s41598-025-99183-6>

Xi, J., Lee, M. T., Carter, J. R., & Delgado, D. (2022). Gender differences in purpose in life: The mediation effect of altruism. *Journal of Humanistic Psychology*, 62(3), 352-376.
<https://doi.org/10.1177/0022167818777658>

Appendix

Figure A1. Bivariate correlations among 'echoes of compassion' using the country-level means and proportions of each variable

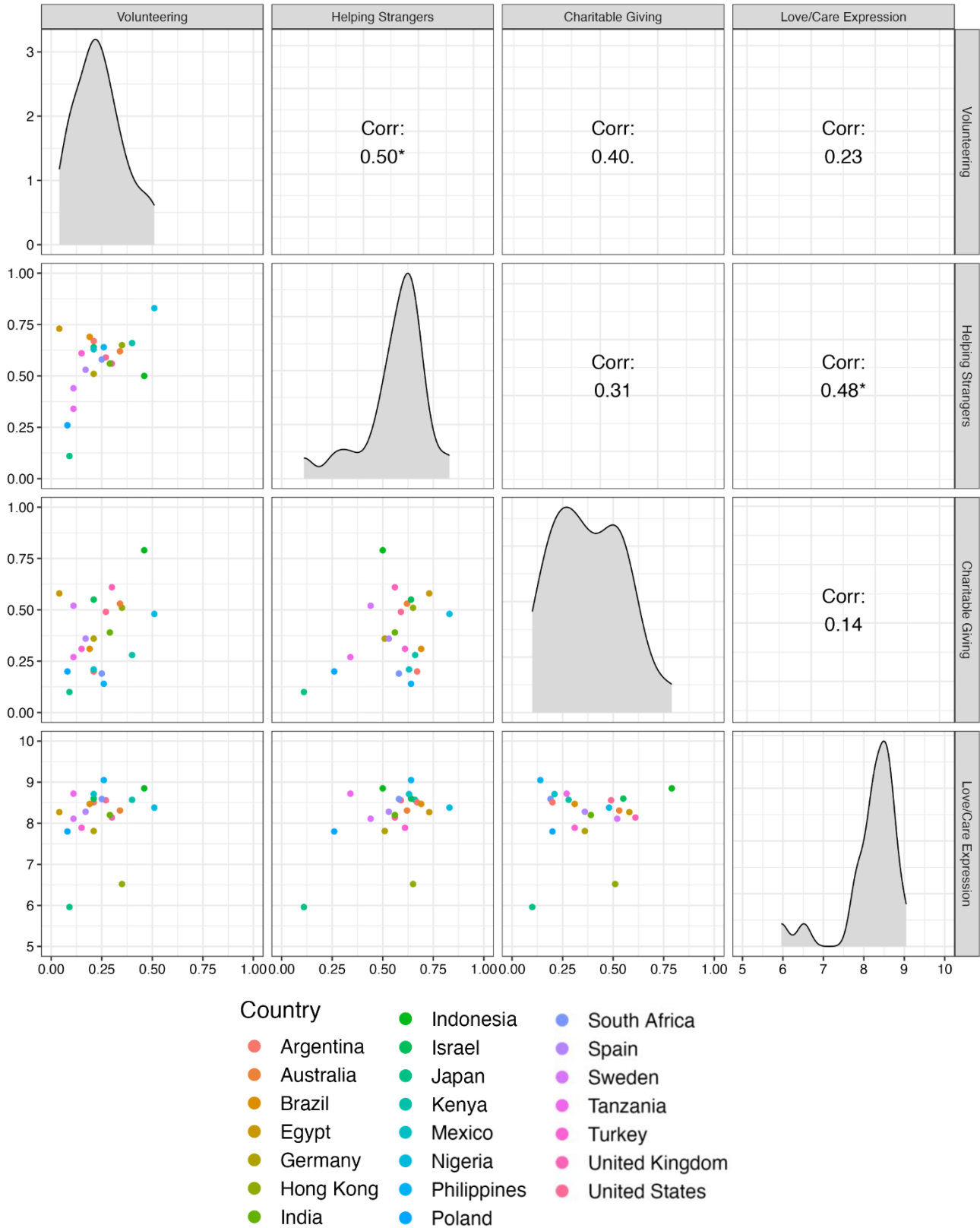


Table A1. Correlations between ‘echoes of compassion’ within each country

Country	Correlations					
	Showing love/care + volunteering	Showing love/care + charitable giving	Showing love/care + helping strangers	Volunteering + charitable giving	Volunteering + helping strangers	Charitable giving + helping strangers
Argentina	0.04 (0.02)	0.01 (0.02)	0.05 (0.02)	0.17 (0.02)	0.22 (0.01)	0.17 (0.01)
Australia	0.07 (0.02)	0.07 (0.02)	0.08 (0.02)	0.17 (0.02)	0.19 (0.02)	0.11 (0.02)
Brazil	0.06 (0.01)	0.07 (0.01)	0.10 (0.01)	0.19 (0.01)	0.16 (0.01)	0.19 (0.01)
Egypt	-0.01 (0.02)	0.01 (0.02)	0.04 (0.02)	0.08 (0.01)	0.09 (0.01)	0.43 (0.02)
Germany	0.05 (0.01)	0.05 (0.01)	0.05 (0.01)	0.28 (0.01)	0.29 (0.01)	0.37 (0.01)
Hong Kong	0.39 (0.02)	0.29 (0.02)	0.28 (0.02)	0.45 (0.02)	0.36 (0.02)	0.33 (0.02)
India	-0.01 (0.01)	0.02 (0.01)	0.02 (0.01)	0.42 (0.02)	0.28 (0.01)	0.35 (0.01)
Indonesia	0.05 (0.02)	0.05 (0.02)	0.04 (0.02)	0.20 (0.01)	0.21 (0.02)	0.23 (0.01)
Israel	0.03 (0.02)	0.13 (0.03)	0.08 (0.03)	0.19 (0.02)	0.18 (0.02)	0.31 (0.03)
Japan	0.13 (0.01)	0.11 (0.01)	0.11 (0.01)	0.29 (0.01)	0.24 (0.01)	0.20 (0.01)
Kenya	0.00 (0.01)	0.00 (0.01)	0.02 (0.01)	0.31 (0.01)	0.25 (0.01)	0.22 (0.01)
Mexico	0.02 (0.02)	0.03 (0.02)	0.07 (0.02)	0.24 (0.02)	0.22 (0.01)	0.20 (0.02)
Nigeria	0.01 (0.02)	-0.03 (0.02)	0.02 (0.02)	0.32 (0.02)	0.15 (0.02)	0.24 (0.02)
Philippines	0.01 (0.02)	0.01 (0.02)	0.03 (0.02)	0.25 (0.02)	0.22 (0.02)	0.18 (0.02)
Poland	0.01 (0.02)	0.06 (0.02)	-0.01 (0.02)	0.29 (0.02)	0.19 (0.02)	0.22 (0.02)
South Africa	0.04 (0.02)	0.03 (0.02)	0.06 (0.03)	0.24 (0.03)	0.21 (0.02)	0.21 (0.02)
Spain	0.03 (0.02)	0.03 (0.02)	0.03 (0.02)	0.25 (0.02)	0.21 (0.02)	0.22 (0.02)
Sweden	0.02 (0.01)	0.09 (0.01)	0.03 (0.01)	0.14 (0.01)	0.12 (0.01)	0.05 (0.01)
Tanzania	0.05 (0.01)	0.04 (0.01)	0.07 (0.01)	0.17 (0.02)	0.16 (0.01)	0.40 (0.01)
Turkey	0.01 (0.03)	0.04 (0.03)	0.07 (0.03)	0.22 (0.03)	0.19 (0.02)	0.28 (0.03)
United Kingdom	0.02 (0.02)	0.11 (0.02)	0.05 (0.02)	0.17 (0.02)	0.11 (0.02)	0.10 (0.02)
United States	0.07 (0.01)	0.14 (0.01)	0.07 (0.01)	0.28 (0.01)	0.10 (0.01)	0.09 (0.01)

Note. Values in table are the Correlations Estimate (standard error); country-specific correlation estimates obtained using the complex survey adjusted estimates of (co)variances using the survey package in R. Standard error for the correlation obtained via the delta-method converting the standard error of the covariance to the standard error of the covariance.

Table A2. Correlations between ‘echoes of compassion’ in the overall sample – meta-analyzed country specific correlation estimates for each variable pair

Variables correlated	Estimate	95% CI
Showing love/care + volunteering	0.05	(0.02, 0.08)
Showing love/care + charitable giving	0.06	(0.03, 0.09)
Showing love/care + helping strangers	0.06	(0.04, 0.08)
Volunteering + charitable giving	0.24	(0.21, 0.28)
Volunteering + helping strangers	0.20	(0.17, 0.22)
Charitable giving + helping strangers	0.23	(0.19, 0.27)

Note. Overall correlation obtained by meta-analyzing the country specific correlation estimates for each variable pair (see Table A1) using the metafor package in R.