Longitudinal Analyses in the Global Flourishing Study: Wave 1 Predictors of Wave 2 Flourishing

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Abstract

We assess numerous aspects of flourishing and their possible determinants using longitudinal panel data analyses from Waves 1 and 2 of the Global Flourishing Study. The Global Flourishing Study is a longitudinal panel study of more than 200,000 participants in 22 geographically and culturally diverse countries and one territory, spanning all six populated continents, with nationally representative sampling. We report on changes between Wave 1 (mostly 2023) and Wave 2 (2024) across the countries in a composite flourishing index covering the domains of happiness, health, meaning, character, relationships, and financial stability. We also report on longitudinal analyses of Wave 2 flourishing regressed on Wave 1 predictors under multivariate confounding control. Flourishing in each of the various domains predicts flourishing in other domains even after adjustment for an extensive set of confounding variables. Among the most prominent of other one-year predictors of flourishing are freedom to pursue what is most important, hope and optimism, showing love/care, social support, a sense of belonging within one's country, marriage, religious service attendance, loneliness, health limitations, pain, and subjective financial security. The analyses may provide some indication of potential intervention targets to improve societal flourishing. However, there is considerable heterogeneity in effect sizes across countries and the most effective strategies will likely be those tailored to each specific context.

Introduction

Flourishing might be conceived of as "the relative attainment of a state in which all aspects of a person's life are good, including the contexts in which that person lives" (VanderWeele, 2017b; VanderWeele and Lomas, 2023). Studying the distribution and determinants of flourishing can help to promote such flourishing. An understanding of where, and under what circumstances, people are flourishing and what might be done to promote flourishing is critical for societal progress. Towards that end, the Global Flourishing Study (GFS) is a longitudinal panel study of more than 200,000 participants in 22 geographically and culturally diverse countries and 1 territory, spanning all six populated continents, with nationally representative sampling in each country, and an intended five years of annual data collection to assess numerous aspects of flourishing and their possible determinants (Johnson et al., 2024a; VanderWeele et al., 2025a).

The first year of data was released in February 2024 and the second wave in April 2025. With the first wave of data, two series of coordinated analyses and research papers were released across numerous well-being and psycho-social constructs (cf. VanderWeele et al., 2025a; Padgett et al., 2025abc; Lomas et al., 2025). The first series of research papers each examined a single construct (e.g. happiness, meaning, hope, political voice, discrimination, etc.) and reported on the distribution of the construct assessments across countries and across demographic groups (Padgett et al., 2025a). The second series of research papers examined childhood predictors, assessed retrospectively, of each given construct assessment (Padgett et al., 2025b). These two series of papers shed insight into the

distribution and potential childhood determinants of numerous aspects of well-being and other outcomes.

The release of the second wave of data from the Global Flourishing Study provides an opportunity to carry out longitudinal analyses, examining how Wave 1 variables are associated with Wave 2 outcomes. To leverage this Wave 2 data and the longitudinal panel nature of the data, another series of pre-registered coordinated analyses and research papers has been carried out (Padgett et al., 2025de). Each of the analyses for the coordinated Wave 2 research papers examines the associations of a single Wave 1 construct assessment with numerous Wave 2 outcomes, while simultaneously controlling for a number of potential Wave 1 confounding variables (Padgett et al., 2025d). Each of these analyses effectively provides an "outcome-wide" study (VanderWeele, 2017a; VanderWeele et al., 2020) examining the associations between an exposure and numerous subsequent outcomes. The design and implementation of such outcome-wide studies provides evidence for causal relationships between the focal Wave 1 exposure and numerous subsequent outcomes.

Whenever analyses like these are employed, however, there are various methodological challenges. One challenge concerns decisions about the potential confounding variables for which to control. This determination is not straightforward since the covariates are all assessed contemporaneously with the focal exposure, and thus adjustment for certain covariates may risk "over-control" as the variables might well be on the causal pathways from the exposure to various outcomes. To attempt to address this issue, each of the analyses in the series of coordinated research papers considered two models: one model that controlled only for demographic variables and retrospectively assessed childhood variables, and a second model that additionally controlled for an extensive range of contemporaneously measured Wave 1 variables (Padgett et al., 2025d). The results of these models for each outcome, along with accompanying sensitivity analyses for potential unmeasured confounding (VanderWeele and Ding, 2017) provide evidence for associations and potential causal relations between each of the Wave 1 exposures and Wave 2 outcomes.

The present paper provides a high-level summary of the results across the numerous research papers reporting on this coordinated series of Wave 2 analyses. However, to more succinctly summarize some of the high-level results of this series of papers, we will here in some sense transpose the target of these analyses. Each of the research papers in the coordinated series examined the multivariate-adjusted association of a single Wave 1 exposure with numerous Wave 2 outcomes, and amongst those Wave 2 outcomes was a 12-item secure flourishing index (VanderWeele, 2017b; VanderWeele et al., 2025a), providing a composite assessment of flourishing with two indicators each across six well-being domains including happiness, health, meaning, character, relationships, and financial security. Additional details on the flourishing index (see Table 1), its motivation, its relation to fuller conceptualizations of flourishing and to the Global Flourishing Study, and its psychometric properties are given elsewhere (VanderWeele, 2017b; VanderWeele et al., 2025a; VanderWeele and Johnson, 2025a; Lomas et al., 2023; Weziak-Bialowolska et al., 2019ab; Höltge et al., 2023; Zambelli et al., 2025). The flourishing index assessment (VanderWeele, 2017b) captures individual aspects of flourishing across six domains of human life that

are nearly universally desired (Lomas et al., 2026). The index does not capture all aspects of flourishing and thus the Global Flourishing Study does itself make use of an even wider range of questions and assessments (Lomas et al., 2025). However, the flourishing index does provide a helpful high-level summary with well-established psychometric properties across a range of different cultures (Weziak-Bialowolska et al., 2019a; Höltge et al., 2023; Zambelli et al., 2025).

In the present paper, rather than considering a single exposure, we will instead consider this single composite flourishing index as an outcome and report on the associations of each Wave 1 exposure with this Wave 2 composite flourishing index, again controlling in regression models for either a smaller set of demographic variables and retrospectively assessed childhood variables (model 1), or a larger set which additionally includes an extensive range of contemporaneously measured variables (model 2) (Padgett et al., 2025d).

While each of the coordinated Wave 2 research papers is intended to provide evidence concerning associations, and potential causal effects, of a single Wave 1 exposure on a host of Wave 2 outcomes, in the present paper, in attempt to summarize the results of that series, we report on the associations of each Wave 1 exposure with that single Wave 2 composite flourishing outcome. From the research papers in the coordinated series, we here effectively take a single analysis from each of those pre-registered “outcome-wide” studies and report on it to provide a high-level overview of the entire series of papers. This provides a rather different “exposure wide” analytic lens than the outcome-wide papers in the coordinated series (VanderWeele et al., 2020). Finally, in this paper we report on the changes in flourishing over time in each of the GFS countries. Further details on each of the individual exposures and associations with the numerous other outcomes are of course available in the papers of this coordinated Wave 2 GFS series.

Results

Weighted summary statistics for the flourishing index scores and demographic characteristics of the total observed sample at Waves 1 and 2 are reported in Table 2. The demographic characteristics match fairly closely across waves, though even after weighting for attrition there are slightly larger proportions of older (70+) than younger (18-24) respondents reporting in the Wave 2 than in the Wave 1 samples. The proportions with 16+ years of education are also somewhat higher in Wave 2. Non-response rates vary considerably across countries (Padgett et al., 2025d) and thus so do the Wave 2 proportions in each country, which may also partially explain some of the minor changes in the means. Most other demographic characteristics are very similar in Waves 1 and 2 and these distributions are discussed further elsewhere (VanderWeele et al., 2025a; Padgett et al., 2025c). Further information on the weighted distribution of the childhood characteristics is given in Table S1, and on individual exposure and outcome indicators in Table S2. All analyses and weighting are carried out within country.

Weighted means for the secure flourishing index (SFI, with financial and material security indicators) and the flourishing index (FI, without financial and material security indicators) for Waves 1 and 2 in each

country are reported in Table 3. Overall, mean SFI for the entire sample declined very slightly between Waves 1 and Waves 2 from 7.1 to 7.0 for SFI, and 7.3 to 7.1 for FI, representing about a tenth of a standard deviation. Most country-specific changes were likewise negative and small, generally between 0.0 and -0.2 on the scale from 0 – 10. Exceptions were Hong Kong which had a change of -0.7 for both SFI and FI; India, -0.3 for SFI, -0.5 for FI; Kenya -0.3 for SFI, -0.4 for FI; and Nigeria, -0.8 for SFI, -0.7 for FI. The only countries that saw increases between Wave 1 and Wave 2 were China, 0.1 for SFI; Poland, 0.1 for SFI and FI; and Sweden 0.1 for FI. Comparisons of Wave 1 variables for participants who dropped out in Wave 2 versus who were retained are given in Table S3 for demographic and childhood variables and S4 for outcomes. The Wave 1 SFI was slightly higher for those retained in Wave 2 (7.2 vs. 7.1) while Wave 1 FI was slightly lower for those retained (7.3 vs. 7.4).

Table 4 presents the results of a random effects meta-analysis aggregating over the country-specific analyses of the Wave 2 secure flourishing index regressed on each of the Wave 1 predictors, controlling either for demographic and childhood factors only (model 1) or additionally for principal components for all contemporaneously measured Wave 1 variables (model 2). Because some of the Wave 1 predictors concern the same variables as used in the Wave 2 SFI outcome, results from an additional analysis using the Wave 2 SFI but omitting from the Wave 2 outcome average the domain of the focal predictor (e.g. omitting Wave 2 “Meaning and Purpose” from the SFI average when the “meaningful activities” indicator is the Wave 1 predictor) are given in Table 5. Complete information on confidence intervals for the meta-analytic estimate, and p-values for the global testing of association in any country are likewise given in Tables 4 and 5. Because of the large sample sizes, the confidence intervals are generally narrow and the p-values extreme and we will thus focus principally on the actual effect estimates below. We will, however, give confidence intervals when results are presented from the Online Supplement that are not in the main tables. Occasionally, confidence intervals for the meta-analytic estimate can contain 0 even if p-values are extreme because the p-value concerns evidence for association in at least one country, which may be very extreme even if the overall average effect size across all countries is closer to 0 with effect sizes in different directions for different countries.

We will first comment on the results when the SFI indicators are themselves taken as predictors, and then turn to the other predictors. In Table 4, unsurprisingly, Wave 1 SFI strongly predicts Wave 2 SFI in both model 1 (0.59) and model 2 (0.46). Each of the Wave 1 flourishing domains likewise fairly strongly predicts Wave 2 SFI, ranging in magnitude from the character domain (0.30 in model 1; 0.11 in model 2) to the happiness domain (0.46 in model 1; 0.21 in model 2, tied with the meaning domain in model 2). These patterns also pertain to the individual indicators ranging from delayed gratification (0.21 in model 1; 0.07 in model 2) to happiness and life satisfaction (0.42 in model 1; 0.16 in model 2). Even when the domain of each predictor was removed from the SFI average (Table 5), the individual Wave 1 indicators were fairly predictive of Wave 2 flourishing even after extensive covariate control (Table 5, model 2), though for delayed gratification, financial security, and material security, these effect sizes were very small in model 2: 0.03, 0.03, and 0.02, respectively.

When examining other Wave 1 psychological well-being indicators, current and future life evaluation, optimism, and freedom to pursue what is important had notably larger effect sizes than inner peace, life balance, and harmony; the effect sizes for these latter three variables were quite small in model 2: 0.02, 0.04, and 0.04, respectively. Even for current and future life evaluation, optimism, and freedom to pursue what is important, the effect sizes were somewhat smaller than those obtained for happiness, life satisfaction, and meaningful activities, and this held even when the Wave 2 happiness and life satisfaction variables were omitted from the SFI average for the latter variables (Table 5) but not the former variables (Table 4).

All of the Wave 1 psychological distress indicators had notable associations with Wave 2 SFI ranging from traumatic distress (-0.13) to depression-feeling hopeless (-0.23) in model 1. However, when extensive contemporaneous covariate control was made in model 2, the effect sizes of almost all of these variables were very close to 0 and the largest effect size, -0.03, was for suffering.

Of the additional social well-being indicators, the two with the largest effect sizes were social support (0.25 in model 1; 0.06 in model 2) and a sense of belonging in one's country (0.24 in model 1; 0.06 in model 2), though even these had smaller effect sizes than relationship satisfaction and contentment, and even when the relationships domain was omitted from the SFI outcome average for the relationship satisfaction and contentment predictors (Table 5) but not for the other predictors (Table 4). The other social well-being variables were generally moderately predictive of flourishing in model 1, but they had much smaller effect sizes (0.01 to 0.04) in model 2.

With regard to objective social participation indicators, the strongest predictors were marriage and religious service attendance (0.06 and 0.07 in model 1), though the latter was notably attenuated in model 2 (0.05 and 0.02 respectively). With social distress, loneliness was a strong predictor of subsequent flourishing (-0.33 in model 1; -0.11 in model 2) and with an effect size comparable in absolute magnitude to relationship satisfaction and contentment. Perceived discrimination was a weaker predictor, especially in model 2.

With the character and prosocial behavior indicators, the effect sizes for hope, gratitude, and showing love/care were considerably higher than for forgiveness, charitable giving, helping strangers, or volunteering in both models 1 and 2. The effect sizes for hope, gratitude, and showing love/care were similar, and in some cases greater, in magnitude to those for the orientation to promote good and delayed gratification variables used in the SFI (Tables 4 and 5).

With regard to physical health and health behavior indicators, the effect sizes for health problems and pain in the past 4 weeks were considerably larger than for being a daily smoker, number of drinks per week, and days of exercise (model 1), though the effects sizes for all of the physical health and health behavior variables were very small in model 2 (0.02 to -0.03).

With the socioeconomic indicators, being financially comfortable or getting by (versus find it difficult/very difficult) had much larger effect sizes than any of the other indicators including educational

attainment, employment, owning a home, or income; being financially comfortable/getting by had effect sizes roughly comparable to the financial and material security indicators used in the SFI. In model 2, all other socioeconomic indicators had small effect sizes (0.01 or 0.02).

With the religious and spiritual variables, religious/spiritual connection, religious centrality, religious/spiritual comfort, and feeling loved by God had stronger effect sizes than belief in life after death, religious experience, religious reading/listening, prayer/mediation, belief in God/gods, feeling punished by God, experiencing religious criticism, and faith-sharing in both models 1 and 2. All of the latter variables had effect sizes between 0.00 and 0.02 in model 2, and even the former variables had effect sizes only of 0.03 in model 2 (though 0.09, 0.07, 0.07, and 0.07, respectively in model 1).

E-values for sensitivity analysis to unmeasured confounding are presented in Table 6. The E-value assesses the sensitivity or robustness of associations to potential unmeasured confounding of the relationship between the Wave 1 predictor and the Wave 2 SFI outcome. The E-values for some of the associations indicate a moderately high level of robustness. Thus, even in model 2 with extensive contemporaneous covariate control, to explain away the association between Wave 1 freedom to pursue what is important with Wave 2 flourishing, an unmeasured confounder that was associated with both freedom and higher levels of flourishing with risk ratios of 1.47 each, above and beyond the measured covariates, could suffice, but weaker joint confounder associations could not. In order to shift the 95% confidence interval to include the null, an unmeasured confounder that was associated with both freedom and higher Wave 2 flourishing with risk ratios of 1.42 each could suffice but weaker joint confounder associations could not. Given the extensive confounding control already present in model 2, such strong unmeasured confounder associations seem unlikely. Numerous associations in model 1 have substantial E-values, and even quite a number in model 2 do so, suggesting that a number of these are fairly robust to potential unmeasured confounding.

Sensitivity analyses for methods for handling missing data are presented for model 1 in Table S5, and for model 2 in Table S6, and corresponding E-values in Tables S7 and S8 respectively. When using semi-complete case analysis with attrition weights, results were very close to those presented in Table 4, often identical, though sometimes slightly attenuated, but, when so, generally by less than 10% in absolute magnitude.

The primary analyses reported in Tables 4 and 5 concern the meta-analytic results pooling over all countries. Analogous country-specific results are given in Tables S9-S31 and effect sizes vary considerably across countries, a point to which we will return below. Heterogeneity in effect sizes (t) across countries is considerable, with the standard deviation for effect sizes across countries in the meta-analysis with Wave 1 SFI as the predictor of 0.17 in Model 1 and 0.14 in Model 2, and ranging across the flourishing domains from 0.10 to 0.15 in Model 1 and from 0.05 to 0.08 in Model 2, and for individual flourishing indicators from 0.07 to 0.16 in Model 1 and from 0.04 to 0.08 in Model 2. Similar heterogeneity in effect sizes across countries is observed for other individual indicators, though indicators with very small effect sizes also tend to have fairly low levels of heterogeneity.

As examples of variation in magnitude, effect sizes from model 2 for the “freedom to pursue what’s important” indicator ranged from 0.05 (95% CI: 0.00, 0.10) in Israel to 0.21 (95% CI: 0.16, 0.25) in Argentina. Effect sizes for social support ranged from 0.04 (95% CI: 0.00, 0.07) in China to 0.12 (95% CI: 0.09, 0.15) in Poland. Effect sizes for hope ranged from 0.03 (95% CI: 0.00, 0.06) in Tanzania to 0.22 (95% CI: 0.13, 0.31) in Hong Kong. A summary of the demographic/childhood variables and the other predictors across countries and waves are given in Table S32 and S33 respectively, and a summary of the effect sizes for each of the Wave 1 predictors across all countries is given in Table S34 for model 1 and S35 for model 2.

The mean absolute effect size averaging over exposures varies considerably across countries when employing model 1 (see Table S34), ranging from Japan (0.31), United Kingdom (0.29), Australia (0.28), United States (0.27), Sweden (0.26), Germany (0.24), Hong Kong (0.24), Turkey (0.24), Spain (0.23), Brazil (0.23), Argentina (0.22), Israel (0.20), Poland (0.20), Indonesia (0.16), Philippines (0.16), Egypt (0.15), India (0.14), Tanzania (0.12), South Africa (0.12), Kenya (0.12), China (0.11) to Nigeria (0.07). Likewise, the mean absolute effect size averaging over exposures varies across countries when employing model 2 (see Table S35), ranging from the United States (0.11), Australia (0.10), Argentina (0.10), United Kingdom (0.10), Mexico (0.09), Hong Kong (0.09), Germany (0.08), Sweden (0.08), Philippines (0.08), Brazil (0.08), Spain (0.08), Turkey (0.08), Indonesia (0.08), Japan (0.08), Poland (0.07), Israel (0.07), South Africa (0.06), India (0.06), Egypt (0.05), Kenya (0.05), Tanzania (0.04), China (0.04), to Nigeria (0.03). Fuller results within each country are given in Tables S9-S31, summarized in Tables S34 and S35. Forest plots of effect sizes across all countries for each of the Wave 1 predictors are given in Figures S1-S78.

Discussion

In this paper we have reported on global changes in flourishing across 22 countries and one territory between Wave 1 (mostly 2023) and Wave 2 (2024) of the Global Flourishing Study, and have considered a wide range of Wave 1 predictors of Wave 2 flourishing.

Overall, flourishing declined very slightly across these countries, though with larger declines for Hong Kong, India, Kenya, and Nigeria, and slight increases only for China, Poland, and Sweden. While there was some attrition in Wave 2 which may have introduced bias, the Wave 2 means were reweighted to obtain roughly nationally representative samples in that wave. Moreover, comparing participants who were retained versus those who dropped out suggested, at least for the secure flourishing index (SFI), those who were retained had slightly higher Wave 1 flourishing than those dropping out, and thus for the SFI, the declines may in fact be slightly larger than reported. With the flourishing index (FI) omitting the financial indicators, Wave 1 means were slightly larger for those dropping out than those retained, though FI also likewise slightly fell between Wave 1 and Wave 2 after re-weighting.

There were a number of notable observations in comparing Wave 1 and Wave 2 mean SFI and FI at the country level. One example was self-reported flourishing in Israel which remained steady, and did not

decline, even though the heightened conflict with Palestine, beginning October 7th, 2023, occurred following the first wave of data collection in Israel. The largest declines in flourishing were in fact seen in Hong Kong and Nigeria. Hong Kong's SFI dropped sharply from 7.1 to 6.4. While we are limited to speculation about the source of these declines, we note that in March 2024, between the two waves, stringent and controversial new security laws were passed, which critics suggest may have created a sociopolitical climate of fear and authoritarianism. In Hong Kong, government approval across the two waves dropped from 52.5% saying they strongly or somewhat approve in Wave 1 to just 33.8% in Wave 2. In Nigeria, the mean SFI fell from 7.4 to 6.6. During this time, Nigeria experienced considerable economic crisis along with annual inflation close to 30%, the highest figure in nearly three decades. The data presented here is purely descriptive and is not sufficient for attributing causes to these declines, but the events in these countries may help make some sense of these fairly dramatic falls.

In our primary analyses we considered numerous individual Wave 1 predictors of Wave 2 flourishing controlling for either just demographic and childhood covariates (model 1) or additionally with an extensive set of contemporaneous covariates (model 2). Even in the more extensively adjusted models, we found notable evidence for associations of numerous Wave 1 predictors with subsequent Wave 2 flourishing. Composite flourishing in Wave 1 strongly predicted flourishing in Wave 2, with both less extensive and also more extensive covariate control. Such patterns also held for each of the primary domains in the secure flourishing index – happiness, health, meaning, character, relationships, and financial security – and even for each of the individual indicators in each of the domains. Such patterns even persisted when an indicator's domain in Wave 2 was excluded from the composite flourishing index in the average (Table 5). There is thus some evidence that each aspect of flourishing affects other aspects of subsequent flourishing (cf. Y. Chen et al., 2022).

We additionally examined a host of other Wave 1 predictors across numerous domains including other aspects of psychological well-being, psychological distress, social well-being, social participation, social distress, character and prosocial behaviors, physical health and health behaviors, socioeconomic variables, and religion and spirituality. In each case, there was evidence that at least some of the indicators in each of these broad domains were notable predictors of subsequent flourishing, even after less or more extensive covariate control (models 1 and 2 respectively). However, the effect sizes differed notably, and, as discussed further below, this may have implications for potential points of intervention to improve societal flourishing.

With regard to other aspects of psychological well-being, the largest effect sizes were for current and future life evaluation, optimism, and freedom to pursue what is important. While a number of psychological distress variables were predictive of subsequent flourishing with less extensive control, the associations were highly attenuated in models with more extensive covariate control. Among the other social well-being variables beyond relational satisfaction and contentment, the effect sizes were largest for social support and sense of belonging in one's country. With social participation, marriage and religious service attendance were most predictive. With regard to social distress, loneliness was most predictive. With regard to character and pro-social behaviors, hope, gratitude, and showing

love/care were most predictive. For physical health and health behaviors, health problems and pain were most predictive, though with much smaller effect sizes after more extensive covariate control. With the socioeconomic variables, being financially comfortable or getting by was most predictive. With the religious and spiritual variables, spiritual connection, religious centrality, religious/spiritual comfort, and feeling loved by God were most predictive, though with much smaller effect sizes after more extensive covariate control.

As discussed further below, the data are observational and so it is difficult to draw definitive causal conclusions. However, in model 2, with extensive contemporaneous covariate control including numerous other outcomes at baseline, and longitudinal data structure, we are perhaps beginning to approach evidence for causality (VanderWeele, 2021). Moreover, the E-value sensitivity analysis suggested that a number of these associations were moderately robust to potential unmeasured confounding (VanderWeele and Ding, 2017). While conclusions are not definitive, the associations presented here may provide clues as to where interventions to improve societal flourishing might be most effective.

When reviewing Tables 4 and 5, the individual SFI indicators at Wave 1 were among the strongest prospective predictors of Wave 2 SFI. This often held even when the predictor's domain was removed from the Wave 2 SFI outcome (Table 5). This was especially notable for happiness, life satisfaction, meaningful activities, understanding purpose, self-rated mental health, self-rated physical health, relationship satisfaction, relationship contentment, and orientation to promote good, with the evidence from Table 5 indicating cross-domain effects. Delayed gratification, financial security, and material security had smaller effects but were also predictive.

One possible approach for the promotion of societal flourishing concerns interventions on aspects of subjective well-being directly. There is now a large literature on interventions to promote various aspects of happiness and life satisfaction and self-rated physical and mental health (Bolier et al., 2013; Sin and Lyubomirsky, 2009; Hendriks et al., 2019; VanderWeele, 2020). The analyses here suggest that these may also be partially effective, over time, in improving other aspects of flourishing. If interventions were possible to likewise directly alter meaning and purpose and relationship satisfaction and contentment, the analyses here would suggest these also would have effects on other aspects of flourishing (cf. Y. Chen et al., 2022).

Beyond the SFI indicators themselves, consideration of some the other largest effect sizes arguably also gives further clues as to where else interventions might be helpful. Thus, for example, among the other indicators of psychological well-being, the analyses suggested ensuring freedom to pursue what is most important to be an important driver of subsequent flourishing. The analyses also indicated that future life evaluation, optimism, and hope were strongly related to subsequent flourishing, and more work might be done on understanding how such pathways might be activated. However, some existing attempts at interventions are often specifically focused on sub-populations, and evidence about population level interventions on optimism, and hope remain limited, or have not proven very effective in increasing these

psychological assets (R. Chen et al., 2023). The present analyses suggest that continued investment in discerning how to increase hope and optimism would be valuable. In contrast, numerous interventions studies and randomized trials have indicated that gratitude can effectively be increased (Davis et al., 2016) and this was in fact the character variable that had the largest effect size on subsequent flourishing. Recent work has also indicated evidence for an effect of gratitude on extending longevity as well (Y. Chen et al., 2024) and this may thus prove to be a helpful intervention target for which campaigns promoting gratitude interventions may be feasible to improve societal flourishing. The other character-related variable that was a prominent predictor of subsequent flourishing was showing love or care towards others. While more work is needed to better understand how to promote love in society, the existing research does suggest various interventions at the individual or family level may be effective (VanderWeele and Lee, 2025) along with various compassion-promotion interventions (Jazaieri et al., 2013; Galante et al., 2014; Kirby et al., 2017). Further work on promoting a more universal love of neighbor within society may prove helpful in advancing societal flourishing (VanderWeele et al., 2025b; VanderWeele and Lee, 2025). Such promotion of love of neighbor might also help foster a greater sense of belonging within one's country, which was one of the more prominent social well-being variables predicting subsequent flourishing.

The other social well-being and distress variables, beyond the SFI indicators, that were strongly predictive of subsequent flourishing were social support and loneliness. There has been considerable recent interest at the policy level in addressing issues of loneliness. The U.S. Surgeon General recently released an advisory on the health effects of loneliness with a variety of proposals to address these matters (Murthy, 2023). The U.K. has established a minister of loneliness and has also taken on practices of social prescribing to help improve social support and decrease loneliness (NHS, 2020). Such practices could become more widespread and the results here indicate that such efforts might also help improve societal flourishing more broadly.

The two objective social participation variables that were most predictive of subsequent flourishing were marriage and religious service attendance. These are arguably not aspects of life to intervene on directly. However, removing obstacles to such longer-term forms of committed social engagement might help reverse the trends of declining rates, at least in the West, of such commitments (Molteni and Biolcati, 2023; Jones, 2024; Loo et al., 2024). Eliminating barriers and social welfare penalties to marriage, providing more balanced media portrayals of religion and its effects on society, and potentially including religious community options in social prescribing practices might all likewise help improve societal flourishing (VanderWeele, 2017b; VanderWeele et al., 2022). Indeed, in our earlier work on the Global Flourishing Study, examining variation across countries (VanderWeele et al., 2025a), we speculated that religious service attendance might explain some of the reason that several middle-income countries report higher levels of composite flourishing than high-income countries. The effect sizes in the model here with more extensive covariate control are fairly modest, but, as discussed further below, this is after control for a host of other religious/spiritual variables and also concerns only one-year of follow up and the effect of these more long-term forms of social commitment may take more time to fully realize their effects. Extensive research using cohort studies over much longer periods of time have indicated effects

on a host of health and well-being outcomes (Manzoli et al., 2007; Wood et al., 2007; Y. Chen et al., 2023; Balboni et al., 2022; Koenig et al., 2024).

Extensive support for health-related conditions is of course available in many countries, though further improvements would undoubtedly contribute to societal flourishing more broadly. However, the data here also point towards the importance of addressing not only objective health conditions, but also the subjective side of pain and also functional issues concerning health limitations (Macchia et al., 2025ab; Paltzer et al., 2025). It is important to be attentive not only to the disease, but also to the person, and to the implications of health-related conditions for other aspects of life if we are to promote societal flourishing.

With regard to socioeconomic aspects of life, while improvements in education and employment would likewise undoubtedly improve societal flourishing, the data here arguably also point towards the somewhat relative nature of each person's situation and financial constraints. An individual's subjective financial status was a stronger predictor than the objective measures examined. The cost of living and housing in the place a person dwells and the size of their family, potential medical and other costs, and other factors all shape a person's subjective financial experience. To promote societal flourishing, we need to pay attention not only to the objective aspects of a person's financial situation but to the subjective and situational as well (Bialowolski et al., 2025).

While the present analyses help indicate what intervention targets might be most promising to promote societal flourishing, the discussion above is based on meta-analytic effect sizes across all countries in the GFS. As noted above, there is considerable heterogeneity in effect sizes in different countries across different predictors and ideally this would be taken into account at the country level when designing policies and intervention strategies. For example, the analyses on hope suggested dramatically larger effect sizes in Hong Kong (0.22) as compared to Tanzania (0.03). It should also be noted that the effect sizes in the current analyses principally concern individual-level effects and are essentially conditional upon the current structures and policies present within a given country. Country-level policies and cultural changes might well alter the nature and magnitude of the effect sizes reported and could themselves bring about increased societal flourishing not adequately reflected in the potential interventions that might be motivated by the individual-level associations (Diener, 2009; Adler and Fleurbaey, 2016; De Neve and Sachs, 2020).

Further analyses with subsequent waves of data wherein it is possible to control for an extensive range of covariates, but in the wave prior to the focal predictor/exposure, will help with additional insight as to the evidence concerning which of these potential intervention targets may have largest effects on subsequent flourishing. However, even the present study has many strengths including a large sample size, longitudinal panel data collection, nationally representative samples, and a wide range of psychological, social, economic, behavioral, religious, and health and well-being variables.

In spite of these strengths, the study is also subject to a number of limitations. First, the study is observational in nature, limiting our ability to definitively establish causal relationships. As noted above,

although there was extensive covariate control, the associations may still be subject to unmeasured confounding. However, the E-value sensitivity analysis (VanderWeele and Ding, 2017) suggested that, even in model 2 with extensive contemporaneous covariate control, a number of these associations were moderately robust to unmeasured confounding. The actual effect sizes for the Wave 1 variables may well in fact lie between the estimates obtained in model 1 and model 2, as model 2 controlled for a number of contemporaneous variables that may be on the pathway from the Wave 1 predictor to the Wave 2 flourishing outcome. It may also have been the case that over-control for predictors that had a larger number of closely related contemporaneous variables may have resulted in comparatively smaller effect sizes. Subsequent waves of data collection will better allow us to assess these possibilities, so that extensive covariate control can be made, but in the wave prior to the exposure/predictor being considered.

Second, many constructs are assessed with a single indicator potentially limiting reliability and conceptual coverage of each construct. Because of the use of single-item assessments, when effect sizes are small or close to null, it can be difficult to evaluate whether the corresponding construct phenomenon is not particularly relevant for flourishing, or whether the indicator used is not sufficient to capture the relevant dynamics. As an example, the single forgiveness indicator used in the present study was not particularly predictive of subsequent flourishing. However, numerous randomized trials and meta-analyses of randomized trials (Wade et al., 2014; Wade and Tittler, 2020) have indicated that forgiveness interventions do change depression, anxiety, and hope; and a recent large randomized trial in five countries indicated that a forgiveness intervention notably increased flourishing as well (Ho et al., 2024). More adequate measurement of the constructs examined here would provide greater insight. Nevertheless, when there is evidence for association even when using a single indicator, it is possible that the associations that would emerge from a multi-item measure would be even stronger. It should also be noted that even interventions with small effect sizes can have very notable population-level effects when implemented at scale (Götz et al., 2022, 2024).

A third limitation in our study is the use of the same questions in all participating countries. Although this to some extent facilitates cross-cultural comparison, it also limits tailoring questions to be most relevant to each specific culture and context, and this limitation points to the need of each country carrying out its own flourishing assessments that focus on the country's own priorities and cultural dynamics (VanderWeele and Johnson, 2025b). Cognitive testing during the survey development process suggested some variation in the interpretation of items across countries (Johnson et al., 2024b; Cowden et al., 2025). This makes comparisons across countries more complex. To partially address this challenge, one advantage of a meta-analytic approach, over multi-level modeling, is that it does not presuppose cross-cultural measurement invariance of the measures, treating the measures instead as closely related, but not identical, assessments of each construct across countries (Padgett et al., 2025ab).

Fourth, although the GFS represents geographic and cultural diversity through its 22 participating countries and one territory, other cultures and contexts may not be adequately represented within the

GFS. Therefore, some caution should be applied when generalizing the findings beyond the countries included in our analytic sample. While the present study indicated a slight decrease in flourishing between 2023 and 2024, another recent study carried out by Gallup using data on 142 countries in their World Poll, was focused on current life evaluation and future life evaluation (Vigers, 2025) and suggested a slight increase in these measures over the same time period. In the GFS countries, not only were there slight declines in flourishing, but there were also slight declines in current and future life evaluation. It may be that the global trends are somewhat different than those in the GFS countries. Hong Kong and Nigeria, which each had large declines, certainly influenced the change in the GFS average but would have done so less when averaged over 142 countries.

Fifth, another possibility and limitation concerns attrition. Although 62% of the sample was retained in Wave 2 (Padgett et al., 2025d), and this is a reasonably high level of retention, especially for the wide range of countries participating, such attrition has the possibility of biasing results. Re-weighting the data to take into account such attrition (either using Wave 2 sampling weights or using inverse probability of attrition weighting) can help partially address such biases, as can multiple imputation as used in this study, but all of these approaches rely on additional assumptions. In the regression analyses, these assumptions are weakened further by controlling for a rich set of Wave 1 covariates. Nevertheless, the level of attrition likely still introduces some bias into the analyses.

Sixth, follow-up in the study was for a single year and certain effects may take considerably longer to be realized. It may be the case that smoking, for example, takes longer periods of time than a year to notably adversely affect flourishing, or that the capacity for delayed gratification has smaller effects short-term, but larger effects long-term. Objective socioeconomic factors may likewise have larger effects on flourishing over time. Subsequent waves of the GFS will give more opportunity to evaluate longer-term associations.

Seventh, the outcome-wide approach (VanderWeele, 2017a; VanderWeele et al., 2020) in the coordinated series of Wave 2 GFS papers (Padgett et al., 2025d), and partially reflected in the current paper, is itself subject to certain limitations. Because the approach covers multiple exposure-outcome relationships within a single study, it inherently involves a trade-off between breadth and depth. While applying a consistent analytic strategy to all exposure-outcome relationships facilitates comparison of effect sizes across outcomes, and reduces investigator degrees of freedom, and more easily allows for reporting of null results, each of the predictor-outcome relationships would benefit from more careful consideration and modeling.

These limitations are of course important, and can be partially addressed in future work by additional waves of data to allow for covariate control strategies, avoiding both over-adjustment and under-adjustment and allowing for longer follow-up. Future studies could perhaps be tailored to specific countries and cultural contexts in a way that allows for more extensive assessments of the most relevant measures (VanderWeele and Johnson, 2025b).

However, even with these limitations, the present study arguably constitutes an important advance over much prior research in its longitudinal panel design, nationally representative sampling, approaches to handling missing data, sensitivity analysis for unmeasured confounding, and consistent approach in evaluating numerous exposure-outcome relationships. The results reported here arguably constitute the most geographically comprehensive *longitudinal* analysis of flourishing outcomes to date. The analyses shed insight into some of the most prominent potential intervention targets and may ultimately thereby prove useful in promoting societal flourishing. Subsequent waves of GFS data and research will help provide further evidence concerning whether the possible policy and intervention approaches and strategies above might indeed be useful in promoting flourishing across the globe.

Methods

The study design, sampling, and survey development for the Global Flourishing Study (GFS) are described elsewhere (VanderWeele et al., 2025a; Padgett et al., 2025c; Lomas et al., 2025; Johnson et al., 2024a). Here we describe the outcome-wide longitudinal design (VanderWeele, 2017a; VanderWeele et al., 2020) that makes use of the Wave 2 data as part of the coordinated set of outcome-wide studies (Padgett et al., 2025d) to assess associations of predictor(s) on subsequent outcomes. These studies maintain a consistent analytic framework from which to compare across outcomes and studies, including the longitudinal analyses for the flourishing index outcome in the present paper.

Study Sample

Wave 1 of the GFS included nationally representative samples from 22 countries and one territory: Argentina, Australia, Brazil, China, Egypt, Germany, Hong Kong (Special Administrative Region of China), India, Indonesia, Israel, Japan, Kenya, Mexico, Nigeria, the Philippines, Poland, South Africa, Spain, Sweden, Tanzania, Turkey, the United Kingdom, and the United States (N = 207,919). The countries were selected to (1) maximize coverage of the world's population, (2) ensure geographic, cultural, and religious diversity, and (3) prioritize feasibility in Gallup's existing data collection infrastructure. Data for Wave 1 were collected from March 2022 to January 2024, except in China (March/April of 2024) (Ritter et al., 2025). Data for Wave 2 were collected from January 2024 to December 2024, with data in China collected at least six months after Wave 1 (Ritter et al., 2025). The GFS survey assesses aspects of well-being, including happiness, health, meaning, character, relationships, and financial security (VanderWeele, 2017b), along with other demographic, social, economic, political, religious, personality, childhood, community, health, and well-being variables. Gallup translated the GFS survey into multiple languages following the TRAPD (translation, review, adjudication, pretesting, and documentation) model for cross-cultural survey research (Ritter et al., 2024). Details about the translation, cognitive interviewing, and pilot testing phases of the GFS can be found elsewhere (Case et al., 2025; Cowden et al., 2025; Lomas et al., 2025; Crabtree et al., 2021/2024).

Sampling Design

The precise sampling design varied by country to ensure samples were approximately nationally representative (Ritter et al., 2024; Padgett, et al., 2025c). In most countries, local field partners implemented a probability-based face-to-face or telephone methodology to recruit panel members. Recruitment involved an intake survey gathering basic sociodemographic information and details for recontacting participants. Following recruitment, participants received invitations to participate in the annual survey via phone or online. Follow-up for Wave 2 data collection relied on the respondent-provided contact information. A minimum of three contact attempts were made on different days of the week and times of day to maximize the possibility of retention. Post-stratification and nonresponse adjustments to the Wave 1 sampling weights were performed separately within each country, using either census data or a reliable secondary source. Additional information about the sampling design and weighting scheme for Wave 2 is available elsewhere (Ritter et al., 2025; Padgett et al., 2025d).

Outcome-wide and Exposure-wide Analytic Methodology

In each of the analyses of the coordinated papers (Padgett et al., 2025d), an outcome-wide analytic approach (VanderWeele, 2017a; VanderWeele et al., 2020) was employed to examine the associations of a single exposure with a range of subsequent outcomes. Compared to traditional analytic strategies focused on a single outcome, this approach provides a more holistic assessment of an exposure's possibly differential relations with multiple life outcomes. The outcome-wide analytic design has the strengths of reducing researcher subjectivity/degree-of-freedom (Simmons et al., 2011) in analysis by ensuring a consistent analytic strategy and the same set of covariates across models for all outcomes; mitigates publication bias by reporting of results for all examined outcomes simultaneously including null results; and provides insights into beneficial, detrimental, and null associations with the exposure. Further details about the outcome-wide approach can be found elsewhere (VanderWeele et al., 2020). In the current paper, this approach is transposed to employ a type of *exposure-wide* methodology (VanderWeele et al., 2020), where a focal outcome at Wave 2 is regressed on a wide range of exposures at Wave 1.

Measures

Covariates: All country-specific analyses adjusted for 16 covariates (9 demographic and 7 childhood variables) unless data were not available (described below). Additional details on all variables can be found in the GFS Codebook (https://osf.io/285w7) or Crabtree et al. (2021/2024).

Demographic covariates: Gender was assessed as male, female, or other. Year of birth (age) was classified into 1998-2005 (18-24 years), 1993-1998 (25-29 years), 1983-1993 (30-39 years), 1973-1983 (40-49 years), 1963-1973 (50-59 years), 1953-1963 (60-69 years), 1943-1953 (70-79 years), and 1943 or earlier (80 years or older). Marital status was assessed as single/never married, married, separated, divorced, widowed, and domestic partner. Employment was assessed as employed, self-employed, retired, student, homemaker, unemployed and looking for a job, and none of these/other. Education was assessed as up to 8 years, 9-15 years, and 16 or more years. Religious service attendance was assessed as more than once a week, once a week, one-to-three times a month, a few times a year, and never.

Immigration status was assessed with yes/no responses to: “Were you born in this country, or not?” Religious affiliation was assessed in all countries, but with considerable cross-country variation in the response categories because some religious affiliations are only applicable in certain countries. Religious affiliation response categories included Christianity, Islam, Hinduism, Buddhism, Judaism, Sikhism, Baha’i, Jainism, Shinto, Taoism, Confucianism, Primal/animist/folk religion, Spiritism, Umbanda, Candomblé, and other African-derived religions, Chinese folk/traditional religion, some other religion, or no religion/atheist/agnostic. Racial/ethnic identity was assessed in most countries but not collected in China, Germany, Japan, Spain, and Sweden. Response categories varied across countries to be locally meaningful. Country-specific analyses that adjusted for racial/ethnic identity used a binary variable based on whether an individual was in the most prominent racial/ethnic group in the sample versus a minority racial/ethnic group.

Retrospective childhood covariates: Relationship with mother during childhood was assessed with the question: “Please think about your relationship with your mother when you were growing up. In general, would you say that relationship was very good, somewhat good, somewhat bad, or very bad?” Responses were dichotomized to very/somewhat good versus very/somewhat bad. “Does not apply” was treated as a dichotomous control variable for respondents who did not have a mother due to death or absence. An analogous variable was used for relationship with father. Parental marital status during childhood was assessed with responses of married, divorced, never married, and one or both had died. Subjective financial status was measured with: “Which one of these phrases comes closest to your own feelings about your family's household income when you were growing up, such as when YOU were around 12 years old?” Responses were lived comfortably, got by, found it difficult, and found it very difficult. Abuse was assessed with yes/no responses to “Were you ever physically or sexually abused when you were growing up?” (not asked in Israel). Subjective family exclusion growing up was assessed with the question: “When you were growing up, did you feel like an outsider in your family?” Response options were yes/no. Childhood health was assessed by: “In general, how was your health when you were growing up? Was it excellent, very good, good, fair, or poor?” Religious service attendance during childhood was assessed with: “How often did YOU attend religious services or worship at a temple, mosque, shrine, church, or other religious building when YOU were around 12 years old?” with responses of at least once/week, one-to-three times/month, less than once/month, or never.

Exposure and outcome variables: In each of the papers in the coordinated series (Padgett et al., 2025d), fifty-six outcomes were examined across domains of psychological well-being, psychological distress, social well-being, social participation, social distress, character and prosocial behaviors, physical health and health behaviors, and socioeconomic outcomes. The list of Wave 2 outcomes is given on OSF (https://osf.io/9kpd8). Further details on item wording can be found in Crabtree et al. (2021/2024). The outcomes included a composite flourishing index using two items in each of six domains: happiness, health, meaning, character, relationships, and financial security (Table 1) (VanderWeele, 2017b; VanderWeele et al., 2025a), and it is this composite flourishing index that is the focus of the present analyses. The “secure flourishing index” (SFI) is the mean of the 12 indicators; when the two financial indicators are omitted, since financial resources are means not ends, the average of the 10 indicators is

sometimes referred to as the “flourishing index” (FI). In the GFS sample, coefficient alpha for the twelve-item index was 0.88 for the full sample and ranged from 0.75 in Nigeria to 0.94 in Japan.

Statistical analysis

Regression analyses with complex survey weights: Analyses were performed using R 4.5 (R Core Team, 2025) and the *Rglobalflourishing* package (Padgett et al., 2025c). Weighted descriptive statistics for the sample (N=207,989) were estimated for each of the sociodemographic and outcome variables at both waves. All analyses, including imputation and attrition modeling described below, accounted for complex survey design by including weights, primary sampling units, and strata to try to obtain roughly nationally representative estimates. Additional methodological details, including the approach that was used to account for the complex sampling design, can be found elsewhere (Ritter et al., 2025; Padgett et al., 2025d). Within each country, we conducted a series of weighted linear, or weighted modified Poisson (for binary outcomes), multivariate regression analyses. Two models were used for each outcome and exposure, regressing the flourishing outcome on each exposure, first controlling only for the demographic and childhood variables, and second controlling also for principal components extracted from all contemporaneous Wave 1 variables other than the focal exposure. Principal components were used to reduce the dimensionality of predictors to mitigate multicollinearity (Galbraith & Zine-Walsh, 2020), while accommodating complex survey weights and missing data. The first seven principal components were used, and they accounted for an average of 51.2% of the variability in all covariates (Padgett et al., 2025d), with additional principal components each explaining at most 1-2% of variability. The individual indicators of SFI in Wave 1 were also considered as predictors of Wave 2 SFI. In such cases, associations would be expected to be stronger since the same variables are used as Wave 1 predictors and Wave 2 outcomes. Results are thus also presented from an additional post-hoc analysis using the SFI but omitting from the outcome average the domain of the focal predictor (e.g. omitting “Meaning and Purpose” from the Wave 2 SFI outcome average when “meaningful activities” is the Wave 1 predictor).

Meta-analysis: All analyses were conducted by country (results in Online Supplement) and random-effects meta-analyses were used to pool estimates across countries and to estimate heterogeneity (tau). For each outcome, a global p-value for an omnibus test of evidence of association in any country is reported (Wilson, 2019). All meta-analyses were conducted using the *metafor* package (Viechtbauer, 2010).

Sensitivity to unmeasured confounders: We report E-values for all associations to evaluate the sensitivity of results to potential unmeasured confounding. An E-value is the minimum strength of the association on the risk ratio scale that an unmeasured confounder would need to have with both the outcome and the predictor, above and beyond all measured covariates, to explain away an association (VanderWeele & Ding, 2017). A high E-value signifies that an unmeasured confounder would need to have a strong association with both the predictor and the outcome to explain away the observed association.

Approximate E-values can be obtained for continuous outcomes through scale conversions (VanderWeele & Ding, 2017).

Missing Data - Primary analysis – fully imputed data: The primary analyses utilize all participants from Wave 1, including those not reporting in Wave 2 by imputing missing data (Asendorpf et al., 2014). Multiple imputation (MI) by chained equations (Sterne, 2009; van Buuren, 2018) was used for exposures, covariates, and outcomes. Twenty imputed datasets were used. Using MI with all respondents aligns with Wave 1 analyses and will also be used in future Wave 3 analyses to maximize utilization of information on those who do not report in Wave 2 but report again in Wave 3, thereby aligning the analytic sample across years, facilitating comparison of results. The imputation model utilized sampling weights, demographic characteristics, and childhood variables for Wave 1 missing data; and for Wave 2 missing data, the imputation models additionally included all Wave 1 exposures. Imputation was conducted separately by country to account for variation in the assessment of certain variables across countries (e.g., race/ethnicity and income), thereby also reflecting country-specific contexts and assessment methods.

Supplemental analyses – semi-complete case with attrition weights: As a sensitivity analysis for possible misspecification of the imputation models (Seaman et al., 2012), analyses were conducted using only Wave 2 respondents (semi-complete case analysis), with attrition weights (Kessler et al., 1995) multiplied by the sampling weights. Attrition weights were estimated using logistic regression models for retention to calculate stabilized inverse probability of retention weights (Hernán & Robins, 2020). Attrition predictors included sampling weight, strata, mode of survey in Wave 1, age, gender, education, income, employment status, marital status, race/ethnicity, religious service attendance, urban/rural status of participants, personality, days of exercise, depression, loneliness, and the domains of the flourishing index (happiness, health, meaning, character, social relationships, financial security), covering a range of important predictors (VanderWeele et al., 2020; Damásio et al., 2015; Beller & Geyer, 2021).

The analyses from the individual coordinated series of outcome-wide papers summarized here were pre-registered with COS (https://osf.io/registries/gfs) prior to data access; all code to reproduce analyses are openly available in an online repository (Padgett et al., 2025e).

Declarations

Data Availability

Data for Waves 1 and 2 of the Global Flourishing Study is available through the Center for Open Science (https://doi.org/10.17605/OSF.IO/3JTZ8).

Competing Interests Statement

Tyler VanderWeele reports consulting fees from Gloo Inc., along with shared revenue received by Harvard University in its license agreement with Gloo according to the University IP policy.

Ethics approval and consent to participate

Ethical approval was granted by the institutional review boards at Baylor University (IRB Reference #: 1841317) and Gallup (IRB Reference #: 2021-11-02). Gallup is a multi-national corporation, and its IRB covers all countries included in the GFS. All participants provided informed consent. The research conformed to the principles of the Helsinki Declaration.

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Author Contributions

T.J.V. and B.R.J. conceived of and designed the study. T.J.V., B.R.J., P.T.B., R.B., M.B., T.B., B.C., Y.C., Z.J.C., V.C., R.G.C., P.A.d.l.R., C.F., A.F., C. Gibson, N.G., C. Gundersen, S.J.J., K.A.J., B.V.K., E.S.K., Y.-I.K., H.K.K., M.T.L., N.L.P., T.L., K.N.G.L., L. Macchia, C.A.M., L. Markham, J.S.N., N.N.-K., C.N.O., S.S.O., S.T.O., R.N.P., J.P., J.L.R.-D., Z.R., K.S., R.S., J.S., D.W.-B., R.W., R.D.W., J.W. and G.Y. contributed to the study conception and design. R.N.P. conducted the analyses. T.J.V. wrote the initial draft of the manuscript. All authors commented on the initial draft and read and approved the final manuscript.

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Tables

Table 1. Flourishing Measure and Questions

Domain	Question/Statement†
D1. Happiness	Q1. Overall, how satisfied are you with life as a whole these days?
D1. Happiness	Q2. In general, how happy or unhappy do you usually feel?
D2. Health	Q3. In general, how would you rate your physical health?
D2. Health	Q4. How would you rate your overall mental health?
D3. Meaning	Q5. Overall, to what extent do you feel the things you do in your life are worthwhile?
D3. Meaning	Q6. I understand my purpose in life
D4. Character	Q7. I always act to promote good in all circumstances, even in difficult and challenging situations
D4. Character	Q8. I am always able to give up some happiness now for greater happiness later
D5. Relationships	Q9. I am content with my friendships and relationships
D5 Relationships	Q10. My relationships are as satisfying as I would want them to be
D6. Financial Stability	Q11. How often do you worry about being able to meet normal monthly living expenses?
D6. Financial Stability	Q12. How often do you worry about safety, food, or housing?

† Each question or statement is evaluated 0-10[5]. Anchors are: Q1 (0=Not Satisfied at All, 10=Completely Satisfied); Q2 (0=Extreme Unhappy, 10=Extremely Happy); Q3 and Q4 (0=Poor, 10=Excellent); Q5 (0=Not

at All Worthwhile, 10=Completely Worthwhile); Q6, Q9, and Q10 (0=Strongly Disagree, 10=Strongly Agree); Q7 and Q8 (0=Not True of Me, 10=Completely True of Me); Q11 and Q12 (0 = Worry All of the Time, 10 = Do Not Ever Worry)

Table 3. Weighted means for the secure flourishing index (SFI, with financial and material security indicators) and the flourishing index (FI, without financial and material security indicators) in Waves 1 and 2 and changes in the Global Flourishing Study

	W1 SFI Mean (SD)	W2 SFI Mean (SD)	Change in SFI	W1 FI Mean (SD)	W2 FI Mean (SD)	Change in FI
Overall	7.1 (1.7)	7.0 (1.7)	-0.1	7.3 (1.7)	7.1 (1.7)	-0.2
Argentina	7.1 (1.5)	7.1 (1.4)	0.0	7.8 (1.5)	7.7 (1.4)	-0.1
Australia	6.9 (1.6)	6.9 (1.7)	0.0	7.0 (1.6)	6.9 (1.6)	-0.1
Brazil	7.0 (1.7)	6.9 (1.7)	-0.1	7.6 (1.7)	7.5 (1.7)	-0.1
China	7.1 (1.5)	7.2 (1.4)	0.1	7.2 (1.5)	7.2 (1.4)	0.0
Egypt	7.3 (1.5)	7.3 (1.5)	0.0	7.6 (1.5)	7.6 (1.5)	0.0
Germany	7.0 (1.4)	6.9 (1.4)	-0.1	7.1 (1.4)	7.0 (1.4)	-0.1
Hong Kong	7.1 (1.8)	6.4 (1.5)	-0.7	7.1 (1.8)	6.4 (1.5)	-0.7
India	6.9 (1.9)	6.6 (1.9)	-0.3	7.5 (2.0)	7.0 (2.0)	-0.5
Indonesia	8.1 (1.4)	7.9 (1.4)	-0.2	8.5 (1.3)	8.3 (1.4)	-0.2
Israel	7.9 (1.4)	7.9 (1.3)	0.0	8.0 (1.3)	8.0 (1.3)	0.0
Japan	5.9 (1.8)	5.7 (1.8)	-0.2	5.9 (1.8)	5.8 (1.8)	-0.1
Kenya	7.3 (1.6)	7.0 (1.7)	-0.3	7.8 (1.6)	7.4 (1.7)	-0.4
Mexico	7.6 (1.4)	7.6 (1.3)	0.0	8.2 (1.4)	8.1 (1.3)	-0.1
Nigeria	7.4 (1.4)	6.6 (1.4)	-0.8	7.8 (1.5)	7.1 (1.5)	-0.7
Philippines	7.7 (1.4)	7.6 (1.4)	-0.1	8.1 (1.4)	8.0 (1.4)	-0.1
Poland	7.6 (1.3)	7.7 (1.2)	0.1	7.7 (1.3)	7.8 (1.2)	0.1
South Africa	7.1 (1.5)	6.9 (1.6)	-0.2	7.4 (1.6)	7.3 (1.6)	-0.1
Spain	6.9 (1.4)	6.8 (1.4)	-0.1	7.3 (1.4)	7.2 (1.5)	-0.1
Sweden	7.1 (1.5)	7.1 (1.5)	0.0	7.0 (1.6)	7.1 (1.5)	0.1
Tanzania	7.2 (1.8)	7.1 (1.9)	-0.1	7.5 (1.8)	7.3 (1.9)	-0.2
Turkey	6.3 (2.0)	6.1 (2.0)	-0.2	6.6 (2.0)	6.4 (2.0)	-0.2
United Kingdom	6.8 (1.7)	6.7 (1.7)	-0.1	6.8 (1.7)	6.8 (1.7)	0.0
United States	7.2 (1.6)	7.1 (1.6)	-0.1	7.3 (1.6)	7.2 (1.6)	-0.1

Note. N=207,919; W1, Wave 1; W2, Wave 2; SFI, Secure Flourishing Index; FI, Flourishing Index. All reported means and standard deviations (SD) are calculated using complex sampling design adjustments.

Tables 2,4,5 and 6 are available in the Supplementary Files section.

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- GFSWave2OnlineSupplement.pdf
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